

**FACTORS THAT AFFECT ADHERENCE TO CORPORATE SOCIAL
RESPONSIBILITY GUIDELINES AND PRINCIPLES IN SOUTH AFRICAN
JUNIOR MINING COMPANIES**

By

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Declaration

I, **LETSHITSHI TOBY MALEEJANE** declare that this Doctoral thesis is hereby submitted to The University of South Africa in accordance with the degree of Doctor of Business Leadership. This thesis has not been previously submitted by me for a degree at this or any other University; it is my own working design and execution; and further that all the material contained herein has been duly acknowledged with clear references.

Signed at _____ On the _____ day of _____

DEDICATION AND ACKNOWLEDGEMENT

First and foremost, I wish to thank the Lord God, my Savior, for giving me the gift of life and for blessing my effort as a doctoral student at UNISA. Glory be to His holy name.

I wish to dedicate my thesis to my loving father, Mr. David Maleejane, for giving me love, guidance, encouragement and inspiration throughout my journey. He is indeed a good father. He has inspired me to show research interest in the mining industry by dedicating over thirty years of his life to the diamond mines of DeBeers in Botswana. I grew up in the mining camps of Orapa and Letlhakane in Botswana and developed interest in the mining industry.

I wish to thank the supervisor of my study, Professor Zeleke Worku, for providing me with all the guidance and support that I needed to do well in the course of my DBL study at UNISA.

I wish to thank the six junior South African mining companies that have so generously allowed me to gather data and conduct my doctoral studies in their mines. It was a significant undertaking for them to take part in both the quantitative and qualitative aspects of my research work. These six junior mining companies are Thabazimbi Iron Ore Mine, Assen Iron Ore Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources and Ingwenya Mineral Processing.

ABSTRACT

The study aimed to assess and evaluate the extent to which Corporate Social Responsibility (CSR) principles and guidelines are adhered to in 6 South African junior mining companies. A report issued by the South African Chamber of Mines (2017) for the annual year 2015/2016 recommends that CSR guidelines and principles are vital for ensuring sustained growth, development and profitability in emerging and junior mining companies. CSR principles enable companies to adhere to business ethics, good leadership and good corporate governance principles. The study aimed to use quantitative and qualitative methods of data collection and analysis in the study. As part of the quantitative aspect of study, data was collected from 439 employees of junior mines by using a pre-tested, validated and structured questionnaire of study. As part of the qualitative aspect of study, data was collected from 12 officials who are responsible for CSR related activities in the 6 junior mines by conducting individual in-depth interviews by using a tape recorder. Interviews were later transcribed, coded and tallied. Quantitative data analysis was performed by using methods such as confirmatory factor analysis, ordered logit regression analysis and structural equations modelling. Qualitative data analysis was performed by using thematic analysis and triangulation. The study found that 52% of respondents were satisfied with the extent to which junior mining companies adhered to CSR guidelines and principles in the course of conducting routine mining operations. Adherence to CSR guidelines and principles was significantly influenced by 3 predictor variables. These factors were the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds. Similar results were obtained from personal interviews.

Keywords: Junior mines, Corporate Social Responsibility, Structural Equations Modelling, Thematic analysis

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LIST OF ACRONYMS AND ABBREVIATIONS

AGFI: Adjusted Goodness of Fit Index

AIC: Akaike Information Criterion

BBBEE: Broad Based Economic Empowerment

BIC: Bayesian Information Criterion

CFA: Confirmatory Factor Analysis

CFI: Comparative Fit Index

CSR: Corporate Social Responsibility

CSB Corporate Social Business

CD: Coefficient of Determination

DMR: Department of Minerals

EFA: Exploratory Factor Analysis

MLE: Maximum Likelihood Estimators

NDP: National Development Plan

OIM: Observed Information Matrix

SEM: Structural Equations Modelling

SRMSEA: Standardized Root Mean Square Error of Approximation

RBCT: Richards Bay Coal Terminal

TFR: Transnet Freight Rail

TLI: Tucker Lewis Index

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CHAPTER ONE: INTRODUCTION AND THEORETICAL BACKGROUND

1.1 Introduction

The aim of study was to assess and evaluate the extent to which Corporate Social Responsibility (CSR) principles and guidelines are adhered to in 6 South African junior mining companies. These 6 junior mining companies are Thabazimbi Iron Ore Mine, Assen Iron Ore Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources and Ingwenya Mineral Processing. Letters of permission for data collection were obtained from each one of the 6 junior mining companies as part of the study. At a global level, the mission of junior mining companies is not to build mines but to advance properties from the exploration stage to an audited reserve stage. A junior mining company's responsibility is to raise the necessary funds to do the exploration and to prove up the mineral reserves by issuing a properly audited report. The audited reserve is then sold to a major mining company whose business is to build and run mines (Alden & Schoeman, 2013). In South Africa, the term "emerging mines" refers to small mining companies. Junior miners, in the South African context, are important role-players in the Broad Based Black Economic Empowerment (BBBEE) initiative in South Africa. Since April 1994, the South African Government has used various parliamentary acts and legislation for fostering sustained growth and viability in BBBEE mining companies (Alexander, 2013). Owen and Kemp (2015) have defined the difference between major and junior mining companies based on the size of mining operation and revenue generated from mining activities. Major mines participate in global markets with a core function of producing mineral commodities with annual revenues of over R80 billion. Junior miners are involved in contracting and exploration operations only in South Africa with annual revenues of between R30 million and R80 billion.

Due to their small-scale operations, junior miners tend to resemble small companies with organisational structures that are not compatible with traditional corporate governance principles. At the point of start-up, most small mining companies often have simple structures and procedures that are dominated by owner-managers who make all decisions. As a small mining entity keeps growing, it becomes difficult for a single entrepreneur to keep track of all activities. As a coping strategy, responsibility is delegated to others who are not founding members. Furthermore, as small mining companies keep growing, the need for more independent advice becomes apparent. As a coping strategy, non-executive directors are recruited. In general, as a small mining company evolves the corporate governance structures of the small mining company become complex (Kanjere, 2017). In the early stages of applying for mining rights and licenses, many companies make it their priority to emphasise the benefits that mining will bring about to local communities. Examples of such potential benefits are employment opportunities, growth in infrastructure, improved municipal services, and improved living standards. Several emerging mining companies have taken groups of villagers to visit mine sites to motivate ordinary community members. The objective of such visits to mining sites is to win the support of community members and their leaders in the course of application for licenses for mining ventures and operations (Li, 2014).

All junior mining companies find themselves operating in an environment that is ever changing faster than ever before and they must develop sustainable CSR strategies for their businesses to remain competitive. The business model of junior mining companies is heavily dependent on the ability of the company to sell the mining project to a larger development partner with the skills and experience to a major mining company. Baumann-Pauly, Wickert, Spence and Scherer (2013) have pointed out that smaller companies are in a better position to organize CSR strategies than large companies. They further propose that small companies possess

several organisational characteristics that are favorable for promoting the internal implementation of CSR strategies that are intertwined to the core business functions. However, government authorities have observed the lack of CSR strategy of junior miners as a barrier to implementation and this lack of CSR strategy often results in antagonized community relations with the potential to halt the mining activities (Davis & Frank, 2014). In 2019 the Mineral Council of South Africa has also summarized the most single challenges faced by junior mining membership in Figure 1.1.1 below:

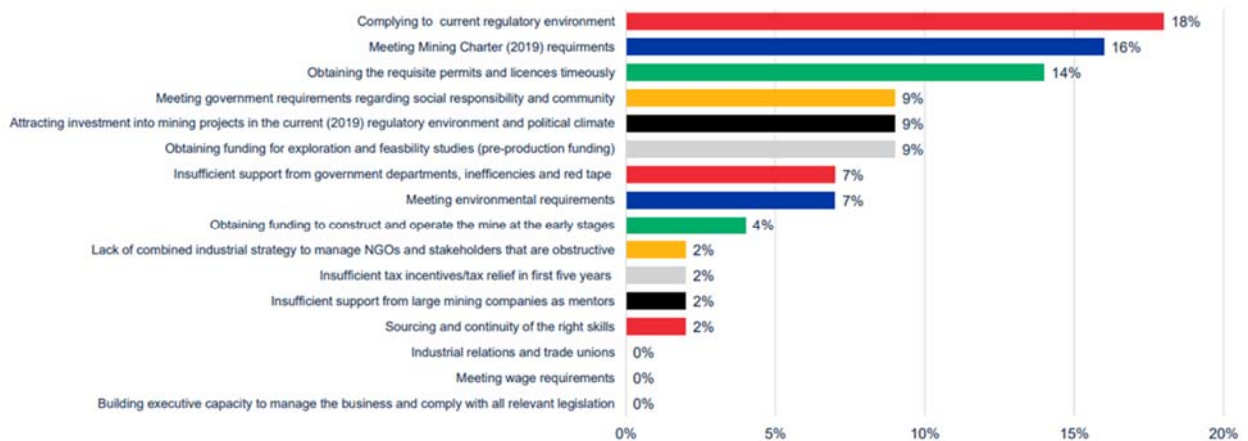


Figure 1.1.1: Major challenges faced by junior mining companies

Source: Minerals Council of South Africa (2019)

A study conducted by the Minerals Council of South Africa (2019) has indicated that complying with environmental regulations and the Mining Charter requirement is the biggest challenge facing junior mines. Figure 1.1.1 shows that failure to comply with regulations accounts for 18% of all challenges. The figure shows that failure to meet requirements stipulated in the mining charter accounts for 16% of all challenges. Moodie (2016: 841) has outlined the main causes of decline in production in South African mines is due to lack of trust

between employees and employers, failure to adopt CSR principles and guidelines in an open, verifiable, and transparent manner, the deep and dangerous nature of underground mines, lack of leadership, the drop in the global demand for mineral commodities and products, stiff competition from countries such as Australia, China, Brazil and Russia, and political interference. According to the Moodie, embracing corporate social responsibility is highly helpful for re-establishing mutual trust between employers and workers.

1.2 Background to study

A study conducted in the Rustenburg mining community in South Africa on CSR has found that CSR programmes have had little impact on addressing the causes of social problems in and around Rustenburg, and that the root causes of socioeconomic problems such as poverty and unemployment were related directly to the business practices of mining companies operating in the region (Mukwarami, Nyirenda & Fakoya, 2017). Studies conducted by Thomas (2014: 89-107) and Worku (2017: 119-127) have shown that most South African emerging and junior mines desperately need to be supported by the South African Government so that they can empower minority groups and indigenous host communities. The above authors have shown that it is vital to incorporate CSR policies into the vision and mission statements of junior mining companies.

The Department of Mineral Resources (DMR) in South Africa is a government authority whose function is to issue mineral exploration rights and licenses to mining entrepreneurs. Mining licenses are attached to operational, labor related BBBEE policies and environmental safety conditions. However, not enough emphasis is placed on CSR-related principles and best practice. The BBBEE policy is tailored to improve historically disadvantaged South Africans

in the areas of shareholding, management, employment equity, skills development and preferential procurement.

Within the BBBEE framework, the Mining Charter provides a relatively higher scorecard to junior and major mining companies that promote sustainable development and responsible environmental management. Mining companies who promote the local beneficiation of commodities and mining resources are highly supported in terms of mining policy (South African Chamber of Mines, 2017). A study conducted by Thomas (2014: 89) has found that the basic principles of CSR are often undermined by corporate greed, lack of leadership and corruption. The author has shown that inadequate governance of business practices and inability to implement CSR principles has undermined the ability of the BBBEE legislation to ensure sustainable growth and development in mining communities. The operational objectives of junior mining companies often promote adherence to BBBEE related transactions and fail to add value to the mining value chain in mining communities. Kanjere (2017: 321) has argued that increased competition in the global economy should not be allowed to have South African mining leaders distracted from their CSR related obligations. This is because CSR programmes that are vital for communities residing in the vicinity of junior mines are often overlooked when license applications are granted. The study aims to draw attention to CSR related obligations of mine owners and operators so that due consideration is given to the plight of communities living in and around mines. Such an objective is helpful for minimizing the current high level of dissatisfaction seen in mining communities (Tan-Mullins, 2014: 19-39).

The overall aim of this study is to assess and evaluate the extent to which Corporate Social Responsibility (CSR) principles and guidelines are adhered to in 6 South African junior mining

companies, and to develop a framework that could be used for ensuring sustained growth and development in junior mining companies by adhering to CSR principles and strategies.

1.3 Theoretical background

One of the most important drivers of CSR is the notion that there is a “business case” for social responsibility. The rationale for complying with CSR guidelines is that adherence to CSR guidelines and principles enables investors to undertake mining activities and operations by observing fundamental environmental and health-related principles in which no harm is caused to the livelihood of communities living in mining communities as well as the general environment in which mining activities are carried out. A review of the literature shows that measures that are good for the environment can also be good for financial performance (Muthiri, Moon & Idemudia, 2012: 355-381). Corporate social responsibility is defined as a business system that enables the production and distribution of wealth for the betterment of all stakeholders through the implementation and integration of ethical systems and sustainable management practices (Setyadi, Supriyono, Handayani&Raharjo, 2013: 82-95). The definition has multiple characteristics that are consistent with other definitions. The key “parts” of the definition include the production and distribution of wealth, stakeholder management, creating an ethical system and sustainable management practices. The purpose of the corporation is to produce and distribute wealth to stakeholders. Wealth is distributed by way of providing financial resources to stakeholders in the form of wages, the procurement of materials from suppliers, a return on capital and paying taxes (Rahman, 2011: 166-176). Corporate responsibility has been captioned under many names including strategic philanthropy, corporate citizenship and social responsibility (Rangan, Chase & Karim, 2012: 1-2).

The numerous potential benefits of good corporate governance principles for junior mines have been highlighted in the relevant literature. The most notable benefit of good corporate governance in junior mines is in ensuring sustainable development and growth without harming the general environment and lowering the quality of lives of communities in which junior mines operate (Hilson & McQuilken, 2014: 104-118). The concept of CSR started in the 1950's in the USA but became prevalent in the early 1970, from the 1980s to 2000; companies recognised and started accepting a responsibility towards society (Noe, Holleneck, Gerhardt & Wright, 2015: 49-51). Sustainable and responsible investing is strongly supported by public authorities such as government, general public, non-governmental organisations (Atkins & Maroun, 2015: 197-221). The South African Mineral and Petroleum Resource Development Act no. 28 of 2002 (South African National Government Communication and Information System, 2017) recognises that South Africa's natural resources belong to the nation and that proceeds generated from the resources need to be used for promoting sustainable economic and social development.

Wagiciengo and Belal (2012: 111-119) have pointed out that many companies have invested heavily in the social and environmental consequences of their activities, but they have not achieved the objectives of their CSR efforts. Prno and Slocombe (2012: 346-357) have reported that civil society representatives will always question the fundamentals for CSR as it sees it as nothing but public relations campaigns that seek to boost brand reputations. Ramasamy, Yeung and Laforet (2012: 17-25) have pointed out valuable examples from Chinese mines that are of immense importance to South African junior mines. These examples include CSR applications, the promotion of skills development and specialised education, the promotion of gender equality, promoting preventative health care, ensuring environmental sustainability, animal

welfare and protection of national heritage and culture. Arreguin, Alvarec and Jimenez (2014: 5-70) have identified factors driving companies to pursue a CSR agenda are fairly consistent across the corporate world. However, once a company makes the decision to adopt CSR orientated activities, a plan, involving a lot of engagement with employees, managers, suppliers, NGOs and others must be implemented to carry out the agreed CSR programmes (Besada & Martin, 2015: 263-282).

1.3.1 Overview of CSR in the mining context

The South African chamber of mines (2017) sees junior miners as a key component of the South African mining sector. Junior mines contribute significantly to overall economic growth. Junior mines provide livelihood and employment opportunities to millions of South Africans. Mining is a labor-intensive operation that is associated with occupational and safety related hazards. The general environment and local communities are often exposed to harm due to irresponsible business practice and corporate greed. In the past several decades, awareness about the potential benefit of corporate social responsibility (CSR) and good leadership have increased significantly. The increased awareness of environmental impacts, the socio-economic implications of mining and a downturn in productivity have highlighted the need for mining companies to adjust their business management processes (Arya & Bassi, 2011: 674-695). Environmental pollution arising from irresponsible mining activities as well as the socio-economic dislocation of families and indigenous peoples in mining areas have brought about a sense of urgency in promoting CSR values.

According to Baker, Newell and Phillips (2014: 791-818), CSR must include the environmental influence, corporations are expected to approach social issues by identifying the “impact of

their activities, just as environmentalists demand companies to produce the environmental impact assessments footprints of their activities. Bezuidenhout and Buhlungu (2011: 237-263) lament stakeholder-related risks in the mining sector have risen rapidly over the last two decades. Time and again, mining companies have experienced how poor CSR strategies have resulted in negative environmental impact that can generate significant negative social impacts as well, for example, on local community health and livelihoods. Local communities' reactions to these impacts can quickly escalate from complaints to protests and road blockades, raising the risks of the company or its security providers using heavy handed tactics that can lead to even more serious impacts, such as injury or even deaths.

Disregarding the need to comply with CSR guidelines adversely affects both mining companies and communities in which mining activities are carried out. Communities hosting mines are demanding complete transparency and accountability from mining companies in order to protect their natural habitat and the general environment from pollution, contamination and harm. It has become increasingly clear that mining companies need to be honest with their host communities. This has made it essential to promote awareness about CSR related measures taken by mining companies.

Failure to comply with CSR guidelines both mining communities and mining companies. Mining businesses in all parts of the world are often required to respect principles that are based on corporate social responsibility (CSR). This development has forced mining companies to place emphasis on environmental wellbeing in addition to placing emphasis on company profits. As such, mining companies have come to learn that they cannot achieve operational goals without adhering to environmental, sanitary, health-related and developmental issues that are experienced in mining communities. CSR guidelines enable the mining industry to place

priority on the physical and social environment first in order to create a sustainable business environment (Block & Owusu, 2012: 434-442).

CSR is a platform in which minority shareholders such as the mine surrounding community are protected by controlling shareholders. Companies that have implemented adequate CSR strategies have provided greater protection to minorities by ensuring advancement of their economic, political and cultural interests. A combination of factors that affect this social society illustrate that companies, government and community organisation provide important roles and community expectation that comes from people and institutions (Cameron & Drennan, 2017: 567-576). It is recommended for mining companies to commit on CSR at the early stages of mining, exploration and surveying to demonstrate the “people-first” notion since at early stages the physical destruction of the environment is minimal but the social impact very significant. Putting people first in a company strategy helps in obtaining operating permit from government as benefit of society welfare is anticipated first (Capps, 2012: 63-84). Chinzara (2011: 27-49) have stressed the need for mining companies to understand that once a relationship has broken down, it is very hard to re-create a sense of respect through belated relationship building efforts.

South African junior mining companies find themselves operating in an environment that is ever changing faster than ever before. The competitiveness of companies is directly tied with strategies that can be adopted or created by companies (Dougherty, 2011: 403-418). Junior miners need to identify external factors within their environment that could have impact on their operations and eventual on the company as a whole. The process of analyzing the implications of these changes and modifying the way the organisation reacts to them is known as a company strategy. Hough (2011: 28) defines a company strategy consists of the competitive moves and business approaches that managers are employing to grow the business,

attract and please customers, compete successfully, conduct operations, and achieve targeted levels of organisational performance. According to Marysse and Reyntjens (2015: 41-42), strategic positioning attempts to achieve sustainable competitive advantage by preserving what is distinctive about a company. It means performing different activities from rivals or performing similar activities in different ways. In assessment of an organisations strategy to being competitive and stimulating synergies, a PESTLE analysis tool (political, economic, social, technological, legal and environmental issues) is best suited to holistically show strengths and weaknesses of a company in a market it operates in.

Price Waterhouse Coopers (PWC, 2018) has declared that “An organisation’s survival and its success over the short, medium and long term requires consideration of ‘the triple context’ of the economy, society and the natural environment in which it operates.” Idemudia (2014: 421-435) has suggested that when a mining company is able to implement a successful cooperation (CSR investments) strategy between company mining activity, politics and culture of the country therefore each party will obtain maximum benefit and advantage by the support of the competitive power of the mining company in the market. This competitive power is highly required to obtain a company’s market share and consumer loyalty which more friendly to environment to obtain priority to become buyer’s choice. Honke and Thauer (2014: 697-716) have found that CSR practices are based on company policies, and that the key elements of CSR are economic, social, environment, and governance related. Their findings are similar to those recommended in the King IV Report about the merits of good corporate governance (Institute of Directors Southern Africa, 2016). Adherence to good corporate governance principles is vital for the successful implementation of CSR.

The best strategy to rollout CSR in junior mining companies is summarised as shown in Table 1.3.1 below:

Table 1.3.1: Strategies for rolling out CSR guidelines in junior mining companies

CSR Area	Key strategic priority
Economic	Miners should strive to be leaders in the industry by continuous improvement in the quality of product and effective product cost reduction programs as part of their core business and CSR strategy.
Environment	Miners should manifest their commitment to the protection of the environment by actively responding to environmental concerns at all times within a framework that balances economic and social considerations.
Social	Miners should consider the human resources as the most valuable asset in the organisation and maintain effective communication channels with employees and the community.
Governance	Miners should provide maximum and sustainable benefits to shareholders.

Source: Marais and Nel (2016)

1.3.2 THEORETICAL FRAMEWORK OF STUDY

CSR is a dynamic and constantly evolving concept with many names such as corporate social responsibility (CSR), socially responsible business (SRB), the sustainable corporation, double bottom line, triple bottom line, blended value proposition, etc. The triple bottom line refers to people, planet and profit as a balanced, sustainable approach (Jamali, Lund-Thomsen & Jeppesen, 2017: 11-22). There is no unique definition for CSR; rather different definitions during different segments of time represent different dimensions of CSR (Rahman, 2011: 166). Strategic CSR was best explored by Burke & Logsdon 1996 and put to concept five dimensions to CSR; centrality, specificity, proactivity, voluntarism, and visibility (Power, Newell, Baker, Bulkeley, Kirshner & Smith, 2016: 10-19).

1.3.3 The Dimensions of CSR

Rahman (2011: 162) has examined various CSR definitions used in the literature in the past several decades. The author has shown that the definition of CSR has evolved significantly since 1950. The dimensions used in the 1950s were basic in nature, and placed emphasis on minimal responsibilities to communities. In the 1960s and 1970s, the dimensions of obligation to communities were relatively more robust and placed emphasis on stakeholder involvement, the wellbeing of citizens, social interest, the ability to resolve community-based problems, enhancing the quality of life, promoting socioeconomic, legal, ethical and discretionary responsibilities among entrepreneurs. In the 1980s, the dimensions included voluntary work, philanthropy, poverty alleviation projects, abiding by labour related laws, and ethical and socially supportive economic activities. The study aims to assess the degree to which the 3 junior mines adhere to CSR principles and strategies. Complying with government labour laws falls short of embracing CSR principles.

The adoption of CSR principles means caring for the wellbeing of whole mining communities in the long term. CSR involves the willingness to promote community-based strategies that are vital for protecting the livelihood of people and the overall environment in which mining operations take place. In the 1990s, CSR showed further evolution and included principles such as stakeholder involvement, obligation to society, environmental stewardship, the wellbeing of ordinary people, the wellbeing of Planet Earth, and the need to minimize damage to the environment. In the 21st Century, CSR principles included a more robust and broader integrated concept of alleviating social and environmental concerns. The key aspect was the emphasis placed on improving the quality of life of all citizens, the promotion of human rights, the promotion of labor-related rights, the protection of the environment, the fight against corporate greed and corruption, and the promotion of transparency and accountability.

According to Rahman (2011: 173-174), CSR has 10 major dimensions. These are Obligation to the society, Stakeholder involvement, Improving the quality of life, Economic development, Ethical business practice, Law abiding, Voluntariness, Human rights, Protection of the environment, Transparency and accountability. The ten dimensions by Rahman have resulted into the perceptions, knowledge and evaluation of CSR definitions and their ten dimensions. All CSR definitions that have been in use since the 1960s have been based on one or more of the dimensions listed above. Edwards, Sloan, Weng, Dirks, Sayer and Laurance (2014: 302-311) have shown that CSR has evolved culturally since the 1960s. Lack of knowledge and evaluations of CSR by a company is a major barrier to the implementation thereof as a company will not know what CSR initiatives and programs to engage on. The study will objectively evaluate if indeed the junior mining companies of South Africa use the ten dimensions of CSR to formulate a CSR strategy.

Edwards, Sloan, Weng, Dirks, Sayer and Laurance (2014: 302-311) have shown that CSR strategies are particularly helpful for emerging and junior mining companies in developing nations such as South Africa. The authors have pointed out that CSR enables emerging and junior mining companies to learn and benefit from well-established mining companies with regards to technical skills, innovative methods of enhancing productivity, workplace training, internships and raising money needed for development from public and private sectors of the economy.

1.3.4 Effective CSR Implementation

For companies, the overall aim is to achieve a positive impact on society while maximizing the creation of shared value for the owners of the business, its employees, shareholders, and stakeholder (Hall, 2011: 193-214; Geethamani, 2011: 373; Cronje, Reyneke & Chenga, 2017: 1-8; Crowther & Sefi, 2010: 12-14). A company should undertake its CSR activities through a registered trust or society, or company established by its holding subsidiary (Daszynska-Zygadlo, Ryszawska, Stonski & Zawadziki, 2014: 45-50). CSR is tangible and should manifest as a CSR department in many companies, in “multi-stakeholder” initiatives involving non-governmental organisations (NGOs) and public-private partnerships linking business and government.

However, many junior mining companies in South Africa do not have CSR department and this is a key barrier to effective implementation of CSR strategies. Government, institutions, business schools and universities have created CSR departments (Ernst & Young, 2013: 3-4). To formulate, implement and monitor the CSR policy and objectives of a company, a CSR committee of the board needs to be constituted. The CSR committee must at least consist of

three directors, including an independent director. Cronje, Reyneke and Chenga (2017: 1-8) strongly recommend that companies should also appoint a role of a Corporate Responsibility Officer (CRO) and it should be the responsibility of the CSR office to elevate strategic CSR topics and priorities for discussion at the company's highest levels, and to ensure CSR is incorporated into the appropriate operating committee discussions at the business unit level.

The study will also seek to understand if junior mining companies have a senior official or director who main responsibility are CSR issues. In determining strategic CSR activities to be implemented, preference would need to be given to local areas and the areas around which company operates. The authors argue that CSR works when management trusts and engages employees and when owners accept a long-term view and management makes decisions holistically.

NGO watchdog groups are increasingly working closely with businesses to deal with ethical dilemmas and promote universal practices for organisations to follow (Cronje, Reyneke and Chenga (2017: 1-8). The practice of managing a business sustainably must be a core part of the CSR system. Scenario planning, financial management focused on the long-term, aligning with effective environmental strategies and driving innovation are necessary sustainable management practices. A corporation must execute these programs and build the strategies into a larger CSR strategy. Other sustainable business practices that should be leveraged by corporations include "greening" the supply chain and performing lifecycle assessments to improve processes and stakeholder relations; management principles such as organisational design, recruiting and retaining talent, and organisational learning improve corporate performance and ethical systems; and enforcing behavior through incentives and using technology to monitor and manage sustainability programs improves a corporation's financial management. CSR spend should be tracked and monitored on the report of the board of

directors, the final annual spend should be attached to the financial statements of the company. The CSR rules setting must have a brief outline of the CSR policy and the composition of the CSR committee (Cronje, Reyneke & Chenga, 2017: 1-8).

1.3.5 Benefits of a well implemented CSR strategy

Hall (2011: 193-214) has argued that a well-executed and people impacting CSR strategy creates a reputation that a firm is reliable and honest. They further emphasise that consumers typically assume that the products of a reliable and honest firm will be of a very high-quality stakeholder (e.g. investors, lenders, employees, consumers, non-governmental organisations, suppliers, society and government) benefit is a critical component for an effective CSR strategy. The decisions of the corporation generally have a direct impact on many of the stakeholders for that reason the corporation needs to recognize the importance of this constituency and consider their needs when executing sustainable business decisions that directly impact the stakeholder (Geethamani, 2011: 373). The author has pointed out that it is financially beneficial to engage in environmental and social activities as stakeholders (government, general public and employees) could withdraw support for the company when it does not show sincere commitment towards society and the environment in the form of a CSR strategy.

The accounting industry has positioned itself to sell assurance for non-financial reporting in the anticipation that companies will be obligated to provide such reports. There is a positive relationship between CSR and return on assets when employees are considered as human capital. Thomas (2014: 89-107) has pointed out that companies should analyze their social responsibility strategies using the same framework that models their business, then they will

discover that CSR can be much more than a cost, a “constraint” or a charitable deed but rather can be a competitive advantage. Rangan, Chase and Karim (2012: 3-4) have identified that the dominant paradigm in CSR is the idea of creating “shared value”, manifesting itself as a win-win proposition between company and the host society. Creating shared value appeals to all as it shows the company’s willingness to create private wealth, which in turn creates value for the society. Many labor unions regard the need to comply with CSR guidelines and principles as a desirable goal that is mutually beneficial to both mining companies and host communities in which mining activities are carried out.

1.3.6 Barriers to effective CSR Implementation

Despite the shared value appeal of CSR, the implementation of CSR in companies often has several challenges. Rangan, Chase and Karim (2012: 1-2) have revealed that tension between business goals and social and environmental goals cannot be wished away with the hope of co-creating private and public value. By its very nature substantive public value creation requires investing corporate resources for a payoff that is both distant and uncertain and this makes shared value very much a top-down concept. Only the CEO or the executive committee will have the authority to conceive and sanction such initiatives. Yet the reality is that most CSR functions in companies are staffed by managers who are ranks below the executive committee level to make any strong and direct inputs. Thomas (2014: 89-107) has pointed out the lack of universally agreed definition for CSR in misunderstandings and has created obstacles for its effective implementation. These differing definitions have resulted in many misunderstandings and have created obstacles in addressing the opportunities of CSR. The most controversial issues of CSR are the idea that is a voluntary activity of a company above

and beyond legal requirements. It is increasingly accepted that CSR is about voluntary activities. However, counter urging debates questions the adequacy of CSR, they suggest it should be a voluntary activity. Small companies who have consecutive years of not making significant profit are burdened by CSR obligations activities and as a result a strategic approach to CSR is now abandoned. Although stakeholder management is seen as a critical function for corporations to embrace in general, it is difficult for any organisation to perform, let alone one's seeking to employ it as part of their CSR strategies. A poor approach by most mining companies is to approach the CSR strategy as more than just giving donations and grants. The fundamental problem with CSR practice is that companies usually do not have a CSR strategy, but rather numerous desperate CSR programs and initiatives.

1.3.7 Why CSR Strategies and implementation often fail

Baumann-Pauly, Wickert, Spence and Scherer (2013: 693-705) have found that company size says little about the advancement of CSR but seems to trigger a specific implementation pattern of CSR, where smaller (junior) companies tend to be strong in implementing organisational CSR-related practices to the core business operation. While large multinational corporations tend to effectively communicate their commitments to CSR, they often lack sophisticated implementation programs. Many managers perceive CSR activities as additional bureaucracy and costly, only increasing operation costs required for continued profitability and sustainability. The relative costs of organising CSR vary significantly depending on firm size and may therefore critically impact how the implementation of CSR is approached. Management teams of junior mining companies and other small natural resources companies are usually smaller in structures and size as they usually are small-scale and do not register their CSR investments with the government authorities. This makes it difficult for the

government to regulate or govern their behavior. There are fewer NGOs working on the extractive industries or specifically focusing on transparency and accountability issues to hold companies accountable for their actions. The role of media in natural resource management is also limited. Other global mechanisms as non-binding agreements are highly dependent on the political will of government authorities and companies, as well as the increasing role of environmentally focused civil society movements to ensure compliance (Tan-Mullins, 2014: 26). In summary, CSR fails in cases when owners want to get rich quick. CSR fails when employees are treated poorly, and management thinks resources are unlimited. CSR is viewed as corporate philanthropy or, worse, as a public relations strategy.

Alden and Schoeman (2013: 111-129) have argued that as part of CSR approach, up to 92% of corporations in South Africa invests in education as a knowledgeable and skilled population will enhance workforce, consumers and quality of private sector service providers and thus produce long term results for business. In the mining sector, between 2009 and 2012 Anglo American Platinum invested in an education program to the tune of \$14 million in support of the schools and communities around its mining operations. The objective of the program was to increase pass rates in the critical subject, mathematics and science. However, what these educational programs fail to address is the professional business management skills such corporate governance, ethics and genuine social responsibility. Holistic approach educational intervention programs are lacking such as paying much needed attention in professional, tertiary education programs to early childhood development programs, where far more profound impacts can be achieved in the learning process.

Junior miners in South Africa (smaller production companies with revenue is between R30 million to R80 billion) have very serious challenges and this situation is exacerbated by the

fact that CSR is not strategically implemented. A growing number of companies in the world practices some form of CSR. Yet many of them do not have a strategic approach of the “shared value” conception of CSR. Rather they practice a nonstrategic version of CSR and end up performing some charitable deeds. As discussed, CSR should benefit companies, the key question is all about which CSR activities companies should engage to derive benefits for itself, communities, and the environment? Companies have been asked to do CSR activities by various forces, NGOs, government authorities and host communities. Managers of companies have the choice to choose from a broad range of CSR initiatives which the company can make part of their broader CSR strategy. In an increasingly competitive context when resources are valuable managers have to strategically undertake CSR activities. Investigating and finding out the barriers that hinder the successful implementation of CSR strategy will help South African junior miners to formulate effective CSR strategies within their host communities.

1.4 Problem statement

Many companies perceive CSR activities as additional bureaucracy and costly, only increasing operation costs required for continued profitability and sustainability (Besada & Martin, 2015: 263-282). A report published by Ernst and Young (2013) shows that most mining companies listed in Johannesburg Stock Exchange (JSE) do not focus on the key stakeholders in their mission statements. Many CSR strategies are misaligned to the core business strategy, and this hinders many opportunities for companies to benefit the society. Many authors argue further, when a mining company is not sensitive to stakeholders particularly the local community and does not expedite disbursement of CSR investments then surely rejection in the form of protests of the company's presence will occur resulting in the company's inability to perform its

mission, exploration and mining activities. Most mining companies in South Africa have generally failed to co-ordinate and align their actions with those of the government development policy frameworks such as the National Development Plan (NDP).

In the case of CSR educational intervention projects, most beneficiaries do not know the purpose of these projects. Implementation of projects at schools and the mine's host community had not necessarily been thought through and had been poorly implemented. South African junior mines continue to be underdeveloped, misunderstood and stuck with environmental and social problems. The key reasons that explain the sectors's under development include inadequate institutional framework on matters of a company's CSR stage evaluation and CSR strategic implementation. Gethamani (2011: 372) points out that a company's implementation of CSR goes beyond compliance and engages in "actions that appear to further some social good, beyond the interests of the firm and that which is required by law". Many junior mining companies of South Africa do not have a strategic approach towards the implementations of their CSR objectives but rather they practice unplanned charitable deeds. The study seeks to explore this problem of poor implementation CSR then fill the gap.

1.5 Gap in the relevant literature

A review of the literature shows that junior mines often fail to implement CSR principles and strategies due to lack of awareness, lack of capacity and lack of commitment. In cases where junior mines fail to implement CSR policies, an environment should be created so that they have tangible economic incentive arising from the implementation of CSR policies. When it is not possible to implement CSR policies, relationships with employees and members of the community become tense and antagonized. In such cases, it becomes essential to alleviate tensions and create an enabling working environment which is mutually conducive to employees and the mine owners. There is a lack of methods that are appropriate for identifying

and exploiting CSR-driven opportunities. A common trend has been also observed whereby these host communities residing near the mines are often overlooked when CSR programs are developed and these results in much dissatisfaction from communities, authorities and environmental agencies. The reoccurring pattern from companies to CSR is fragmented and disconnected (non-strategic) from company's core business strategy. No strategic approach is used at present to implement basic CSR principles in South African junior mines. Very few consultative engagements are conducted now between South African junior mines and communities in which mining operations are carried out. There is a need for research in this area. The study aims to fill this gap by collecting empirical data from employees and managers working in 6 South African junior mines. The study aims to construct a practical framework that is suitable for ensuring adequate compliance with basic CSR principles and guidelines.

Measuring and publicizing social performance is a powerful tool to potentially influence corporate behavior, but it can only be done under the assumption that a company's CSR evaluation stage ratings are consistently measured and accurately reflect corporate social impact (Daszynska-Zygadlo, *et al*, 2014: 47). The previous findings of various researchers discussed in the Literature Review section strongly argues the fact that the mining industry continues to face significant challenges of targeting effective social programs due to lack of CSR strategy. Another gap lies in the implementation of identified CSR programs; there is a wide gap between the legislative framework pertaining to sustainable mining and its implementation. This gap also needs to be closed if real progress is to be made on sustainable mining by South African junior mining companies (Lusinda, 2017:17-40). Baumann-Pauly, *et al*. (2013: 25) have pointed out that different organisational costs of external communication and integration of CSR practices in organisational structures lead to a reporting gap of CSR activities. To distinguish between how a company's CSR program is perceived and how it is

executed requires an assessment framework that is able to capture the actual implementation status of CSR, taking into account the specific and distinct characteristics of small and large firms. The study is also motivated by the acute shortage of published articles in areas that are related to CSR applications at South African junior mines.

1.6 Objectives of study

The study aims to assess and evaluate the extent to which CSR principles and guidelines are adhered to in 6 junior mining companies. The research proposes to construct a practical framework that could be used for enhancing the level of compliance of junior mining companies with CSR guidelines and principles. The study has the following specific objectives:

- To assess and evaluate the extent to which CSR principles and guidelines are adhered to in junior mining companies of South Africa; and
- To develop a framework that can predict adequate compliance with CSR guidelines and principles for the junior mining companies of South Africa.

1.7 Research question of study

The study also aims to provide adequate answers to the following key research question:

What are the key determinant factors to adherence of CSR guidelines and principles by junior mining companies of South Africa?

CHAPTER TWO: EXTENSIVE LITERATURE REVIEW

This chapter provides an extensive review of the literature on factors that affect compliance with corporate social responsibility (CSR) guidelines and principles in South African junior mining companies. Common causes of failure to comply with CSR guidelines and principles are lack of awareness, poor implementation of CSR guidelines and principles, conflicts of interest, lack of transparency, failure to prioritise CSR in the core business of companies, failure to allocate operational budget for the implementation of CSR related activities, failure to monitor and evaluate progress made in implementing CSR principles, and lack of consultation with host communities of CSR initiatives.

2.1. Aspects of Corporate Social Responsibility in the mining industry

Saenz (2019: 1351) has classified CSR in the mining industry into 4 main aspects. These 4 aspects of CSR cover all issues that are relevant to CSR and the protection and preservation of the general environment. These 4 aspects are the following:

1. Philanthropy
2. Conservation and preservation of the general environment
3. The promotion of diversity and good labor practice
4. Voluntary participation in community-based development initiatives

2.1.1 Philanthropy

Oliveira, Zanella and Camanho (2019: 498) have outlined the key aspects of philanthropy in the mining industry. Philanthropy refers to charitable duties and functions that are implemented

for the benefit of local communities living in and around mining communities. Such charitable duties are based on what local communities need desperately in order to have a decent life. All such acts are purely voluntary and those who provide assistance to local communities do not expect anything in return. A good example of philanthropy is the construction of a school for children who have no nearby school to go to. Another example of a charitable act is the construction of a primary health care clinic to people who do not have a nearby clinic. A simple example of philanthropy is voluntarily cleaning up municipal solid waste from the streets for free. Another example is the donation of canned food to people who need help. Another example is the donation of clothes and toys to children during Christmas and public holidays. Another good example is the donation of winter clothes and blankets to homeless people in cold seasons.

Yet another example is the construction of a shelter for homeless people who have nowhere to live in the community. Acts of philanthropy are carried out voluntarily by people who have the financial means to pay for them out of their own pocket. Acts of philanthropy are a result of empathy and genuine concern for the wellbeing and welfare of vulnerable members of the community by those who have the financial means to make a meaningful contribution to society. Philanthropy is a highly valuable act in all societies, in all sectors of the economy, and in all parts of the world. A few examples of the world's greatest philanthropists are Warren Buffett, Bill and Melinda Gates, George Soros, Michael Bloomberg, Sam Walton, Jim and Marilyn Simons, Chuck Feeney and Hansjoerg Wyss (Brogi&Lagasio, 2019: 576). The author has shown that the above philanthropists have made a huge positive difference in the lives and welfare of needy people in many parts of the world because of their willingness to meet the dire needs of vulnerable people. Carmon, Raghunathan, Schmidt, Duchi and Liang (2019: 1-

13) have provided various examples of positive differences that have been made by philanthropists who have the financial means to make valuable contributions.

Powell (2019: 195) has provided various examples in which public and private schools have benefited significantly from philanthropy. As a result of these acts of charity, the quality of education has been improved significantly without seeking help from the national government. According to the author, philanthropic duties are one of the most honorable and commendable acts in all societies and should be promoted in all parts of the world. The need for philanthropic acts is felt most in Sub-Saharan African countries where national governments lack the resources and means to meet the legitimate needs of poor and vulnerable people. Lipton and Steinhardt (2019: 45) have shown that philanthropic acts are a response to expectations of ordinary people living in local communities that those who have the capacity to do good will fill the gap in the legitimate needs of helpless people. For this reason, philanthropists are commonly referred to as good corporate citizens, humanitarians, or patriotic citizens. Philanthropy goes together with the basic principles and values of CSR in the sense that it promotes the need to protect and preserve vulnerable segments of society, natural habitat, ecosystems and the general environment.

Philanthropists have valuable roles to play in mining communities. Communities in which mineworkers live and work daily have various legitimate socioeconomic and developmental needs. There are needs related to basic safety, water, electricity, waste removal, environmental sanitation, access to clean water, access to basic health services and access to basic education. There are needs that require massive investment on the development of the road and building infrastructure. There are needs that require massive investment in protecting groundwater resources from pollution and contamination because of mining activities. CSR enables mine

owners to protect the general environment from harm while operating mines profitably. To achieve this goal, CSR guidelines and principles must be accommodated and promoted by all stakeholders such as mine owners, mine workers, members of the local community, indigenous groups, and traditional leaders.

Di Lorenzo and Scarlata (2019: 307) have shown that venture philanthropy is highly valuable for the alleviation of income inequality. The authors have shown that income-related shortfalls and gaps can be filled by acts of philanthropy. A clear example of this is a case whereby local mining communities lack infrastructural and financial resources for the construction of roads, water pipes and electrical networks, and such needs are met by philanthropic acts. Fowler and Mati (2019: 724) and Roth Tran (2019: 241) have shown that South African philanthropists have made a significant contribution to the construction and expansion of water pipelines, electrical networks, municipal roads buildings, hospitals, clinics and schools in various parts of South Africa for several decades. Dodgson and Gann (2020: 66), Wylie, Oppenheimer and Crossland (2020: 2), Breeze (2020: 4) and McKillop, French, Quinn, Sobiech and Wilson (2020: 3) have provided examples of various humanitarian, disaster relief and philanthropic activities that have been carried out by the Oppenheimer Family of South Africa. Kanamugire (2020: 308) and Nhamo, Dube and Chikodzi (2020: 322) have shown that the Oppenheimer Family has provided badly needed philanthropic and public donation during the South African COVID-19 crisis of 2020. The authors have pointed out that the Oppenheimer Family is well-known for its robust philanthropic activities and donations in South Africa in the past several decades.

Sarwal (2020: 160) has provided an example of philanthropist activities carried out by Indian journalists in Australia in 1927 and 1947. Tiba, Van Rijnsoever and Hekkert (2019: 265) have

shown that there is a significant relationship between responsible entrepreneurship and CSR in all sectors of the South African economy. Based on a systematic review of the literature over the past several decades, the authors have shown that philanthropic activities and CSR have made a huge difference in building up the infrastructure needed for sustained economic growth and development in all regions of South Africa.

Leborgne-Bonassie, Coletti and Sansone (2019: 349) have shown that philanthropic activities have promoted the protection and distribution of groundwater resources in South Africa. Herro and Obeng-Odoom (2019: 881) have shown that radical philanthropy has made a valuable socioeconomic and developmental contribution to the nation over the past several decades. James-Galloway (2019: 2) has highlighted the need for philanthropic activities in poorly developed and poorly resourced communities as a means of complimenting efforts made by local municipalities. The author has argued that dysfunctional and poorly resourced local municipalities need assistance from philanthropists in order to be able to provide satisfactory municipal services to their people. Zeleza (2019: 144) has called upon wealthy Africans who currently live-in wealthy countries such as Saudi Arabia, Kuwait, Dubai, USA, Europe, Scandinavia, Canada and Australia to play the role of a philanthropist by investing in basic infrastructural development. The call made by the author is an attempt to meet legitimate health, education and municipal needs of ordinary people. Sharma (2019: 712) has highlighted gaps in which philanthropist can make a valuable contribution to the people. The gaps pointed out by the author are related to areas of need that could not be met by national governments mostly due to lack of resources and expertise. The author has argued that filling such gaps in service delivery creates a win-win situation for both the philanthropist and needy communities.

Strang (2020: 76) has shown that CSR and philanthropy are equally needed in developing and poorly resourced nations of the world. The author has argued that philanthropy and CSR have a lot in common and are both vital in filling financial shortfalls in national budgets in the world's poorly developed nations. The author has provided various examples in which philanthropists have made a positive difference in the meeting the legitimate developmental needs and aspirations of the poor. Non-profit organisations and non-governmental organisations depend on philanthropist activities to reach out to needy people in many parts of the world.

2.1.2. Conservation and preservation of the general environment

Thomas and Famiglietti (2019: 2) have shown that groundwater resources in all parts of South Africa are being depleted at an alarming rate due to reckless socioeconomic activities, irresponsible mining, industrial and agricultural activities and disregard for water conservation regulations and guidelines. Bierkens and Wada (2019: 11) have shown that there is an urgent need to strictly regulate all industrial, mining and agricultural activities in order to preserve and conserve non-renewable groundwater reserves in order to ensure sustainable development and growth in South Africa. South Africa is a well-known water-scarce nation, and it must be able to utilise its available groundwater reserves with care and sensitivity. In this regard, the key issue is to promote CSR policies in all mining companies and industries operating in South Africa by using a combination of education and legislation. The authors have shown that CSR policies are quite helpful for preserving and conserving ground water resources in South Africa. In Nigeria, Senegal, and Uganda, the legal frameworks, explicitly, encourage partnerships with private operators, in providing WSS services, and outline how the partnership, should be governed, and the types of contracts, that can be entered into. Leketa, Abiye, Zondi and Butler

(2019: 32) have assessed groundwater reserves in aquifers of the Upper Crocodile River Basin in Johannesburg and have outlined CSR policies and guidelines that must be followed in order to ensure sustainable development. The authors have outlined the roles and responsibilities of all stakeholders in the water-consumption chain. Examples of key stakeholders are mine owners, employees of mines, host communities of mines, local municipalities and private sector service providers.

Turner, Hejazi, Yonkofski, Kim and Kyle (2019: 123) have constructed a predictive model for estimating future amounts of groundwater as a function of socioeconomic activities. The model shows that groundwater resources are being depleted rapidly due to irresponsible and unregulated economic, industrial, agricultural and mining activities. The authors have shown that the absence of clear legal and regulatory frameworks has exacerbated the depletion and abuse of groundwater resources in areas where there is mining, industrial and agricultural activities. The authors have suggested that an incentive should be provided to private companies to build capacity in the extraction of mineral deposits without harming the environment and groundwater resources. The suggestion requires the ability to use modern technological methods of mining such as the use of robots in deep mines.

De Graaf, Gleeson, Van Beek, Sutanudjaja and Bierkens (2019: 91) have shown that South African mines and industries must develop the capacity to lower the amount of harm caused to the environment and groundwater resources by using appropriate technology. The authors have shown that crude and obsolete technological methods should be replaced by new and appropriate technologies so that the amount of harm to the environment can be reduced in all mines. In this regard, public-private-partnership (PPP) can be used as a vehicle for promoting adherence to CSR principles and guidelines. Based on a study conducted in Iran, Mirzaei,

Saghafian, Mirchi and Madani (2019: 1835) have shown that PPP is vital for raising the manpower, skills and financial capital needed for using advanced technological methods for preserving groundwater resources in the mining sectors of all developing nations of the world. The authors have argued that national governments alone lack the financial capacity, technological expertise and managerial competence that is required for transforming crude technologies to appropriate applications that are based on CSR guidelines and principles. It follows that the private sector must be actively encouraged and supported to take part in the task of upgrading existing mining technologies.

Dillon, Stuyfzand, Grischek, Lluria, Pyne, Jain and Stefan (2019: 4) have conducted a study based on data collected over 60 years of progress achieved in managed aquifer recharge and have found that massive investment is needed from the private sector in the preservation and protection of groundwater reserves in water-scarce nations such as South Africa. The work done by the authors shows that CSR guidelines are essential for ensuring sustainable development in the mining sector. The need for modern technological methods of mining and extracting groundwater reserves has created opportunities for private sector companies to work with national governments and mines. Private sector companies can invest their money, skilled manpower and advanced technical capacity in existing mining infrastructure. Since private operators can play a valuable role in providing water services to people in areas where local municipalities do not have the capacity to do so, local municipalities must be willing to work with private companies in partnership and harmony. Local municipalities must not be reluctant to work in partnership with private sector service providers in areas where they lack the capacity to meet the demand for the services.

The comprehensive PPP framework needs to be actively supported by all local municipalities so that ratepayers can have decent municipal services such as water, sanitation, electricity and waste removal services. Ramesh (2014: 41), Purbo, Smith and Bianchi (2019: 194) have shown that PPP programmes have been successfully implemented in Indonesia and the Philippines for providing essential municipal services in areas where local municipalities lack the means to do so. Areas in which PPP programmes have made positive contribution include the provision of electricity, water and waste-removal services, toll-road services and the provision of primary health care services. In both countries, PPP programmes have enabled local municipalities to overcome massive difficulties by working with adequately skilled and resourced private sector companies.

Based on a study conducted in Southeast Asia, Booth (2019: 4) has shown that PPP programmes and CSR guidelines are compatible with each other. The authors have shown that CSR principles and PPP programmes are highly valuable for alleviating poverty, illiteracy, communicable diseases, lack of infrastructure, unemployment and lack of adequate municipal services. The authors have shown that in Indonesia and the Philippines, private sector companies are encouraged and supported to provide essential municipal services in the Philippines in partnership with local municipalities.

Manzano, Rivera and Villegas (2019: 43) have shown that PPP partnerships work best in cases where they are actively supported by adequately skilled, capable and experienced employees, good leadership, accountability and monitoring and evaluation programmes. This can be done easily by adopting CSR principles in all PPP programmes of action. The authors have shown that in the Philippines, municipal tariffs are set based on PPP contracts and are monitored by the regulator. The use of a regulatory framework that allows private companies to provide

essential services in partnership with local municipalities creates a win-win situation to both local municipalities and private companies. Banerjee, Hanna, Kreindler and Olken (2017: 156) have shown that PPP operations must be accompanied by CSR guidelines and principles in order to bear results. Hossain, Guest and Smith (2019) have provided an example of a PPP programme from Bangladesh in which PPP projects funded by the World Bank have been successfully completed by using CSR guidelines and principles. Debela (2019: 3) has provided a PPP example from Ethiopia in which PPP projects and CSR guidelines have been successfully used for completing road construction projects. In both examples, PPP projects had to be guided by CSR principles and guidelines to succeed.

2.1.3. The promotion of diversity and good labor practice

Duran (2019: 390) has shown that the task of ensuring adequate diversity in the workforce used for mining is a key aspect of CSR in the mining industry. According to the author, in the absence of diversity, employees and host communities feel disregarded, disrespected and ignored. In order to garner total support from host communities, mining companies must demonstrate diversity in their workforce. Diversity is a key requirement for promoting a sense of belonging and inclusion in vital socioeconomic activities. Ivezic, Kahn, Tyson, Abel, Acosta, Allsman and Angel (2019: 111) have shown that diversity is a reliable indicator of willingness to work with all members of host communities in mining operations. To ensure diversity, mine companies should include all members of the host community based on proportional representation. The inclusion of all members of the host community is vital for ensuring a mutual and common understanding and expectations about services to be provided by employees working in mining companies.

Ivezic, Khan, Tyson, Abel, Acosta, Allsman and Angel (2019: 111) have shown that good labour practice includes showing respect for the basic human and labour rights of employees, treating employees with respect and dignity, appreciating productive employees for their loyalty and hard work, willingness to take good advice and recommendations from employees, the provision of skills development training programmes to employees, the provision of awards and incentives to productive employees, mentoring, coaching, the creation of an enabling environment at the workplace, the use of innovative methods of production, commitment to the occupational health and safety of employees, and willingness to adhere to basic CSR principles and guidelines. The South African Labour Relations Act of 1996 (Act no. 42 of 1996) show the basic labour-related rights and obligations of South African mineworkers. The Act states that employers in all economic sectors are legally required to respect and obey the basic constitutional, labour-related and human rights of employees. The Act is aligned with basic CSR principles and guidelines. Both CSR and the Labour Relations Act place emphasis on the need to treat employees with genuine respect, dignity and empathy. This shows that compliance with basic CSR guidelines and principles amounts to complying with the South African Labour Relations Act of 1996 (Act no. 42 of 1996). Thambi (2019: 479) has argued that South African mining companies that invest on infrastructure that is helpful for enhancing productivity and the safety and occupational health of mineworkers should be provided with economic incentives and tax deductions as a means of promoting occupational health and safety in South African mines. The author has recommended that South African mines should be encouraged and supported to adhere to CSR principles and guidelines. The study has shown that it is necessary and prudent for all South African mine owners and operators to create an enabling working environment at the workplace for mineworkers so that they can enhance overall productivity and job satisfaction at the same time.

Moroe, Khoza-Shangase, Madahana and Nyandoro (2019: 672) have shown that CSR principles and guidelines are aligned with the South African Labour Relations Act of 1996 (Act no. 42 of 1996). The authors have shown the strategic benefit of promoting environmental conservation programmes in all mining communities in South Africa. The authors have pointed out that the private sector has a meaningful role to play in ensuring the conservation of natural resources and the overall wellbeing, health and occupational safety of mineworkers. According to the authors, CSR guidelines and principles are essential for ensuring sustainable growth and development. Based on a study conducted in Chile, Manky (2018: 582) has shown that CSR principles and guidelines are essential for ensuring the safety and occupational health of mineworkers who work in deep and dangerous mines. Alberti, Bessa, Hardy, Trappmann and Umney (2018: 447) have shown that ensuring the occupational health and safety of mineworkers requires mutual collaboration among mineworkers, trade unions, employers, researchers and members of the community. In most Sub-Saharan African countries, national governments lack the resources and expertise to acquire advanced technological methods of mining deep mines. Collaboration between national governments and mine owners enables the acquisition of appropriate technology and expertise in which mines can be made profitable. Due to poor maintenance and lack of funds and expertise for digging minerals out of deep mines, some mines are being prematurely abandoned. In these cases, CSR guidelines are helpful as they call upon all stakeholders to work together on no-profit operations and projects.

Coulson, Stewart and Saeed (2019: 22) have shown that CSR guidelines can be used as a guideline in order to enable South African mineworkers to refuse to work under dangerous and life-threatening situations. The authors have shown that dangerous mining activities often cause harm on scarce resources such as groundwater reserves. Ndehedehe (2019: 622) has shown that Africa's surface water resources comprise a total of 63 international rivers basins,

covering 64% of its land area, and containing 93% of total surface water resources. These river basins are also home to some 77% of the population. Surface water resources in Africa are predominantly transboundary with most situated in the central and southeastern regions, of the continent, reflecting the spatial pattern of rainfall.

Agutu, Awange, Ndehedehe, Kirimi and Kuhn (2019: 133467) have shown that groundwater resources in the Greater Horn of Africa are being harmed due to irresponsible industrial, agricultural and mining activities in which the basic labour-related rights of mineworkers are disregarded. The authors have shown that about 50% of Africa's total surface water resources are generated in the Congo basin alone. The most important river in Africa is the Nile which drains north-east African countries and empties up itself into Mediterranean Sea. The Congo drains much of Central Africa and empties itself into the Atlantic Ocean. The Niger is the principal river of Western Africa, and the continent's third-longest river, after the Nile, and the Congo, and empties into the Atlantic Ocean. Southern Africa is drained by the Zambezi River. Africa's largest lakes are Lake Victoria (the world's second-largest freshwater lake) and Lake Tanganyika (the second-deepest lake in the world). Some of the world's largest dams are found in Africa, such as the Aswan Dam of Egypt, the Volta, the Kariba and the Cahora Bassa.

Mettetal (2019: 18) have listed the numerous benefits of respecting the labour rights of mine workers. The authors have shown that surface water resources provide benefits such as hydropower generation, irrigation, inland fisheries, tourism, recreation and water supply for domestic, industrial, and mining operations. Africa is heavily reliant on groundwater resources, with an estimated 75% of the population being dependent on this resource for basic water supplies. Due to irresponsible mining activities, disregard for CSR guidelines, high population growth rates, climate change and lack of good leadership, Africans are experiencing food

insecurity, lack of access to fresh water, access to primary health care and access to formal education. Due to failure to adhere to CSR principles, climate change and irresponsible mining and industrial activities, natural resources are dwindling in all parts of Africa.

Zorrilla, Carmona, De la Hera, Varela-Ortega, Martinez-Santos, Bromley and Henriksen (2010: 2) have shown that irresponsible labour conditions in mines often result in harm to vulnerable natural habitats and ecosystems. Due to irresponsible human activities, climate change, global warming, lack of good leadership and uncontrolled population explosion, natural resources are being depleted and abused in all parts of Africa at an alarming rate. CSR principles and guidelines are vital for restoring natural resources and natural habitats in vulnerable communities in all parts of Africa. Southern Africa has been identified as a region that will become increasingly vulnerable to the impacts of climate change. Most parts of the African continent are expected to experience temperature increases of almost twice the global average rate of increase due to lack of respect for CSR principles and guidelines (Zerboni& Nicoll, 2019: 23).

Cobbing and Hiller (2019: 598) has shortage and depletion of groundwater resources are being experienced in most parts of Sub-Saharan Africa. The region is also experiencing global warming due to irresponsible mining, industrial and agricultural activities. Irresponsible mining, greenhouse gasses, global warming, the pollution of groundwater reserves and deforestation are the key threats in all Sub-Saharan African countries. Water recharged during an arid period leads to a higher concentration of salt in water. Saltwater intrusion harms coastal aquifers and leads to rising sea water levels due to high sea surface temperatures. Over pumping of groundwater, the practice of dumping toxic chemicals into river basins and extensive

irrigation often undermine the safety and quality of groundwater resources in Sub-Saharan African countries and China (Li, Qian & Wu, 2018: 338).

2.1.4. Voluntary participation in community-based development initiatives

Voluntary participation in community-based development initiatives is the fourth key element of CSR guidelines and principles. Voluntary participation entails no payment for valuable services, innovative and creative ideas and sacrifices made by participants. All participants taking part in community development activities do so at their own cost and risk. Sydavong, Goto, Kawata, Kaneko and Ichihashi (2019: 2) have shown that voluntary community-based primary health care services have made a significant contribution to the overall health status of people living in rural regions of Lao. Hoerger (2010) has shown that voluntary participation in community development programmes is a key indicator of good citizenship in any country. Voluntary participation requires good leadership, inspiration, motivation and self-commitment. Community-based development programmes require total commitment and total inclusion of all members of the community to succeed. Local community-based programmes must be rolled out by using local people who are well-known to members of the community. These people should be seen leading and taking the initiative for mobilising resources that are needed for the implementation of plans of action. Full participation is essential for a community-based development initiative to be successful. If some members of the community feel that they are left out, they can assume that their contribution is not appreciated or valued by the other members of the community. As a result, they may wrongly assume that the development activities that are planned are of no value to them. Thus, no members of the community should be alienated. It is the duty of the community leaders to involve and motivate all members of the community by going door-to-door or person-to-person.

Ravinet (2008: 354) has argued that voluntary participation needs to be monitored and evaluated at regular intervals. Commitment is a function of the degree of involvement in processes. If members feel alienated, they can be prompted to withdraw themselves from the process. A good community-based process is one in which all individuals, families and communities assume responsibility for their own welfare while identifying a suitable developmental agenda for implementation. All potential beneficiaries of community-based projects must be given an opportunity to take part in the process from the beginning to the end.

Issues related to unemployment, lack of access to health care services, lack of access to formal education, poverty alleviation and job creation require community-based development programmes (Nshakira-Rukundo, Mussa, Gerber & Von Braun, 2020: 3). Such programmes should be based on CSR guidelines in order to bear fruit. Duflo, Dupas, Ginn, Barasa, Baraza, Pouliquen and Sharma (2019: 3) have shown that it has been possible to contain the spread of HIV diseases among the youth by using community-based health services. The services entailed voluntary testing and counselling, the distribution of condoms, and the provision of basic health, personal hygiene and sanitation services. The underlying cause of the overwhelming success achieved in Uganda is that the programmes rolled out in rural communities were informed by the basic needs of ordinary members of the various communities. The programmes were also rolled out by trained members of the respective communities. As such, the programmes were totally successful and helped in curbing the spread of HIV among the rural population. Although employees of the World Health Organisation (WHO), the World Bank and the UNICEF have taken part in the community-based programmes rolled out in Uganda, the programmes were led and implemented by local members of the various rural communities in Uganda.

Zanin and Piercy (2019: 185) have shown that community-based development programmes require voluntary participation to mobilise adequate resources that are needed for the successful implementation of development initiatives. A number of studies have shown that climate change is disrupting our everyday lifestyle. Climate change has resulted in dwindling resources of water resources. Members of mining communities should be empowered and educated enough so that they can take part in community-based development programmes that are based on CSR principles. To promote adherence to CSR guidelines and principles in mining communities, it is necessary to promote awareness education about CSR principles among the youth by using community-based development programmes.

Fulhu, Mohamed and Krumdieck (2019: 129) have conducted a community-based development programme in remote communities of the Maldives. The authors have found that community-based programmes must be based on voluntary participation to succeed. South Africans must understand that it is necessary and essential to protect groundwater resources and vulnerable ecosystems in and around mining communities. Zhang and Zhao, L. (2019: 46) have conducted a community-based study involving monitoring and evaluation in proper waste collection and disposal. The authors were interested in assessing the degree to which community-based initiatives were helpful for promoting the recycling of household waste. The authors have found that community-based initiatives that were led by voluntary heads of households were highly successful in the recycling of household waste. The study has shown that it is possible to promote CSR principles in South African mines by using community-based development and poverty alleviation programmes.

Based on a study conducted in Tanzania, Kok, Abdella, Mwangi, Ntinginya, Rood, Gassner and Wheatley (2019: 4) have shown that the provision of incentives to local communities is

highly helpful for the successful implementation of community-based development and poverty alleviation programmes. Such programmes are suitable for promoting primary health care services. The role of local municipalities and national governments is to provide administrative, technical, skills-based, and financial assistance. To ensure economic stability in Sub-Saharan African countries, it is essential to win the buy in of local municipalities and national governments. Based on a study conducted in Lesotho, Shale and Rantso (2019: 4) have shown that community-based development programmes that are based on voluntary participation are highly successful in comparison with those that are based on forced or coerced arrangements. The authors have shown that community-based development programmes must be led by good leaders who respect and adhere to CSR guidelines, good leadership principles, transparency, accountability, fairness, and objectivity.

Based on a study conducted in Ghana, Andrews (2016: 11) has shown that corporate social responsibility (CSR) issues must be incorporated into plans of actions of all mining companies to achieve satisfactory results. The author has highlighted the need for open and transparent communication with all relevant stakeholders in mining communities. According to the author, community-based development programmes must be drawn up in consultation with community leaders who are influential and genuinely interested in development issues. Appropriate needs assessment surveys should be conducted in order to decide what type of development programmes should be given priority. After that is done, the next step is to mobilise resources that are required for implementation.

Wirth, Kulczycka, Hausner and Konski (2016: 54) have shown that consultation about developmental needs and the training of community workers should be provided in domestic settings in order to be successful. A needs assessment survey should be based on accurate

information on the basic needs of community members. Szczepankiewicz and Mucko (2016: 126) have highlighted the potential consequences of abject poverty, unemployment and communicable diseases in poor Sub-Saharan African communities. The authors have recommended the use of community-based poverty alleviation and empowerment programmes that are based on CSR principles. The recommendation made by the authors entails the task of mobilising resources that are needed for community-based development programmes from the private sector.

Most Sub-Saharan African rural communities live in abject poverty in abhorring conditions due to lack of good leadership, corruption, tribalism, harmful traditional values, political interference and illiteracy. CSR principles allow the active promotion of community-based development projects with minimal obstacles. For this reason, CSR principles should not be seen in isolation from community-based development initiatives in which the basic socioeconomic and health-related needs of rural communities are prioritised, funded and implemented.

Maes, Closser, Tesfaye, Gilbert and Abesha (2018: 258) have conducted a community-based study in order to assess the overall health condition of female soldiers employed by the national Army of Ethiopia and have found that Ethiopian female soldiers are relatively much more distressed in comparison with female soldiers in neighbouring countries such as Kenya, Egypt, Uganda, Tanzania and Sudan. Results obtained from community-based studies carry weight in view of the fact that they are based on the actual experience of people living in communities. Community based studies are vital to rural people because such studies highlight the developmental needs and priorities of rural people.

The provision of poverty alleviation, primary health care services and educational services is helpful for reducing the influx of rural migrants into crowded urban centres in search of better municipal services (Tilahun, Atnafu, Asrade, Minyihun & Alemu, 2018: 4). According to the authors, failure to provide clean, tapped water to the masses amounts to disrespect for the basic human rights of people. Dos Santos, Adams, Neville, Wada, De Sherbinin, Bernhardt and Adamo (2017: 497-508) have argued that the failure of governments in Sub-Saharan Africa to provide good services to rural people has led to urban growth and water crisis in major African urban centres. According to the authors, the provision of satisfactory municipal, water, health, economic and educational services to rural people is a reliable method of alleviating the severe shortage of water in urban centres.

Gebrehiwot, Elbakidze and Lidestav (2018: 198) have shown that the provision of reliable community-based services to rural mining communities is a key indicator of the ability of national governments to alleviate poverty among the masses. African nations need to be able to attract foreign direct investment in order to be able to grow their national economies at a rate of 10% or higher. Anthonj, Fleming, Godfrey, Ambelu, Bevan, Cronk and Bartram (2018: 2112) have shown that CSR principles are highly appropriate and helpful for alleviating the basic needs of rural mining communities in areas such as access to basic water, electricity and sanitation services, and for the alleviation of unemployment and poverty among rural people.

2.2 Benefits of CSR principles for South African junior mines

Hielscher and Husted (2019:2) have listed down requirements for the successful implementation of CSR guidelines and principles in junior mines with a view to protect basic indigenous rights. The authors have shown that adherence to CSR principles is highly valuable for protecting the basic rights of indigenous people living in and around junior mines.

According to the authors, adherence to CSR principles enables junior mines to conduct operation without harming the basic rights of indigenous people and communities. Endl, Tost, Hitch, Moser and Feiel (2019: 2) has provided steps to be followed in which CSR guidelines are used for protecting culturally important traditional values of rural communities in which mining operations are carried out. According to the author, CSR is highly valuable for promoting sustainable development in rural mining communities.

Guenther, Hoppe and Poser (2007: 2) have shown the need for business firms in the oil and gas industry as well as mining companies to follow and implement CSR policies that are valuable for protecting the general environment from pollution by toxic chemicals, environmental degradation, water pollution, degradation, depletion of natural resources, the abuse of women and children, and disrespect for traditional indigenous rights and values. The CSR policies mentioned by the author are relevant to the oil and gas industry as well as junior mining companies. The relationship between CSR and the protection of basic indigenous rights has been highlighted by various authors. Based on a study conducted in Canada, Long (2019: 2) has highlighted the need for the mining industry to respect the traditional values and culture of indigenous people in Canada. The author has called for reconciliation with indigenous peoples in Canada according to the basic principles of CSR in which communities need to be rehabilitated and compensated for mistakes and harm done to them in the past by members of the industry. The proposal includes restitution and a commitment not to repeat past mistakes. It follows that CSR guidelines are related to Canadian legislation on basic human rights.

Based on a study conducted in Zambia, Choongo, Paas, Masurel, Van Burg and Lungu (2019: 2) have argued that entrepreneurial and personal values are significantly associated with the

degree to which mining companies respect CSR guidelines. CSR values are quite helpful for promoting primary health care services, personal hygiene, health education, sanitation and formal education in mining communities. The guidelines recommended by the authors are helpful for promoting personal safety and occupational health in junior mines, and the protection of the environment. They are also helpful for promoting community-based initiatives for fostering development, the alleviation of poverty, unemployment, illiteracy and communicable diseases, and the need to work with all stakeholders by following good leadership and good governance principles. Tuokuu, Idemudia, Gruber and Kayira (2019: 922) have argued that protecting the environment is the basis of a successful implementation of CSR policies in junior mines.

Protecting the environment entails protecting the agricultural sector from harm. This, in turn, means protecting water and animals from polluted or contaminated water. Irresponsible mining operations and excessive use of fertilisers often lead to high levels of nitrate concentration in recharge water. Groundwater supplies almost half of the world's drinking water and plays a key role in food production, accounting for over 40 per cent of global consumption of water for agricultural irrigation. Polluted water often affects agricultural and dairy products severely due to high nitrate levels. As such, there is a need to prevent the production of high nitrate levels in the course of mining and agricultural production. Agricultural activities should be carefully monitored and evaluated to minimise pollution of groundwater resources.

Tuokuu, Idemudia, Gruber and Kayira (2019: 922) have proposed CSR policies that are highly valuable for clarifying environmental policy that is suitable for the entire mining industry. Residual soil nitrate levels need to be checked regularly in order to ensure the safety of

groundwater. Groundwater systems tend to respond more slowly to changes in land management between nitrogen application and impacts to groundwater. Timing is important to evaluate success with groundwater quality. The legacy effects from over-application of nitrogen may take years to fully impact groundwater. Therefore, these experts state that it is important to make positive changes in areas where groundwater has been impacted.

Fordham and Robinson (2019: 1409) have identified key elements of corporate social values that are essential for fostering CSR guidelines in mining companies. These elements include willingness and commitment to accept corporate social responsibility towards rural communities, the commitment for promoting sustainable development, commitment towards alleviating poverty, commitment towards paying tax money, and commitment to fund community development programmes. Based on a study conducted in the Niger Delta region of Nigeria, Uduji, Okolo-Obasi and Asongu (2019: 725) have argued that CSR contributes significantly to the development of rural young people in the field of cultural tourism in all Sub-Saharan African countries including South Africa. The authors have shown that there is a significant association between good governance and CSR. Definitions of CSR values may vary depending on industry, but the basic principles are the same. CSR principles entail commitment to promote sustainable development, inclusive growth and harmony among members of the community in which mining operations are conducted.

Raymond, Kenter, Van Riper, Rawluk and Kendal (2019: 1173) have shown that CSR principles and guidelines must be actively promoted in all sectors of the economy including mining. In an editorial statement, the authors have argued that CSR is essential for ensuring sustainable and mutually inclusive growth in all sectors of the national economy. The authors

have called for the promotion of CSR principles so that members of the industry and entrepreneurs adhere to CSR guidelines sufficiently. The authors have also shown that the ability to foster and implement CSR principles requires good leadership, accountability, objectivity, transparency, respect for basic human and labour rights of workers as well willingness to respect for the rule of law. Haalboom (2012: 969) has argued that the basic indigenous rights of rural mining communities must be protected adequately by implementing CSR guidelines in all mining companies operating in South Africa.

Aggarwal and Singh (2019: 2) have pointed out that the successful promotion of CSR principles in large mining companies requires good reporting and transparency to members of the Press and the public. Zafar and Sulaiman (2019: 2) have shown that CSR principles are based on empathy and respect for other members of society, and that mining companies and huge businesses should not be allowed to exploit vulnerable members of society. According to the authors, CSR principles are aligned with responsible business practice, honesty, personal integrity and fairness to vulnerable segments of society. Good governance and good leadership principles are similar with CSR policies. The conceptualisation of good governance and good leadership entail accountability, objectivity, transparency, and fairness. It is essential for national governments and local municipalities to promote good governance and leadership on all issues affecting natural resources. Local and global best examples must be used by elected officials in the course of planning for water. Since water requires specialised expertise and massive resources, the private sector must be considered and actively encouraged in all efforts that are made to ensure satisfactory water service delivery to the people.

Ozkazanc-Pan (2019: 851) has shown that there is a need to enforce legislation that is designed for protecting natural resources, groundwater, natural habitat, vulnerable ecosystems and the general environment in which mining companies operate. The author has argued that water and environmental resources are being abused due to failure to enforce legislation and municipal bylaws. The report shows that the reluctance of water-users to abide by the Law has made it necessary for national governments to utilise legislative tools for protecting sources of water. Groundwater sources are being threatened due to increasing agricultural, industrial and commercial use of water sources. Rates of abstraction have exceeded natural replenishment rates over extended periods in many parts of the world due to irresponsible mining and farming activities. In many areas, groundwater is the water resource mostly relied upon on a daily basis as surface water resources have become depleted or contaminated.

Aju and Beddewela (2020: 763) have shown that CSR principles are vital for addressing the serious concern over diminishing natural resources in all parts of the world due to uncontrolled industrial and mining activities. There are serious shortcomings in the decision-making systems, on which we rely in government, business, and society more broadly. Building more effective governance and institutions, is central to achieving more sustainable patterns, of development globally, nationally, and locally. Yet the central importance of governance issues is often neglected. This is partly due to the differing definitions, used of governance, and the intangibility of these norms and structures. An analysis of governance needs to ask: How, where and by whom are decisions made? Who gets to write the rules by which decisions are made? What gets decided and who gets what? How are people able to monitor how decisions are made? Governance is more than just a question, of the institutional architecture, and how different elements, relate to each other. For each of these elements, there are issues of

credibility, legitimacy, concerning the processes by which rules are made and re-made, interpreted and re-interpreted.

The rules and institutions responsible for decision-making are influenced by vested interests. As such, there are times when decision-makers are influenced unduly by people or groups who stand to lose out of the implementation of a vital water programme. Lack of good governance and disrespect for the rule of law often results in the abuse, failure and cancellation of vital water projects that are essential for utilising water optimally. Ma and Bu (2020: 2) has pointed out examples in which valuable mining operations have failed due to lack of respect for CSR principles, lack of good leadership and disregard for the basic rights of indigenous people living in and around mines. Lobbyists spend a large amount of time and money influencing elected representatives on key strategic issues. Governance must also be seen in a dynamic fashion, involving an ongoing process of negotiation between different interests, played out in a series of arenas and institutions, nationally and globally. The legitimacy of technical evidence, marshaled within such negotiations, is critical and often contested, as has been evident in the climate change talks.

The key tenets of CSR are good leadership, good corporate governance, accountability, honesty, transparency, personal integrity, discipline, fairness to members of the community who need to be given access to clean water, accountability, objectivity, transparency and good skills of listening to the people (Jamali, El Dirani& Harwood, 2015: 125). Good leaders take the time to work on valuable comments and suggestions from members of the community. Good leaders are not corrupt. Good leaders believe in and value merits that are necessary for the successful implementation of mining projects. Due to irresponsible mining activities,

groundwater resources are dwindling in almost all developing nations of the world at an alarming rate (Jongwe, Moroz, Gordon & Anderson, 2020: 31). The authors have argued that respecting the basic rights of indigenous people and respecting CSR principles are quite helpful for alleviating and mitigating this problem. It has now become necessary to enforce CSR principles in all mines and industry in order to protect the rights of indigenous people. It is also equally important to promote awareness about the benefits of CSR values and appellations. Mining companies should be encouraged and motivated to work with local municipalities to promote awareness about CSR values and guidelines.

Boiral, Heras-Saizarbitoria and Brotherton (2020: 1020) have shown that the governance and administration of scarce resources such as water in draught-stricken local municipalities must be given priority over the mining rights of mining companies. The authors have argued that unless mining companies agree to adhere to CSR principles fully, scarce resources such as water will disappear much faster than the rate at which they are dwindling. CSR guidelines must be promoted aggressively in all mining companies in order to preserve and protect natural habitat and dwindling natural resources. Speedy legal actions should be taken against mining companies that do not comply with CSR guidelines. Doing so is essential in order to protect the rights of indigenous people and the poor. Drastic measures must be taken in order to discourage corrupt practice by elected officials. Agudelo, Johannsdottir and Davidsdottir (2020: 2) have suggested that mining companies, the private sector, human-rights groups, civil society and non-governmental organisations must be encouraged and supported to take part in the planning and implementation of CSR principles and guidelines.

Based on a study conducted in Brazil, Pureza and Lee (2020: 1410) have pointed out that the provision of clean water to the people is often undermined due to lack of adherence to CSR principles and guidelines in large mining companies. The other problems highlighted by the authors are lack of respect for good leadership, lack of accountability, lack of respect for the rights of indigenous people, the abuse of authority, and lack of respect for the rule of law and basic human rights. The authors have shown that irresponsible mining and industrial activities are the key reasons for the acute shortage of clean water in developing nations of the world including Sub-Saharan Africa. According to the authors, the promotion of CSR in rural and indigenous communities is a key responsibility of national governments and local municipalities.

The provision of primary health care to the masses often fails due to lack of clean water in poor African communities. O'Brien, Ouschan, Jarvis and Soutar (2020: 12) have shown that the key obstacles to satisfactory service delivery to indigenous people are lack of respect for CSR guidelines, lack of specialised skills, inability to manage and implement municipal projects successfully, influx of rural migrants into city centres, population explosion, land degradation, abject poverty, lack of knowledge, lack of good leadership, lack of respect for human rights, inability to enforce the law, maladministration by elected officials, lack of accountability, political interference and rampant corruption as key barriers to the successful completion of water projects at community level.

The task of transforming old governance systems into vibrant and helpful government systems requires the promotion and adoption of CSR principles. CSR principles accommodate a far broader range of interests of the poor and indigenous people. They also provide for the basic

needs of the young and the old. In fact, CSR principles accommodate the needs of all segments of society. CSR principles ensure fairness, equity, respect for basic human dignity, and respect for the rule of law. They are based on objectivity. Subsidiarity and control at the lowest possible level should be a central principle for sustainable development and good governance in order for decisions to be fair and objective. Resources must be allocated to deserving parties based on the rule of law. Transparency and accountability are both needed in order to ensure fairness to all. Shifting power down to lower levels is vital in order to bring in local knowledge, increase accessibility to decision-making, and get a broader range of voices into the debate. Innovations are needed to ensure that the marginalised have a voice that counts through coalition building, organisation and mobilization (O'Brien, Ouschan, Jarvis & Soutar, 2020: 17).

At national level, accountability and transparency are needed in order to hold those in power to account. Change management and good leadership are essential components of fairness to the people. Parliamentary and press oversight are key requirements for fairness. Whistleblowers must be protected from corrupt leaders. Ruokonen and Temmes (2019: 466) have shown the need for the adoption of CSR principles in all sectors of the economy. According to the authors, the pace of adoption of CSR principles, and the degree of respecting good leadership and good corporate governance principles in mining companies is less than satisfactory at the moment. The accountability challenge is compounded by corruption, political interference, alliances cemented between government officials and powerful entrepreneurs. The international nature of much of the corporate sector involved in natural resource use means that even the governments of the countries in which they are headquartered have limited ability to influence their actions and decisions.

Globally, we urgently need better means to agree and implement measures and to achieve our collective goals. Given the large numbers of states, and their separate jurisdictions, more effective, and far-reaching international institutions, and rules are necessary, yet nation states, are unwilling to submit to collective agreements, which constrain their freedom of maneuver. Equally, greater control over international, financial and corporate actors is needed, to reduce their ability to escape, fiscal and other responsibilities, through freedom of movement, between different jurisdictions. Global efforts to address climate change, have resulted in a complex international governance architecture, which has largely replicated geopolitical and global economic power relations, among nations. There has been little room in these evolving governance arrangements, for the priorities of weaker countries, and marginalized people, to be heard and addressed. Growing reliance on the G20, as a forum, for sorting out global problems, runs the risk of disempowering, the large number of smaller, less economically prominent nations.

Development economists and policymakers often recommend the adoption of CSR principles in large mining companies. However, the pace of adoption of CSR guidelines and principles is low. Fordham and Robinson (2019: 1409) have pointed out that the adoption of CSR guidelines and principles in mining companies and industries is taking place at a low pace at the moment, especially in developing nations. According to the authors, more needs to be done to promote social values that drive corporate social responsibility and sustainability in mining companies and large industries at a faster pace of transformation. This need is urgent in developing nations such as South Africa. CSR principles are vital for addressing sustainability and for alleviating poverty among the masses. Yet, market conditions influence the rate of economic growth, job creation and the alleviation of poverty among the masses.

Medina-Munoz and Medina-Munoz (2020: 3) have pointed out that CSR is highly valuable for poverty alleviation in developing nations such as South Africa in which the rate of unemployment is quite high. The authors have shown that CSR enables private sector companies to share the burden of alleviating poverty among the masses along with national and local governments. In this situation, the role of national and local governments should be to create economically enabling working environment for private sector companies. Based on a survey conducted in 17 Sub-Saharan African countries, You, Dal Bianco and Amankwah-Amoah (2020: 157) have argued that national economies must be able to grow at a rate of 10% or more annually in order for developing nations such as South Africa to create enough jobs for the unemployed youth. Mather and Fanning (2019: 275) have shown that the promotion of CSR principles in private sector companies reduces the burden of creating jobs for all unemployed people in developing nations. According to the authors, the promotion of CSR guidelines in private sector companies means the creation of sustainable development opportunities by the private sector.

You, Dal Bianco and Amankwah-Amoah (2020: 158) have shown that economic stability is essential for ensuring sustainable development and growth. The authors have shown that lack of economic sustainability is a key cause of failure and poverty in most Sub-Saharan African nations. According to the authors, the rate of population growth and the need for employment opportunities cannot be matched unless the economy grows at 10% or above annually over a period of 20 years or longer. Yet market governance, also offers major challenges. Markets and business, have the potential, to generate new and decent jobs, and use natural assets, more sustainably. But market signals, and incentives must be set in ways that mobilize businesses, and others, to support sustainable growth, to create the missing markets for environmental goods, and services, and to ensure, more equitable participation. They also need government

to assure the institutional and regulatory infrastructure that allows markets to operate effectively, such as support to property rights. Another worry concerns the lack of accountability, of market chains, and transnational operations, which can evade national laws and regulatory frameworks. A third relates to finding the incentives, for environmentally sustainable practices, that pertain to the mainstream, as opposed to non-sustainable businesses.

Amor-Esteban, Galindo-Villardón, García-Sánchez and David (2019: 127) have constructed an index for assessing the degree to which industries and large corporations adhere to CSR guidelines. Adherence to CSR guidelines depends on the availability of good leadership and accountability. Good governance policy fails because decisions are often made in sectoral compartments in which there are various competing and conflicting interests. From the point of view of national governments, prioritisation must be made at all times. Not all requests can be accommodated by national governments.

Based on a study conducted in Romania, Dura, Driga and Paun (2019: 435) have argued that CSR progress reports must be assessed on a regular basis by local municipalities and national governments in order to identify obstacles to compliance. Cross-ministerial buy-in is essential. Poverty alleviation projects that are based on sustainable development and CSR principles should be funded and supported by local municipalities and national governments. Failure to do so leads to loss of confidence and commitment from private sector companies such as mines. Leadership means the allocation of resources that are needed for implementation. This is the principal duty and obligation of national governments and local municipalities. Bai and Tu (2019: 11) have argued that national governments must allocate funds that are needed for CSR-related awareness campaigns. These funds are essential for monitoring and evaluating the

degree of success achieved by various arms of government in terms of ensuring compliance with CSR guidelines and policies.

Wagner (2019: 1417) has highlighted the need to monitor and evaluate the degree to which CSR principles are implemented in mining companies. This need is critical in deep South African mines to mitigate and alleviate the prevalence and incidence of death and injury in mineworkers. The author has argued that the degree of compliance with CSR guidelines and regulations at the various mines should be monitored and evaluated by a dedicated branch of government on a regular basis. Records must be studied, assessed, evaluated and stored properly. Mineworkers working at the various mines must be informed of the results of assessments made by assessors. Compliance assessors must be adequately trained and equipped to be successful. All employees working on CSR related issues must be properly trained and skilled in order to pick up deviations from recommended guidelines and procedures. They should also be allowed to attend Departmental meetings and briefings that are held at the various mines.

Hermanus, Coulson and Pillay (2015: 717) have pointed out that regular inspections and independent assessments are essential to protect the lives and health of mineworkers working in South African mines. The authors have suggested a framework in which both mine owners and mineworkers share valuable information on a regular basis in order to minimise casualties in mines. According to the authors, adherence to CSR guidelines is critically important to promote self-confidence and mutual understanding between mineworkers and mine owners. The authors have proposed an employer-led initiative that is based on CSR guidelines with a view to improve health and safety in South African Mines.

Moodie (2016: 841) has outlined the main causes of decline in the output of platinum in South African mines. The leading causes are lack of trust between employees and employers, failure to adopt CSR principles and guidelines in an open, verifiable and transparent manner, the deep and dangerous nature of platinum mines, lack of leadership, the drop in the global demand for platinum products, stiff competition from countries such as Australia, China, Brazil and Russia, and political interference. According to the author, embracing corporate social responsibility is highly helpful for re-establishing mutual trust between employers and workers. Mutual understanding is made possible through embracing CSR principles and guidelines.

Sinwell (2015: 2012) has shown that conflicts between trade unions and mine companies can be resolved amicably by using CSR principles and good leadership. The author has shown that CSR policies are valuable for fostering mutual understanding, collaboration, fruitful wage negotiations, the provision of skills development training opportunities and improved working conditions. In policies for economic development, anti-corruption measures, have received increased attention. It is now possible to speak of an international good governance regime, supported by many national and international aid organisations, and their research institutes. The policy advice from this regime, has previously, to a large extent, been geared towards incremental change, by finding institutional solutions that will set in motion a virtuous circle. It is very unlikely, that small institutional devices, can set in motion a process towards establishing good governance, in countries where corruption is systemic. According to Muller (2018), corruption is a key obstacle that undermines good water governance and needs to be discouraged by all possible means.

According to Rosenstock, Liptzin, Dzurella, Fryjoff-Hung, Collander, Jensen, King, Kourakos, McNally, Petty grove, Quinn, Viers, Tomich and Harter (2014: 195-205), agriculture has significantly undermined groundwater quality in California's Salinas Valley and Tulare Lake Basin. They estimate that the nitrate concentration in recharge water has doubled over the last 30 years, due to increased manure and fertiliser applications. Groundwater supplies almost half of the world's drinking water and plays a key role in food production, accounting for over 40 per cent of global consumption of water for agricultural irrigation (Siebert, Burke, Faures, Frenken, Hoogeveen, Doll and Portmann (2010: 1863-1880).

Rosenstock, Liptzin, Dzurella, Fryjoff-Hung, Collander, Jensen, King, Kourakos, McNally, Petty grove, Quinn, Viers, Tomich and Harter (2014: 195-205) have shown that irresponsible or unregulated mining, agricultural and industrial activities often undermine the quality of groundwater reserves by dumping toxic chemicals into sources and reservoirs of water and by producing high nitrate levels. The authors have shown that irresponsible mining, industrial and agricultural activities should be carefully monitored and evaluated in order to minimise the pollution and abuse of groundwater resources in mining communities.

The study conducted by Stewart and Nite (2017) has shown that residual soil nitrate levels need to be checked regularly in order to ensure the safety of groundwater in mining communities. In areas where there are extensive mining and industrial activities, groundwater systems tend to respond more slowly to changes in land management between nitrogen application and impacts to groundwater. Timing is important to evaluate success with groundwater quality. The legacy effects from over-application of nitrogen may take years to fully impact

groundwater. Therefore, these experts state that it is important to make positive changes in areas where groundwater has been impacted.

Vanderstraeten (2012: 378) has shown that good leadership and good governance are essential elements of CSR in mining sector activities. The author has shown that CSR is ideal for promoting accountability, transparency, objectivity, fairness, empathy and philanthropy in mining communities. Walters, Quinlan and Johnstone (2017: 380) has shown that it is wiser to reach out to mineworkers and mining communities by meeting their basic survival and developmental needs. Failure to work with members of the community and mining workers is detrimental to cooperation and trust. Cohen and Simnett (2015: 59) have highlighted the benefits of CSR for establishing basic understanding with members of mining communities and mineworkers. Good corporate governance is based on accountability and transparency in all activities carried out at mines. All development and production plans drawn up in mines must be shared openly with mineworkers in order to win buy in and support from mineworkers. Failure to share plans with mineworkers often leads to misunderstanding, wrong expectations, conflicts, and costly disruption of mining activities. Local and global best examples must be used by mine owners and operators in the course of planning mining activities. Ramasastry (2015: 238) has shown that CSR is vital for bridging the gap between responsibility and accountability.

Popa (2015: 1279) has shown that CSR guidelines and principles are helpful for enforcing compliance with environmental legislation and municipal bylaws on waste management. The author has shown that CSR guidelines are helpful for enforcing environmental, waste management and sanitation legislation in mining communities. Better compliance with

environmental legislation and municipal bylaws is vital for protecting natural habitat, vulnerable ecosystems and sources of groundwater from pollution by toxic chemicals. Based on a study conducted in Denmark, Vallentin (2015: 34) has shown that CSR guidelines are significantly helpful for promoting good governance principles and the protection of vulnerable communities and scarce natural resources. The author has given an example in which CSR guidelines can be used for protecting groundwater reserves from abuse and depletion. Hamidu, Haron and Amran (2015: 84) have provided theoretical perspectives in which adherence to CSR guidelines can be promoted in mining, agricultural, industrial and commercial economic sectors. The authors have shown that CSR principles are extensively used in developed nations for protecting the natural environment and resources, and that the same could be done in poorly developed nations of the world, especially in Sub-Saharan Africa.

Rodriguez Bolivar, Garde Sanchez and Lopez Hernandez (2015: 778) have provided the list of key drivers of CSR in mining companies and state-owned enterprises. One of the key drivers of CSR is the prioritisation of the need to protect natural habitats and vulnerable people living and working in mining communities. The other equally important key driver is the promotion of awareness about the benefits of protecting and preserving scarce natural resources. Awareness about CSR guidelines and principles is essential for enforcing municipal bylaws and environmental and sanitation rules in mining communities. There are serious shortcomings in the decision-making systems used by national governments and local municipalities. These shortcomings are a result of failure to factor in CSR guidelines and principles into operational and strategic plans used in local municipalities.

Becchetti, Ciciretti and Hasan (2015: 298) have shown that national governments often lack the resources, specialised skills and expertise to use advanced technological systems for promoting CSR related objectives and plans of action. This need could be alleviated effectively by providing economic incentives and stakes to the private sector and foreign direct investors. Chelladurai (2016: 5) has shown various examples in which the private sector has met the financial, manpower and technical requirements of local communities in areas such as water drilling and electrical services. Maphumulo and Bhengu (2019: 3) and Mathew and Mash (2019: 2) have shown that the private sector has constructed public schools and clinics based on requests made by members of rural communities in various regions of South Africa. Good governance principles allow philanthropic activities in rural mining communities. The practice of good governance is a key motivating factor in encouraging philanthropists to reach out to rural mining communities that need developmental assistance from the private sector.

Rafique, Bahaidarah and Anwar (2019: 509) have provided examples in which the private sector has made a significant contribution in off-grid electrification for cleaner production. The key motivation factor in the attraction of the private sector was good governance and good leadership in mining communities. Based on a study conducted in India, Murthi (2019: 142) has shown that the ability to build effective community-based institutions to promote CSR guidelines and good governance principles is central for achieving sustainable rural development, economic growth and employment opportunities for poorly skilled and unskilled rural communities. A lot can be achieved with humble inputs and investment in cases where CSR principles are exercised and followed by members of the leadership. In the context of small-scale mining operations, good leadership and good corporate governance are essential for prioritising the basic survival, socioeconomic, health-related and educational needs of rural

people living in mining communities. Good governance enables leaders to attain credibility, legitimacy and trustworthiness among members of mining communities.

Based on a study conducted in Lesotho, Hellowell (2019: 2) has found that the quality of health care services could be improved significantly by using CSR guidelines and by mobilising financial, technical and labour-related support from private sector companies. The project carried out in Lesotho is an ideal example in which public-private partnership (PPP) principles could be used for raising logistical and financial resources that are needed for the alleviation of health-related needs of poor people. Often, decision-makers working for national governments are frustrated with the lack of financial, logistical and manpower related required for implementing community-based projects. Government bureaucracy and red tape do not allow civil servants to raise money from the private sector easily. There are procedures to follow before private sector companies are approached with requests for assistance. Kumi, Yeboah and Kumi (2020: 182) have conducted a study in Ghana and have found that private sector participation is often made difficult due to excessive bureaucracy, red tape and political interference.

Although members of the community find a willing private sector company prepared to aid, obtaining for permission and endorsement for development programmes is often not easy. Results obtained from a 5-yearlong study conducted in Ethiopia by Blattman, Dercon and Franklin (2019: 2) have shown that political interference and lack of good leadership often frustrate the successful implementation of community-based development projects. These problems are commonly experienced in poorly developed Sub-Saharan African countries and could be remedied by way of promoting awareness and adherence to CSR principles and

guidelines. CSR principles and good governance guidelines require public officials to put the interest of people first.

Based on a study conducted in Kenya, Abuya and Odongo (2020: 1002) have shown that CSR principles have made a significant positive difference in Kenya's titanium mining industry in terms of advancing sustainable development goals, job creation and poverty alleviation. Lack of good governance and disrespect for the rule of law often results in the abuse, failure and cancellation of vital community development projects that are essential for addressing the basic health and education needs of rural communities. Based on a study conducted in China, Peng, Tang, Yang and Fu (2020: 4) have shown that valuable community development projects often fail due to lack of good leadership and respect for the basic developmental needs of rural communities and minority groups. The basic principles and guidelines of CSR do not endorse the practice of making developmental decisions in rural communities based on tribal identity, political affiliation, religious persuasion, gender and sexual orientation.

Osei-Kojo and Andrews (2020: 1051) have conducted a study in the mining industry of Ghana and have found that the use of CSR guidelines enables poorly developed rural mining communities to raise adequate funds for development from the private sector. Lobbyists spend a lot of time and money influencing elected representatives on key strategic issues. CSR guidelines discourage lobbying activities that are not based on the legitimate developmental needs of rural communities. CSR principles are based on business ethics and good governance. As such, they do not allow corruption and lack of accountability and transparency. The application and promotion of CSR principles must be seen in a dynamic fashion, involving an ongoing process of negotiations among various parties.

Based on a survey conducted in India, Saha, Cerchione, Singh and Dahiya (2020: 409) argue that CSR principles cannot be implemented adequately in mining companies that have no regard for the basic tenets of good leadership and good corporate governance. The key tenets of good water governance include honesty, transparency, personal integrity, discipline, fairness to members of the community who need to be given access to clean water, accountability, objectivity, transparency and good skills of listening to the people. Good leaders take the time to work on valuable comments and suggestions from members of the community. Good leaders are not corrupt. Lindman, Ranangen and Kauppila (2020: 893) have shown that good leaders make the effort to listen to members of the community before taking important decisions. Doing so is valuable for the successful implementation of community based rural projects.

2.3. Benefit of CSR for protecting groundwater resources

Coulson (2018: 38-48) has pointed out that South African junior mines must be encouraged and actively motivated to adhere to corporate social responsibility (CSR) guidelines, regulations and principles in order to promote sustainable development and responsible mining practice in the South African mining industry. The author has argued that failure to adhere to CSR principles often undermines the capacity of junior mines to respect environmental and occupational health and safety issues in vulnerable communities living in and around mines. Dube and Maroun (2017: 23-34) have argued that one of the most urgent strategic priorities of South African junior mines is to promote responsible mining activities by using a combination of scientific and legislative tools. The authors have provided a compelling argument that South African junior mines need to be provided support and incentives so that they can conduct mining operations without causing harm to the environment and communities that live around

mines. According to the authors, the South African Government has a duty to promote CSR in all South African junior mines. Yakovleva (2017: 43) has sufficient adherence to the basic principles of CSR is highly valuable for preserving available mining resources for the next generation of South Africans.

Based on a longitudinal study conducted in Zambia, Choongo (2017: 1300) has found that the performance of small and medium-sized mining enterprises was enhanced as a result of promoting the basic principles of CSR in Zambian mines. According to the author, adherence to CSR guidelines and regulations could be enhanced by using awareness campaigns, regulations, guidelines and legislation. Irresponsible mining activities have an adverse effect on underground water resources. Frederiksen (2019: 162-170) has shown that irresponsible mining activities often result in huge long-term economic, health-related and environmental losses in all developing nations of Africa including South Africa. One area of loss is the contamination and pollution underground water resources. The author has argued that there is a need to protect South African groundwater resources by using CSR as a tool. Coulson, Stewart and Saeed (2019: 21-30) have argued that South African mine workers must be given the right not to work in mines in which CSR principles are not adhered to sufficiently.

Irresponsible mining activities result in the pollution of underground water (Malik, Alam, Faridi&Ayub, 2019: 21-30). The authors have shown that there is a significant association between failure to adhere to CSR principles and heavy metals contamination in groundwater resulting from industrial wastewater. Spitz and Trudinger (2019:12) have shown that heavy metal contamination and the pollution of groundwater resources can be effectively minimised by using legislation and CSR principles. Simpson, Badenhorst, Berchner, Jewitt and Davies (2019) have highlighted socioeconomic factors that exacerbate the pollution of underground

water resources. According to the authors, competition for land in Mpumalanga Province is a common cause of water contamination and pollution resulting from heavy metals and toxic substances. Ana and Dewi (2019: 233-248) have shown a variety of dangerous toxic substances and heavy metals that result from irresponsible coal mining activities. The authors have provided a list of pollutants and toxic heavy metals resulting from coal mines and have recommended that strict environmental legislation should be used for protecting groundwater resources from pollution and poisoning.

The study conducted by Al-Omari, Farhan and Kandakji (2019: 1-21) has shown that rivers are often exposed to pollutant chemicals in areas where mines are allowed to operate without strict environmental assessment, inspection, monitoring and evaluation. The authors have given a narrative about industrial and mining pollution that has undermined the quality of water in the River Zarqa in Northern Jordan and Syria. The authors have provided failure to adhere to CSR principles as a key underlying cause of failure and have recommended the strict enforcement of environmental legislation. One common cause of irresponsible mining activities is pollution of underground water resulting from heavy metals, toxic substances and acid mine drainage.

Based on a study conducted in Brazil following a severe mining disaster, Garcia, Ribeiro, de Oliveira Roque, Ochoa-Quintero and Laurance (2017: 5-9) have shown that mining companies must be forced to comply with CSR principles as a licensing requirement. The authors have recommended that mining companies should be forced to pay the actual environmental cost resulting from mining disasters. According to the authors, sufficient adherence to CSR principles and guidelines could have saved the environment, the lives of mineworkers and members of the local community.

Irresponsible mining activities often cause a wide variety of severe ecological disasters. A few examples of ecological disasters resulting from irresponsible mining activities are deforestation, environmental degradation, soil erosion, the accumulation of large volumes of solid and liquid waste, the destruction of wildlife and acid drainage. Acid drainage is created when rainwater or snowmelt is contaminated with mineral deposits. Acid drainage causes severe harm to water springs, groundwater, and other ecosystems. It is essential for national governments and local municipalities to educate junior mining operators and owners on how they should always protect the environment from harm. Based on a survey carried out in rural regions of China, Xu, Zhao, Yin, Bu and Li (2019) have argued that draconian measures are necessary to protect the environment, women, little children, the elderly, ecosystems and livelihoods from reckless mining activities. According to the authors, junior mining operators who choose to disregard CSR guidelines and principles must not be allowed to continue mining.

Irresponsible junior miners often destroy vulnerable ecosystems by polluting streams and destroying wildlife. Junior mines are mostly interested in the extraction of precious minerals. In the course of extracting precious minerals, they separate commercially valuable minerals from their ores. This process often leads to environmental damage and vulnerable ecosystems. Based on a study conducted in Rustenburg in the North-West Province of South Africa, Forrest (2015: 508-525) has shown that ecosystems and communities are harmed due to over-exploitation of mineral resources. The most commonly encountered type of damage resulting from reckless mining activities is groundwater pollution. As such, there is a dire need for the promotion of CSR guidelines, regulations, and principles in junior mines.

Hermanus, Coulson and Pillay (2015: 717-727) have suggested a framework that could be used for ensuring occupational health and safety in South African mines. The authors have shown that it is necessary to enhance awareness about vulnerable communities and ecosystems and the need to protect the general environment from reckless mining activities. The authors have called for the promotion of CSR guidelines and principles in all South African mines. It follows that junior mines must be supported and encouraged to take the plight of the environment, vulnerable ecosystems and the general environment if they are going to be sustainable and viable in the long run. In this regard, Ibsen and Tapia (2017: 170-191) have shown that strip mining is a common cause of disaster in developing nations that rely on mining. Strip mining is based on clearing entire landscapes, forests and wildlife habitats. Clearing is carried out at mining sites with complete disregard for the environment and ecosystems. Clearing at this large scale often leads to severe erosion of topsoil. Erosion is followed by the loss of agricultural land. Heavy rain carries away loosened topsoil into rivers and streams. Sediments pollute various sources of water including spring water and groundwater.

Martin and Solomon (2016: 21-34) have shown that CSR is highly helpful for good water governance in all mining communities. Moodie (2016: 841-856) has shown that South Africa must utilise its limited freshwater resources by enforcing water laws with complete vigour and determination. The author has argued that South Africa must utilise modern and innovative technological applications in order to ensure water security for the next generation of South Africans by forging active partnerships and collaborations with advanced nations of the world. Israel enforces a law in all mining companies with draconian regulations with a view to protect the environment and vulnerable ecosystems from harm (Humphreys, 2019: 145-151). The author has shown that failure to regulate the mining industry strictly often leads to harm. Sinwell (2015: 591-605) has shown that the national government must play an active role in

protecting vulnerable ecosystems and livelihoods from abuse by mining companies. Mining companies should be willing to invest in the lives of local communities in order to establish a win-win situation for their companies, the environment and local communities.

The South African mining industry has been characterized by occupational and safety hazards, strike actions by workers, protests over the basic occupational and health rights of mineworkers, labour disputes with mine owners, and accidents resulting from the extraction of minerals from some of the most dangerous and deepest mines of the world. South African mines are quite deep, heavily exploited and dangerous to mine (Van Onselen, 2019: 32). The fact that South African mines have been heavily exploited and are quite deep, the cost of mining is quite high by global standards. It follows that South African mining operations are not profitable enough for mine owners unless otherwise the cost of labour is kept low. It follows that mineworkers are often required to lower their wages and employee benefits.

Based on a study conducted in some of the world's deepest mines in China, Dong, Tong, Li, Zhou, Wang and Liu (2019: 1562-1578) have shown that South African mines must use a combination of the world's most advanced mining technology, robotic engineering and cheap labour if they are to be able to lower the cost of extracting minerals from the deep. The authors have shown that the mining industry has become highly competitive due to the introduction of highly automated mines in the USA, Russia, Australia, Brazil, Germany and Sweden. The leading example in this regard is the mining company Rio Tinto Group, which is an Anglo-Australian mining company. It is the world's second largest mining and metals company next to BHP, a global mining giant that produces iron ore, copper, gold, diamonds and uranium.

Ravetti, Sarr, Munene and Swanson (2019: 2-3) have shown that it has become essential for South African mining companies to use modern technological methods of extracting minerals and mines from South African mines extensively as a means of relying less on human labour. According to the authors, South African mines have been highly exploited since the 1800s, and it is necessary to dig deep in order to extract mineral products from the mines. The cost of digging deep and the risk to human life associated with digging deep has become quite high and unsustainable.

Festin, Tigabu, Chileshe, Syampungani and Oden (2019: 381-396) have pointed out that it is necessary to redress historical damages caused in the past by mining activities to the agricultural sector of the economy. In this regard, restoration is necessary as severe damage has been caused to landscape, ecosystems, underground water resources and natural forests. The authors have recommended that there needs to be accountability and responsible mining. The authors have shown that CSR guidelines and principles are highly valuable in order to restore and rehabilitate vulnerable ecosystems, natural vegetation, natural forests, groundwater resources and the agricultural sector.

Buss, Rutherford, Stewart, Cote, Sebina-Zziwa, Kibombo and Lebert (2019) have shown that CSR guidelines and principles are highly helpful for redressing and alleviating gender-based abuse in South African small scale mining companies. The authors have shown that female artisans working in the small-scale mining industry are often denied access to finance, skills-based training and mentorship opportunities due to bias resulting from harmful traditional practice. In some rural communities, women are not provided due recognition as talented artisans despite their degree of contribution to the industry, natural talent and potential for growth. According to the authors, CSR principles are ideal for protecting the basic human and

labour-related rights of rural South African women residing and working in mining communities.

Park, Tabelin, Jeon, Li, Seno, Ito and Hiroyoshi (2019: 589) have proposed practical methods that are helpful for preventing and minimising acid mine drainage problems. The methods proposed by the authors entail the use of education, awareness campaigns based on CSR principles and guidelines, the provision of economic incentives and the enforcement of legislation to ensure responsible mining. Hughes (2019: 884) has pointed out that CSR principles are essential for transforming deep South African mines into a sustainable operation. The author has argued that CSR is helpful for ensuring sustainability, viability, profitability, employee satisfaction and for minimising the amount of harm caused to groundwater resources by mining activities. Guo, Nguyen, Vu and Bui (2019: 4) have shown that the use of modern technological mining methods can be aligned with adherence to CSR principles by way of using neural networks in open-pit mining operations.

The work done by the authors shows that mining operations that use high technology and robotic engineering are quite feasible and appropriate for extracting mineral resources from deep mines in various parts of South Africa. The authors have highlighted the need for sustainable development and preserving vulnerable ecosystems in and around mining communities. Buss, Rutherford, Stewart, Cote, Sebina-Zziwa, Kibombo and Lebert (2019: 1101) have suggested that vulnerable communities living around mines must be empowered by national governments and local municipalities in terms of being provided with training in artisan skills that are valuable for extracting minerals from small scale mines. The authors have shown that national governments and local municipalities are required to protect women and children from irresponsible mining activities and explorations. According to the authors, the

promotion of CSR principles and guidelines must be supported actively by using community-based initiatives.

Hilson (2019: 852) has shown that national governments are often biased in favour of large-scale mining operations and fail to promote small scale mining operations although small scale mining operations are quite helpful for alleviating unemployment and poverty among the masses. The author has pointed out that national governments are biased in favour of large-scale mining companies mostly due to the assumption that large scale mines are better equipped, pay more tax, employ a relatively large number of employees, and are relatively better organised. Studies conducted in the rest of the world clearly show that small scale mines are also economically highly valuable for alleviating poverty and unemployment. According to Plageron, Patel, Hochfeld and Ulriksen (2019: 3), what small scale mines need for sustainability and long-term viability is empowerment and CSR principles and guidelines.

Dong, Tong, Li, Zhou, Wang and Liu (2019: 1562) have pointed out that small scale mines such as gold mines must be monitored, evaluated and assessed in order to minimise the damage caused to the environment, and to reduce the prevalence and incidence of occupational diseases such as silicosis, pulmonary tuberculosis and lung diseases. According to the authors, this goal can be achieved adequately by using CSR guidelines and principles. Armstrong, Langrene, Petter, Chen and Petter (2019: 2) have shown that irresponsible mining operations often cause harm to water reservoirs by leaking poisonous chemicals and heavy metals into water storage dams. CSR principles allow mining administrators and local municipalities to monitor and evaluate mining activities and damage caused to the environment easily and methodically. Problems that could harm the general environment are well known to national governments and local municipalities. CSR guidelines enables all relevant stakeholders to do their part in

terms of combating and minimising the prevalence and incidence of health-related, occupational, safety-related, sanitary, personal hygiene and waste management problems systematically. In South Africa, one key obstacle to the promotion of CSR principles in small scale mines is the issue of land ownership.

Valenta, Kemp, Owen, Corder and Lebre (2019: 220) have highlighted the need to preserve scarce minerals such as copper and coal. The ability of local municipalities and national governments to adequately preserve copper and coal minerals for future generations is dependent upon their ability to work hand-in-hand with tribal landowners. In South Africa, 13% of land is owned by tribal chiefs (Musavengane, 2019: 45). Tribal chiefs are quite reluctant to give up their land ownership rights. There are a wide variety of small-scale mines operating on land belonging to tribal chiefs. Enforcing CSR guidelines and principles in small scale mines that are based on tribally owned land requires complex negotiation with tribal landowners. Based on studies conducted in Botswana and South Africa, Kalabamu (2019: 337) has shown that negotiations involving mining operations and land ownership are often quite complex and difficult to undertake. As a result, it is not necessarily easy to implement CSR guidelines and principles in small scale mines that operate on tribally owned land.

The study conducted by Kalabamu (2019: 338) shows that about 17 million South Africans live on tribally owned land. Musavengane (2019: 46) and Akinola (2018: 2) have shown that the task of implementing land reform in South Africa is expected to be quite challenging due to resistance from tribal chiefs. The authors have shown that tribal chiefs have suggested that land owned by tribal chiefs should not be used for implementing the South African land reform policy. As such, the ability of the South African government to transform land has a bearing on the degree to which CSR principles can be implemented in South African small-scale mines.

Amanor (2018: 39) has highlighted obstacles to a successful land reform in South Africa. Examples of a few obstacles are poverty, unemployment, harmful traditional values, disrespect for the basic rights of women, polygamy, illiteracy, corruption, tribalism, political interference, and lack of good leadership. According to the author, it is essential to provide good leadership in order to successfully reform land ownership. Any process of land reform must be conducted based on good leadership principles, fair market-values of land, accountability, objectivity, respect for the rights of women and minority groups, and a spirit of national unity. In view of the fact that a sizeable percentage of small-scale mines are located on tribally owned land, it is necessary to implement land reform in order to be able to introduce and implement CSR principles in South African small-scale mines.

Cousins, Dubb, Hornby and Mtero (2018: 5) have shown that labour laws are often abused and disregarded in rural regions of South Africa. The authors have shown that employees working in small scale mines are often abused and exploited severely by mine owners. The authors have shown the need for promoting awareness campaigns and education on labour, human and constitutional rights. Djurfeldt, Hillbom, Mulwafu, Mvula and Djurfeldt (2018: 601) have shown that family-based rural businesses and mining operations often disrespect the basic human and labour-related rights of employees. In this regard, the principal losers are women, children, vulnerable members of the community and minority groups. The authors have shown that CSR principles and guidelines are highly valuable for alleviating such problems.

The alleviation of illiteracy is necessary in rural parts of South Africa where small-scale mining operations are carried out by members of a communal tribe. Such communities should be enlightened in order to rid themselves of harmful tradition and the suppression of vulnerable segments of society. Based on a study conducted in Ghana, Antwi-Bediako (2018: 2) has

shown that tribal chiefs are a key obstacle to land reform in Ghana, and that it is vital to promote literacy education, awareness about constitutional and basic human rights and CSR principles in Ghanaian rural communities. The study shows that the promotion of CSR principles requires the promotion of the rule of law, respect for basic human rights, respect for the environment and good leadership and governance.

Medina-Munoz and Medina-Munoz (2020: 3) have shown that there is a significant relationship between CSR principles and the alleviation of poverty in rural communities. The authors have proposed an integrated framework that could be used for the promotion of CSR and poverty alleviation. The framework entails good leadership from national and provincial governments and local municipalities.

Wu, Si, He and Wu (2019: 154) have shown that there is a significant association between the ability of rural communities to preserve and conserve groundwater resources and CSR principles. Bhattacharya (2019: 51) has shown that rural communities need to preserve and conserve their scarce groundwater reserves by actively promoting CSR principles in all business operations. The author has shown that this principle must be followed in all water-scarce countries such as South Africa. Zhong, Zhong, Feng, Zhang, Shen and Wu (2018: 493) have assessed the adverse effect of irresponsible industrial activities on groundwater reserves in China and have found that severe groundwater depletion has been caused in the West Liaohe River Basin of China as a result of failure to curb irresponsible industrial and mining activities. According to the authors, it is the duty and responsibility of national governments and local municipalities to protect groundwater resources by promoting CSR principles in the mining industry.

Based on a study conducted in Australia, Fordham, Robinson, Cleary, Blackwell and Van Leeuwen (2018: 704) have constructed a framework for promoting responsible mining in Australian mines. The framework entails the provision of economic incentives to mines that actively promote environmental conservation and the protection of natural habitats and vulnerable communities. The framework proposed by the authors is quite suitable for South African small scale mining companies. Extensive water research carried out by the South African Centre for Scientific and Industrial Research (CSIR) in Pretoria has shown that South Africa is a water-scarce nation in which spring and groundwater must be conserved and utilised optimally as a means of averting an imminent economic destabilisation and chaos over the fight for scarce water resources (Mangadze, Dalu, T. & Froneman, 2019: 1492). The CSIR is one of the foremost research institutions on water resources and technology in South Africa. As such, findings reported by the CSIR carry significant weight in the eyes of South African water planners and policymakers (Barbieri, Ricolfi, Vitale, Muteto, Nigro & Sappa, 2019: 62).

Riley, Mieno, Schoengold and Brozovic (2019: 3) shows that South Africa needs to build the capacity to conserve and protect its existing spring and groundwater resources as a matter of strategic priority in order to maintain economic development and growth on a sustainable basis. The report indicates that several rural and urban communities routinely experience shortage of water due to prolonged draught, irresponsible industrial activities and failure to invest on modern technological infrastructure that is helpful for improving the availability of water to urban and rural communities.

The research work carried out by Fallon, Villholth, Conway, Lankford and Ebrahim (2019: 142) has shown the relationship between following CSR guidelines and sustainable development in the agricultural sector. The authors have shown that the promotion of CSR

principles is one of the most reliable groundwater protection strategies for all developing nations. The authors have highlighted the need for providing economic incentives to mining companies that promote CSR guidelines actively. Cohen, Pearlmutter and Schwartz (2019: 2) have shown that although the State of Israel is one of the world's most water-scarce nations, it has managed to overcome water shortages by actively promoting CSR principles and guidelines in all Israeli companies and industries including mining companies. The success achieved in Israel clearly shows that the promotion of CSR principles is a key requirement for sustainable development and the preservation of scarce resources. Orimoloye, Belle, Olusola, Busayo and Ololade (2020:2) have shown adherence to CSR guidelines is a key requirement for alleviating drought-caused disasters and water shortages in all developing nations.

Coulson (2018: 38) has highlighted the need for CSR principles as a means of protecting mineworkers from injuries, accidents and occupational diseases. The author has argued that CSR guidelines assist all stakeholders significantly by highlighting their shares of responsibilities in terms of promoting sustainable development. The author has argued that health and safety education is a basic necessity to all stakeholders. CSR guidelines are designed to preserve and protect scarce resources such as water resources from pollution and abuse. Coulson, Stewart and Saeed (2019: 21) have explained why South African mines should use CSR principles for protecting the labour and health and safety-related rights of South African mine workers at the workplace. The authors have also shown international best practice on adopting CSR policies and guidelines in mines. Israel and Wynberg (2019: 404) have shown that CSR policies are quite helpful for mitigating mine-related accidents and the abuse of groundwater resources in South African mines. The authors have shown that CSR principles are quite helpful for alleviating potential conflicts between mine owners and local communities over ownership rights and the protection of natural habitat. The framework proposed by the

authors is helpful for protecting and preserving rural landscapes and groundwater resources in developing nations such as South Africa and for resolving conflicts over natural resources such as grazing and agricultural land and minerals. The authors have shown that achieving water security for the agricultural sector requires sustained investment of several decades and macroeconomic stability.

Forrest (2015: 508) has conducted a study at Rustenburg in the North-West province and has found that the shortage of spring and groundwater resources is often caused by irresponsible mining activities. According to the author, CSR guidelines are essential for enabling mine owners to conduct operation without harming the natural habitat, environment and socioeconomic development of local communities. Lack of access to clean water is a key cause of mortality and morbidity among children under the age of five years in all Sub-Saharan African countries. The author has shown that it is essential to address water-related shortages in order to address health-related and socioeconomic problems in developing nations.

CSR principles are essential for ensuring sustainable growth and access to basic socioeconomic necessities to all South Africans (Ibsen & Tapia, 2017: 170). South Africa is a developing nation in which the majority population has basic water needs. South Africa is a nation with limited water reserves and rainfall. South Africa experiences an annual population growth rate of 1.4% (Statistics South Africa, 2019). South Africa experiences prolonged periods of draught due to climate change. South Africa has failed to extend its urban water infrastructure to rural areas due to lack of funds and specialised skills. South Africa has to reduce its high unemployment and poverty rates among the majority population group. The ability to draw up practical plans of action for water utilisation is a key requirement for ensuring adequate access to water to next generation of South Africans. In order to do so, there is a need to draw up an integrated, comprehensive, sound, feasible, practical plan of action for ensuring water security

for all South Africans. This task can best be done by following international best practice from nations that have managed to ensure water security by using appropriate technology, sound planning and good leadership skills.

Crane, Matten and Spence (2019: 41) have shown that CSR principles are essential for ensuring an equitable distribution of the means of production in any society. One of the best examples in the world in terms of using CSR principles for ensuring water security for current and future generations is found in Denmark. The country has ensured water security for its population by applying and enforcing CSR principles, appropriate technologies and effective management techniques in the mining and industrial sectors of the economy.

South Africa South Africa uses about 64% of all its water resources for agricultural production. The mining sector and local users consume about 8% of water resources (Buhmann, Jonsson & Fisker, 2019: 66). The principles of CSR go hand-in-hand with respect for basic business and human rights. The authors have shown that South African groundwater resources are contaminated by chemicals and toxins used in industry, acidification and increased metal content in mining, desalinisation and eutrophication, microbial effects in urban development, as well as agricultural practices such as sedimentation, infiltration of agrochemicals and desalinisation through irrigation return flows. Since April 1994, South Africa has lost its capacity in the treatment of wastewater and agricultural drainage due to lack of appropriate planning. Failure in planning has resulted in contaminated landfills and poor quality of water. The study conducted by Agudelo, Johannsdottir and Davidsdottir (2019: 1) has shown that the quality of groundwater in almost all developing nations of the world including South Africa has deteriorated significantly due to extensive mining and the use of manure and fertilisers.

Sharma (2019: 712) has shown that groundwater nitrate concentrations undermine the quality of water used for drinking often in developing nations, and that it is essential to monitor and evaluate industrial activities on a regular basis in order to ensure the safety of water. The authors have shown that appropriate plans of action are essential to monitor and evaluate the overall safety of drinking water used in urban communities worldwide. The quality of groundwater has been significantly undermined due to agricultural activity in California, USA. The authors have shown that nitrate concentration in recharge water has doubled over the last 30 years due to increased mining activities and fertiliser applications.

Frederiksen (2019: 162) has shown that groundwater recharges the water table. Groundwater sources are generally extracted through the construction and operation of extraction wells or boreholes. In areas where rural infrastructure is minimal, rural communities will often rely on more informal traditionally developed groundwater sources, such as hand-dug wells, springs and abstraction. Globally, groundwater is an essential freshwater resource for both, socioeconomic and environmental systems, and forms a critical buffer during periods of drought. This makes the protection of groundwater supplies through management difficult. Pollution control and remediation, essential in developing countries groundwater management, is generally neither strongly emphasised in national water legislation, nor implemented, where role-players are aware of its necessity. While on-site sewage systems are locally a significant source of nitrate in groundwater, in the agriculturally dominated region of California's Central Valley, animal manure practices are the predominant source of nitrate contamination in groundwater.

Androniceanu (2019: 2) has shown that irresponsible mining activities often result in harm to soil and groundwater. Residual soil nitrate measured at harvest represents the risk of nitrate

loss to groundwater during the non-growing season. The author has shown that public drinking water sources in developing nations such as India are often contaminated by elevated nitrate concentrations. Currently, South Africa's groundwater resources supply about 15% of the total volume of water consumed nationally. About 64% of all groundwater is used for agricultural irrigation purposes. About 8% of all groundwater is used for mining and domestic consumption (Singh & Mittal, 2019: 3). Most groundwater quality and quantity problems in South Africa are related to human activities that result in infiltration of chemicals and toxins used in industry, acidification and increased metal content in mining, salinisation and eutrophication, microbial effects in urban development, as well as the intensification of agricultural practices, such as sedimentation, infiltration of agrochemicals and desalinisation through irrigation return flows.

Martinez-Ferrero, Suarez-Fernandez and Garcia-Sanchez (2019: 468) have shown that CSR guidelines are helpful for preventing deteriorating standards in wastewater treatment, agricultural drainage, land-use patterns and waste disposal intensify the problem. Contaminants either seep through the soil to reach the water or are washed into the ground by rainfall or surface run-off or leach from contaminated landfills and other buried hazardous wastes. Such contamination often undermines the quality of groundwater and the overall South African ecosystem. Millions of Rand are spent on control and remediation measures although remediation is difficult and extremely costly. Remediation of soil and groundwater is usually carried out by Government Agencies or environmental companies. The first step in remediation is the identification of contaminants. The analysis and classification of pollutants is vital for appropriate remediation.

Analysis is performed by internationally recognised environmental laboratories that can provide expert interpretative data to consultants who are then able to make recommendations,

and on the implement remediation measures. Reliable data is vital for making informed decisions, once identified, the contaminant is either physically removed, to a landfill site, or subjected to chemical oxidation method, which remove the pollutant from the soil, before it is reintroduced back into the environment. Specialised mechanical techniques in the form of pump-and-treat methods are used, or the area is rehabilitated in site with the use of microorganisms.

Based on a study conducted in Taiwan, Hou (2019: 19) has shown that the severity of damages caused to water resources due to irresponsible mining activities, prolonged draught, lack of good leadership over water affairs and climate change can be mitigated and alleviated by applying CSR principles effectively in the mining industry. Due to climate change, certain areas in South Africa could experience higher temperatures with more frequent floods and droughts. This will have an impact on the amount of recharge or infiltration into the ground to the aquifers. Groundwater levels will drop because of lower recharges. The author has shown that nitrogen levels could be high in groundwater reserves in which uncontrolled mining activities occur over a long period of time. These high levels of nitrogen are quite harmful to groundwater, spring water, livestock, vegetables, forests and dairy products.

Choi, Feng, Liu and Zhu (2019: 213) have shown that CSR guidelines are valuable for ensuring safety standards in drinking water in and around communities in which mining activities are carried out. The authors have found that the extensive use of fertilizers has adversely affected groundwater quality in the State of California, USA. They estimate that the nitrate concentration in recharge water has doubled over the last 30 years due to increased manure and fertilizer applications. The authors have found that it is necessary to monitor and evaluate the

use of fertilisers carefully. The authors have investigated the fate of ammonium and nitrate below earthen waste lagoons at a dairy in Israel.

Lysimeters were used to collect leachate over four years. These researchers concluded that there are two distinct infiltration processes that occur. The first is the slow constant infiltration from the base of the lagoon. And the second is the fast infiltration of wastewater and precipitation, through desiccation cracks that form on the inside of the lagoon banks. These nitrate concentrations were 3.5 times higher than the mean concentration in regional groundwater. Doan, Nguyen, Quach, Tran and Nguyen (2019: 100) have shown that the presence of nitrate and leachate in waste lagoons shows that the quality of groundwater is being undermined due to irresponsible industrial and mining activities. According to the authors, the quality of groundwater is often undermined in developing nations due to irresponsible mining activities, manure and fertilizer applications. The use of CSR guidelines is quite valuable for mitigating such environmental damages.

Ghaderi, Mirzapour, Henderson and Richardson (2019: 41) have constructed a CSR framework for mining companies. The framework is suitable for use by water engineers for monitoring and evaluating the safety of groundwater reserves. The technique entails the use of spatial analysis of chloride and total nitrogen. The report shows that irrigated agriculture is a key contributor of nitrate and chlorides to aquifers. They have also found that lagoon leakage is also a key contributor to groundwater contamination. It has been shown that lagoons contributed 6% of the total mass of chloride. The study found that allowing the lagoons to go through a drying period resulted in a reduction of 11% of chloride and a 25% reduction in the nitrate contribution to the subsurface.

Gurlek and Tuna (2019: 2) have shown that groundwater nitrate concentrations are sensitive to departures from agronomic nutrient application on the land surface. The authors have shown that a manure application resulted in an almost immediate increase in soil nitrate at the one-foot level, followed by an increase of up to 16 mg N/L in shallow monitoring wells beneath the field. The authors have shown that groundwater nitrate concentrations near the top of the water table were close to the groundwater standard of 10 mg N/L when manure application rates were like the crop removal rates and when manure was applied during the growing season. The study showed that a reduction in manure application resulted in a decrease in soil nitrate concentration level.

2.4 The use of CSR for protecting indigenous peoples' rights

Hielscher and Husted (2019:2) have listed down requirements for the successful implementation of CSR guidelines and principles in junior mines with a view to protect basic indigenous rights. The authors have shown that adherence to CSR principles is highly valuable for protecting the basic rights of indigenous people living in and around junior mines. According to the authors, adherence to CSR principles enables junior mines to conduct operation without harming the basic rights of indigenous people and communities. Endl, Tost, Hitch, Moser and Feiel (2019: 2) has provided steps to be followed in which CSR guidelines are used for protecting culturally important traditional values of rural communities in which mining operations are carried out. According to the author, CSR is highly valuable for promoting sustainable development in rural mining communities.

Guenther, Hoppe and Poser (2007: 2) have shown the need for business firms in the oil and gas industry as well as mining companies to follow and implement CSR policies that are valuable for protecting the general environment from pollution by toxic chemicals, environmental degradation, water pollution, degradation, depletion of natural resources, the abuse of women and children, and disrespect for traditional indigenous rights and values. The CSR policies mentioned by the author are relevant to the oil and gas industry as well as junior mining companies. The relationship between CSR and the protection of basic indigenous rights has been highlighted by various authors. Based on a study conducted in Canada, Long (2019: 2) has highlighted the need for the mining industry to respect the traditional values and culture of indigenous people in Canada. The author has called for reconciliation with indigenous peoples in Canada according to the basic principles of CSR in which communities need to be rehabilitated and compensated for mistakes and harm done to them in the past by members of the industry. The proposal includes restitution and a commitment not to repeat past mistakes. It follows that CSR guidelines are related to Canadian legislation on basic human rights.

Based on a study conducted in Zambia, Choongo, Paas, Masurel, Van Burg and Lungu (2019: 2) have argued that entrepreneurial and personal values are significantly associated with the degree to which mining companies respect CSR guidelines. CSR values are quite helpful for promoting primary health care services, personal hygiene, health education, sanitation and formal education in mining communities. The guidelines recommended by the authors are helpful for promoting personal safety and occupational health in junior mines, and the protection of the environment. They are also helpful for promoting community-based initiatives for fostering development, the alleviation of poverty, unemployment, illiteracy and communicable diseases, and the need to work with all stakeholders by following good leadership and good governance principles. Tuokuu, Idemudia, Gruber and Kayira (2019: 922)

have argued that protecting the environment is the basis of a successful implementation of CSR policies in junior mines. Protecting the environment entails protecting the agricultural sector from harm. This, in turn, means protecting water and animals from polluted or contaminated water. Irresponsible mining operations and excessive use of fertilisers often lead to high levels of nitrate concentration in recharge water. Groundwater supplies almost half of the world's drinking water and plays a key role in food production, accounting for over 40 per cent of global consumption of water for agricultural irrigation. Polluted water often affects agricultural and dairy products severely due to high nitrate levels. As such, there is a need to prevent the production of high nitrate levels in the course of mining and agricultural production. Agricultural activities should be carefully monitored and evaluated in order to minimise pollution of groundwater resources.

Tuokuu, Idemudia, Gruber and Kayira (2019: 922) have proposed CSR policies that are highly valuable for clarifying environmental policy that is suitable for the entire mining industry. Residual soil nitrate levels need to be checked regularly to ensure the safety of groundwater. Groundwater systems tend to respond more slowly to changes in land management between nitrogen application and impacts to groundwater. Timing is important to evaluate success with groundwater quality. The legacy effects from over-application of nitrogen may take years to fully impact groundwater. Therefore, these experts state that it is important to make positive changes in areas where groundwater has been impacted.

Fordham and Robinson (2019: 1409) have identified key elements of corporate social values that are essential for fostering CSR guidelines in mining companies. These elements include willingness and commitment to accept corporate social responsibility towards rural communities, the commitment for promoting sustainable development, commitment towards

alleviating poverty, commitment towards paying tax money, and commitment to fund community development programmes. Based on a study conducted in the Niger Delta region of Nigeria, Uduji, Okolo-Obasi and Asongu (2019: 725) have argued that CSR contributes significantly to the development of rural young people in the field of cultural tourism in all Sub-Saharan African countries including South Africa. The authors have shown that there is a significant association between good governance and CSR. Definitions of CSR values may vary depending on industry, but the basic principles are the same. CSR principles entail commitment to promote sustainable development, inclusive growth and harmony among members of the community in which mining operations are conducted.

Raymond, Kenter, Van Riper, Rawluk and Kendal (2019: 1173) have shown that CSR principles and guidelines must be actively promoted in all sectors of the economy including mining. In an editorial statement, the authors have argued that CSR is essential for ensuring sustainable and mutually inclusive growth in all sectors of the national economy. The authors have called for the promotion of CSR principles so that members of the industry and entrepreneurs adhere to CSR guidelines sufficiently. The authors have also shown that the ability to foster and implement CSR principles requires good leadership, accountability, objectivity, transparency, respect for basic human and labour rights of workers as well willingness to respect for the rule of law. Haalboom (2012: 969) has argued that the basic indigenous rights of rural mining communities must be protected adequately by implementing CSR guidelines in all mining companies operating in South Africa.

Aggarwal and Singh (2019: 2) have pointed out that the successful promotion of CSR principles in large mining companies requires good reporting and transparency to members of the Press and the public. Zafar and Sulaiman (2019: 2) have shown that CSR principles are

based on empathy and respect for other members of society, and that mining companies and huge businesses should not be allowed to exploit vulnerable members of society. According to the authors, CSR principles are aligned with responsible business practice, honesty, personal integrity and fairness to vulnerable segments of society. Good governance and good leadership principles are similar with CSR policies. The conceptualisation of good governance and good leadership entail accountability, objectivity, transparency and fairness. It is essential for national governments and local municipalities to promote good governance and leadership on all issues affecting natural resources. Local and global best examples must be used by elected officials in the course of planning for water. In light of the fact that water requires specialised expertise and massive resources, the private sector must be considered and actively encouraged in all efforts that are made to ensure satisfactory water service delivery to the people.

Ozkazanc-Pan (2019: 851) has shown that there is a need to enforce legislation that is designed for protecting natural resources, groundwater, natural habitat, vulnerable ecosystems, and the general environment in which mining companies operate. The author has argued that water and environmental resources are being abused due to failure to enforce legislation and municipal bylaws. The report shows that the reluctance of water-users to abide by the Law has made it necessary for national governments to utilise legislative tools for protecting sources of water. Groundwater sources are being threatened due to increasing agricultural, industrial and commercial use of water sources. Rates of abstraction have exceeded natural replenishment rates over extended periods in many parts of the world due to irresponsible mining and farming activities. In many areas, groundwater is the water resource mostly relied upon on a daily basis as surface water resources have become depleted or contaminated.

Aju and Beddewela (2020: 763) have shown that CSR principles are vital for addressing the serious concern over diminishing natural resources in all parts of the world due to uncontrolled industrial and mining activities. There are serious shortcomings in the decision-making systems, on which we rely in government, business, and society more broadly. Building more effective governance and institutions, is central to achieving more sustainable patterns, of development globally, nationally, and locally. Yet the central importance of governance issues is often neglected. This is partly due to the differing definitions, used of governance, and the intangibility of these norms and structures. An analysis of governance needs to ask: How, where and by whom are decisions made? Who gets to write the rules by which decisions are made? What gets decided and who gets what? How are people able to monitor how decisions are made? Governance is more than just a question, of the institutional architecture, and how different elements, relate to each other. For each of these elements, there are issues of credibility, legitimacy, concerning the processes by which rules are made and re-made, interpreted and re-interpreted.

The rules and institutions responsible for decision-making are influenced by vested interests. As such, there are times when decision-makers are influenced unduly by people or groups who stand to lose out of the implementation of a vital water programme. Lack of good governance and disrespect for the rule of law often results in the abuse, failure and cancellation of vital water projects that are essential for utilising water optimally. Ma and Bu (2020: 2) has pointed out examples in which valuable mining operations have failed due to lack of respect for CSR principles, lack of good leadership and disregard for the basic rights of indigenous people living in and around mines. Lobbyists spend a large amount of time and money influencing elected representatives on key strategic issues. Governance must also be seen in a dynamic fashion, involving an ongoing process of negotiation between different interests, played out in a series

of arenas and institutions, nationally and globally. The legitimacy of technical evidence, marshaled within such negotiations, is critical and often contested, as has been evident in the climate change talks.

The key tenets of CSR are good leadership, good corporate governance, accountability, honesty, transparency, personal integrity, discipline, fairness to members of the community who need to be given access to clean water, accountability, objectivity, transparency and good skills of listening to the people (Jamali, El Dirani & Harwood, 2015: 125). Good leaders take the time to work on valuable comments and suggestions from members of the community. Good leaders are not corrupt. Good leaders believe in and value merits that are necessary for the successful implementation of mining projects.

Due to irresponsible mining activities, groundwater resources are dwindling in almost all developing nations of the world at an alarming rate (Jongwe, Moroz, Gordon & Anderson, 2020: 31). The authors have argued that respecting the basic rights of indigenous people and respecting CSR principles are quite helpful for alleviating and mitigating this problem. It has now become necessary to enforce CSR principles in all mines and industry in order to protect the rights of indigenous people. It is also equally important to promote awareness about the benefits of CSR values and appellations. Mining companies should be encouraged and motivated to work with local municipalities to promote awareness about CSR values and guidelines.

Boiral, Heras-Saizarbitoria and Brotherton (2020: 1020) have shown that the governance and administration of scarce resources such as water in draught-stricken local municipalities must be given priority over the mining rights of mining companies. The authors have argued that

unless mining companies agree to adhere to CSR principles fully, scarce resources such as water will disappear much faster than the rate at which they are dwindling. CSR guidelines must be promoted aggressively in all mining companies in order to preserve and protect natural habitat and dwindling natural resources. Speedy legal actions should be taken against mining companies that do not comply with CSR guidelines. Doing so is essential in order to protect the rights of indigenous people and the poor. Drastic measures must be taken in order to discourage corrupt practice by elected officials. Agudelo, Johannsdottir and Davidsdottir (2020: 2) have suggested that mining companies, the private sector, human-rights groups, civil society and non-governmental organisations must be encouraged and supported to take part in the planning and implementation of CSR principles and guidelines.

Based on a study conducted in Brazil, Pureza and Lee (2020: 1410) have pointed out that the provision of clean water to the people is often undermined due to lack of adherence to CSR principles and guidelines in large mining companies. The other problems highlighted by the authors are lack of respect for good leadership, lack of accountability, lack of respect for the rights of indigenous people, the abuse of authority, and lack of respect for the rule of law and basic human rights. The authors have shown that irresponsible mining and industrial activities are the key reasons for the acute shortage of clean water in developing nations of the world including Sub-Saharan Africa. According to the authors, the promotion of CSR in rural and indigenous communities is a key responsibility of national governments and local municipalities. The provision of primary health care to the masses often fails due to lack of clean water in poor African communities. O'Brien, Ouschan, Jarvis and Soutar (2020: 12) have shown that the key obstacles to satisfactory service delivery to indigenous people are lack of respect for CSR guidelines, lack of specialised skills, inability to manage and implement municipal projects successfully, influx of rural migrants into city centres, population explosion,

land degradation, abject poverty, lack of knowledge, lack of good leadership, lack of respect for human rights, inability to enforce the law, maladministration by elected officials, lack of accountability, political interference and rampant corruption as key barriers to the successful completion of water projects at community level.

The task of transforming old governance systems into vibrant and helpful government systems requires the promotion and adoption of CSR principles. CSR principles accommodate a far broader range of interests of the poor and indigenous people. They also provide for the basic needs of the young and the old. In fact, CSR principles accommodate the needs of all segments of society. CSR principles ensure fairness, equity, respect for basic human dignity, and respect for the rule of law. They are based on objectivity. Subsidiarity and control at the lowest possible level should be a central principle for sustainable development and good governance in order for decisions to be fair and objective. Resources must be allocated to deserving parties based on the rule of law. Transparency and accountability are both needed in order to ensure fairness to all. Shifting power down to lower levels is vital in order to bring in local knowledge, increase accessibility to decision-making, and get a broader range of voices into the debate. Innovations are needed to ensure that the marginalized have a voice that counts through coalition building, organisation and mobilization (O'Brien, Ouschan, Jarvis & Soutar, 2020: 17).

At national level, accountability and transparency are needed to hold those in power to account. Change management and good leadership are essential components of fairness to the people. Parliamentary and press oversight are key requirements for fairness. Whistleblowers must be protected from corrupt leaders. Ruokonen and Temmes (2019: 466) have shown the need for the adoption of CSR principles in all sectors of the economy. According to the authors, the pace of adoption of CSR principles, and the degree of respecting good leadership and good

corporate governance principles in mining companies is less than satisfactory at the moment. The accountability challenge is compounded by corruption, political interference, alliances cemented between government officials and powerful entrepreneurs. The international nature of much of the corporate sector involved in natural resource use means that even the governments of the countries in which they are headquartered have limited ability to influence their actions and decisions.

Globally, we urgently need better means to agree and implement measures and to achieve our collective goals. Given the large numbers of states, and their separate jurisdictions, more effective, and far-reaching international institutions, and rules are necessary, yet nation states, are unwilling to submit to collective agreements, which constrain their freedom of maneuver. Equally, greater control over international, financial and corporate actors is needed, to reduce their ability to escape, fiscal and other responsibilities, through freedom of movement, between different jurisdictions. Global efforts to address climate change, have resulted in a complex international governance architecture, which has largely replicated geopolitical and global economic power relations, among nations. There has been little room in these evolving governance arrangements, for the priorities of weaker countries, and marginalized people, to be heard and addressed. Growing reliance on the G20, as a forum, for sorting out global problems, runs the risk of disempowering, the large number of smaller, less economically prominent nations.

Development economists and policymakers often recommend the adoption of CSR principles in large mining companies. However, the pace of adoption of CSR guidelines and principles is low. Fordham and Robinson (2019: 1409) have pointed out that the adoption of CSR guidelines and principles in mining companies and industries is taking place at a low pace at the moment,

especially in developing nations. According to the authors, more needs to be done to promote social values that drive corporate social responsibility and sustainability in mining companies and large industries at a faster pace of transformation. This need is urgent in developing nations such as South Africa. CSR principles are vital for addressing sustainability and for alleviating poverty among the masses. Yet, market conditions influence the rate of economic growth, job creation and the alleviation of poverty among the masses.

Medina-Munoz and Medina-Munoz (2020: 3) have pointed out that CSR is highly valuable for poverty alleviation in developing nations such as South Africa in which the rate of unemployment is quite high. The authors have shown that CSR enables private sector companies to share the burden of alleviating poverty among the masses along with national and local governments. In this situation, the role of national and local governments should be to create economically enabling working environment for private sector companies. Based on a survey conducted in 17 Sub-Saharan African countries, You, Dal Bianco and Amankwah-Amoah (2020: 157) have argued that national economies must be able to grow at a rate of 10% or more annually in order for developing nations such as South Africa to create enough jobs for the unemployed youth. Mather and Fanning (2019: 275) have shown that the promotion of CSR principles in private sector companies reduces the burden of creating jobs for all unemployed people in developing nations. According to the authors, the promotion of CSR guidelines in private sector companies means the creation of sustainable development opportunities by the private sector.

You, Dal Bianco and Amankwah-Amoah (2020: 158) have shown that economic stability is essential for ensuring sustainable development and growth. The authors have shown that lack of economic sustainability is a key cause of failure and poverty in most Sub-Saharan African

nations. According to the authors, the rate of population growth and the need for employment opportunities cannot be matched unless the economy grows at 10% or above annually over a period of 20 years or longer. Yet market governance, also offers major challenges. Markets and business, have the potential, to generate new and decent jobs, and use natural assets, more sustainably. But market signals, and incentives must be set in ways that mobilize businesses, and others, to support sustainable growth, to create the missing markets for environmental goods, and services, and to ensure, more equitable participation. They also need government to assure the institutional and regulatory infrastructure that allows markets to operate effectively, such as support to property rights. Another worry concerns the lack of accountability, of market chains, and transnational operations, which can evade national laws and regulatory frameworks. A third relates to finding the incentives, for environmentally sustainable practices, that pertain to the mainstream, as opposed to non-sustainable businesses.

Amor-Esteban, Galindo-Villardón, García-Sánchez and David (2019: 127) have constructed an index for assessing the degree to which industries and large corporations adhere to CSR guidelines. Adherence to CSR guidelines depends on the availability of good leadership and accountability. Good governance policy fails because decisions are often made in sectoral compartments in which there are various competing and conflicting interests. From the point of view of national governments, prioritisation must be always made. Not all requests can be accommodated by national governments.

Based on a study conducted in Romania, Dura, Driga and Paun (2019: 435) have argued that CSR progress reports must be assessed on a regular basis by local municipalities and national governments in order to identify obstacles to compliance. Cross-ministerial buy-in is essential. Poverty alleviation projects that are based on sustainable development and CSR principles

should be funded and supported by local municipalities and national governments. Failure to do so leads to loss of confidence and commitment from private sector companies such as mines. Leadership means the allocation of resources that are needed for implementation. This is the principal duty and obligation of national governments and local municipalities. Bai and Tu (2019: 11) have argued that national governments must allocate funds that are needed for CSR-related awareness campaigns. These funds are essential for monitoring and evaluating the degree of success achieved by various arms of government in terms of ensuring compliance with CSR guidelines and policies.

Wagner (2019: 1417) has highlighted the need to monitor and evaluate the degree to which CSR principles are implemented in mining companies. This need is critical in deep South African mines in order to mitigate and alleviate the prevalence and incidence of death and injury in mineworkers. The author has argued that the degree of compliance with CSR guidelines and regulations at the various mines should be monitored and evaluated by a dedicated branch of government on a regular basis. Records must be studied, assessed, evaluated and stored properly. Mineworkers working at the various mines must be informed of the results of assessments made by assessors. Compliance assessors must be adequately trained and equipped in order to be successful.

All employees working on CSR related issues must be properly trained and skilled in order to pick up deviations from recommended guidelines and procedures. They should also be allowed to attend Departmental meetings and briefings that are held at the various mines. Hermanus, Coulson and Pillay (2015: 717) have pointed out that regular inspections and independent assessments are essential in order to protect the lives and health of mineworkers working in South African mines. The authors have suggested a framework in which both mine owners and

mineworkers share valuable information on a regular basis in order to minimise casualties in mines. According to the authors, adherence to CSR guidelines is critically important to promote self-confidence and mutual understanding between mineworkers and mine owners. The authors have proposed an employer-led initiative that is based on CSR guidelines with a view to improve health and safety in South African Mines. Moodie (2016: 841) has outlined the main causes of decline in the output of platinum in South African mines.

The leading causes are lack of trust between employees and employers, failure to adopt CSR principles and guidelines in an open, verifiable and transparent manner, the deep and dangerous nature of platinum mines, lack of leadership, the drop in the global demand for platinum products, stiff competition from countries such as Australia, China, Brazil and Russia, and political interference. According to the author, embracing corporate social responsibility is highly helpful for re-establishing mutual trust between employers and workers. Mutual understanding is made possible through embracing CSR principles and guidelines.

Sinwell (2015: 2012) has shown that conflicts between trade unions and mine companies can be resolved amicably by using CSR principles and good leadership. The author has shown that CSR policies are valuable for fostering mutual understanding, collaboration, fruitful wage negotiations, the provision of skills development training opportunities and improved working conditions. Based on the analysis of the South African Quarterly Labour Force Survey of Quarter 4 of the year 2017, the South African unemployment rate for the year 2017 was equal to 28.18% (Statistics South Africa, 2018). The South African national government needs massive help from the private sector for reducing this rate of unemployment. Habanabakize, Meyer and Olah (2019: 330) have shown that in order to reduce unemployment, South Africa

needs to attract massive foreign direct investment from the rest of the world, and that labour and immigration laws need to be made liberal.

Priority should be given to foreign direct investors who are willing and prepared to promote CSR principles in the course of conducting business. CSR principles and guidelines are quite relevant to all economic sectors. Anti-corruption measures have received increased attention in South Africa since January 2020 following a public hearing on the abuse of State resources in various economic sectors. The general tendency is to promote accountability, good leadership, good corporate governance and CSR in all economic sectors. Ries (2020: 473), Phakathi (2020: 25) and Shubin (2019: 33) have shown that South Africans have rightfully started demanding value for money, accountability, transparency and good leadership from their leaders by using Zondo Commission hearings. It follows that CSR principles and guidelines should also be promoted in all economic sectors in the same spirit.

Camerer (2020: 11) has argued that corruption, lack of business and professional ethics, lack of accountability to the people, political interference and the recruitment of employees based on political considerations undermine the degree of adherence of basic CSR principles and guidelines in the South African economy. The author has shown that adherence to CSR principles is no less important than adhering to business ethics principles and good corporate governance. Alegi (2020: 559) has shown that adherence to CSR principles is a means of saving valuable resources. It is now possible to speak of an international good governance regime, supported by many national and international aid organisations, and their research institutes. The policy advice from this regime, has previously, to a large extent, been geared towards incremental change, by finding institutional solutions that will set in motion a virtuous circle. It is very unlikely, that small institutional devices, can set in motion a process towards

establishing good governance, in countries where corruption is systemic. According to Alegi (2020: 559), corruption and lack of accountability are key obstacles that often undermine good leadership, accountability, transparency and adherence to CSR principles.

2.5. Local and international best practice on CSR principles

Coulson (2018: 38-48) has pointed out that South African junior mines must be encouraged and actively motivated to adhere to corporate social responsibility (CSR) guidelines, regulations and principles in order to promote sustainable development and responsible mining practice in the South African mining industry. The author has argued that failure to adhere to CSR principles often undermines the capacity of junior mines to respect environmental and occupational health and safety issues in vulnerable communities living in and around mines. Dube and Maroun (2017: 23-34) have argued that one of the most urgent strategic priorities of South African junior mines is to promote responsible mining activities by using a combination of scientific and legislative tools. The authors have provided a compelling argument that South African junior mines need to be provided support and incentives so that they can conduct mining operations without causing harm to the environment and communities that live around mines. According to the authors, the South African Government has a duty to promote CSR in all South African junior mines. Yakovleva (2017: 43) has sufficient adherence to the basic principles of CSR is highly valuable for preserving available mining resources for the next generation of South Africans.

Based on a longitudinal study conducted in Zambia, Choongo (2017: 1300) has found that the performance of small and medium-sized mining enterprises was enhanced as a result of promoting the basic principles of CSR in Zambian mines. According to the author, adherence

to CSR guidelines and regulations could be enhanced by using awareness campaigns, regulations, guidelines and legislation. Irresponsible mining activities have an adverse effect on underground water resources. Frederiksen (2019: 162-170) has shown that irresponsible mining activities often result in huge long-term economic, health-related and environmental losses in all developing nations of Africa including South Africa. One area of loss is the contamination and pollution underground water resources. The author has argued that there is a need to protect South African groundwater resources by using CSR as a tool. Coulson, Stewart and Saeed (2019: 21-30) have argued that South African mine workers must be given the right not to work in mines in which CSR principles are not adhered to sufficiently.

Irresponsible mining activities result in the pollution of underground water (Malik, Alam, Faridi&Ayub, 2019: 21-30). The authors have shown that there is a significant association between failure to adhere to CSR principles and heavy metals contamination in groundwater resulting from industrial wastewater. Spitz and Trudinger (2019:12) have shown that heavy metal contamination and the pollution of groundwater resources can be effectively minimised by using legislation and CSR principles. Simpson, Badenhorst, Berchner, Jewitt and Davies (2019) have highlighted socioeconomic factors that exacerbate the pollution of underground water resources. According to the authors, competition for land in Mpumalanga Province is a common cause of water contamination and pollution resulting from heavy metals and toxic substances. Ana and Dewi (2019: 233-248) have shown a variety of dangerous toxic substances and heavy metals that result from irresponsible coal mining activities. The authors have provided a list of pollutants and toxic heavy metals resulting from coal mines and have recommended that strict environmental legislation should be used for protecting groundwater resources from pollution and poisoning.

The study conducted by Al-Omari, Farhan and Kandakji (2019: 1-21) has shown that rivers are often exposed to pollutant chemicals in areas where mines are allowed to operate without strict environmental assessment, inspection, monitoring and evaluation. The authors have given a narrative about industrial and mining pollution that has undermined the quality of water in the River Zarqa in Northern Jordan and Syria. The authors have provided failure to adhere to CSR principles as a key underlying cause of failure and have recommended the strict enforcement of environmental legislation. One common cause of irresponsible mining activities is pollution of underground water resulting from heavy metals, toxic substances and acid mine drainage.

Based on a study conducted in Brazil following a severe mining disaster, Garcia, Ribeiro, de Oliveira Roque, Ochoa-Quintero and Laurance (2017: 5-9) have shown that mining companies must be forced to comply with CSR principles as a licensing requirement. The authors have recommended that mining companies should be forced to pay the actual environmental cost resulting from mining disasters. According to the authors, sufficient adherence to CSR principles and guidelines could have saved the environment, the lives of mineworkers and members of the local community.

Irresponsible mining activities often cause a wide variety of severe ecological disasters. A few examples of ecological disasters resulting from irresponsible mining activities are deforestation, environmental degradation, soil erosion, the accumulation of large volumes of solid and liquid waste, the destruction of wildlife and acid drainage. Acid drainage is created when rainwater or snowmelt comes into contact with mineral deposits. Acid drainage causes severe harm to water springs, groundwater and other ecosystems. It is essential for national governments and local municipalities to educate junior mining operators and owners on how they should protect the environment from harm at all times. Based on a survey carried out in

rural regions of China, Xu, Zhao, Yin, Bu and Li (2019) have argued that draconian measures are necessary to protect the environment, women, little children, the elderly, ecosystems and livelihoods from reckless mining activities. According to the authors, junior mining operators who choose to disregard CSR guidelines and principles must not be allowed to continue mining.

Irresponsible junior miners often destroy vulnerable ecosystems by polluting streams and destroying wildlife. Junior mines are mostly interested in the extraction of precious minerals. In the course of extracting precious minerals, they separate commercially valuable minerals from their ores. This process often leads to environmental damage and vulnerable ecosystems. Based on a study conducted in Rustenburg in the North-West Province of South Africa, Forrest (2015: 508-525) has shown that ecosystems and communities are harmed due to over-exploitation of mineral resources. The most encountered type of damage resulting from reckless mining activities is groundwater pollution. As such, there is a dire need for the promotion of CSR guidelines, regulations and principles in junior mines.

Hermanus, Coulson and Pillay (2015: 717-727) have suggested a framework that could be used for ensuring occupational health and safety in South African mines. The authors have shown that it is necessary to enhance awareness about vulnerable communities and ecosystems and the need to protect the general environment from reckless mining activities. The authors have called for the promotion of CSR guidelines and principles in all South African mines. It follows that junior mines must be supported and encouraged to take the plight of the environment, vulnerable ecosystems and the general environment if they are going to be sustainable and viable in the long run. In this regard, Ibsen and Tapia (2017: 170-191) have shown that strip mining is a common cause of disaster in developing nations that rely on mining. Strip mining

is based on clearing entire landscapes, forests and wildlife habitats. Clearing is carried out at mining sites with complete disregard for the environment and ecosystems. Clearing at this large scale often leads to severe erosion of topsoil. Erosion is followed by the loss of agricultural land. Heavy rain carries away loosened topsoil into rivers and streams. Sediments pollute various sources of water including spring water and groundwater.

Martin and Solomon (2016: 21-34) have shown that CSR is highly helpful for good water governance in all mining communities. Moodie (2016: 841-856) has shown that South Africa must utilise its limited freshwater resources by enforcing water laws with complete vigour and determination. The author has argued that South Africa must utilise modern and innovative technological applications in order to ensure water security for the next generation of South Africans by forging active partnerships and collaborations with advanced nations of the world. Israel enforces a law in all mining companies with draconian regulations with a view to protect the environment and vulnerable ecosystems from harm (Humphreys, 2019: 145-151). The author has shown that failure to regulate the mining industry strictly often leads to harm. Sinwell (2015: 591-605) has shown that the national government must play an active role in protecting vulnerable ecosystems and livelihoods from abuse by mining companies. Mining companies should be willing to invest in the lives of local communities in order to establish a win-win situation for their companies, the environment and local communities.

2.6 Theoretical framework of study

Fordham and Robinson (2019: 1409) have identified key elements of corporate social values that are essential for fostering CSR guidelines in mining companies. These elements include willingness

and commitment to accept corporate social responsibility towards rural communities, the commitment for promoting sustainable development, commitment towards alleviating poverty, commitment towards paying tax money, and commitment to fund community development programmes. Based on a study conducted in the Niger Delta region of Nigeria, Uduji, Okolo-Obasi and Asongu (2019: 725) have argued that CSR contributes significantly to the development of rural young people in the field of cultural tourism in all Sub-Saharan African countries including South Africa. The authors have shown that there is a significant association between good governance and CSR. Definitions of CSR values may vary depending on industry, but the basic principles are the same. CSR principles entail commitment to promote sustainable development, inclusive growth and harmony among members of the community in which mining operations are conducted.

Raymond, Kenter, Van Riper, Rawluk and Kendal (2019: 1173) have shown that CSR principles and guidelines must be actively promoted in all sectors of the economy including mining. In an editorial statement, the authors have argued that CSR is essential for ensuring sustainable and mutually inclusive growth in all sectors of the national economy. The authors have called for the promotion of CSR principles so that members of the industry and entrepreneurs adhere to CSR guidelines sufficiently. The authors have also shown that the ability to foster and implement CSR principles requires good leadership, accountability, objectivity, transparency, respect for basic human and labour rights of workers as well willingness to respect for the rule of law. Haalboom (2012: 969) has argued that the basic indigenous rights of rural mining communities must be protected adequately by implementing CSR guidelines in all mining companies operating in South Africa.

Aggarwal and Singh (2019: 2) have pointed out that the successful promotion of CSR principles in large mining companies requires good reporting and transparency to members of the Press and the

public. Zafar and Sulaiman (2019: 2) have shown that CSR principles are based on empathy and respect for other members of society, and that mining companies and huge businesses should not be allowed to exploit vulnerable members of society. According to the authors, CSR principles are aligned with responsible business practice, honesty, personal integrity and fairness to vulnerable segments of society. Good governance and good leadership principles are similar with CSR policies. The conceptualisation of good governance and good leadership entail accountability, objectivity, transparency and fairness. It is essential for national governments and local municipalities to promote good governance and leadership on all issues affecting natural resources. Local and global best examples must be used by elected officials in the course of planning for water. In light of the fact that water requires specialised expertise and massive resources, the private sector must be considered and actively encouraged in all efforts that are made to ensure satisfactory water service delivery to the people.

Ozkazanc-Pan (2019: 851) has shown that there is a need to enforce legislation that is designed for protecting natural resources, groundwater, natural habitat, vulnerable ecosystems and the general environment in which mining companies operate. The author has argued that water and environmental resources are being abused due to failure to enforce legislation and municipal bylaws. The report shows that the reluctance of water-users to abide by the Law has made it necessary for national governments to utilise legislative tools for protecting sources of water. Groundwater sources are being threatened due to increasing agricultural, industrial and commercial use of water sources. Rates of abstraction have exceeded natural replenishment rates over extended periods in many parts of the world due to irresponsible mining and farming activities. In many areas, groundwater is the water resource mostly relied upon on a daily basis as surface water resources have become depleted or contaminated.

Aju and Beddewela (2020: 763) have shown that CSR principles, good corporate governance and strict environmental rules and municipal bylaws are urgently needed in order to address serious concern over diminishing natural resources in mining communities. The serious concerns are mostly raised by members of mining and rural communities in which scarce natural resources are depleted and abused on a daily basis due to irresponsible mining and industrial activities. The study conducted by Van Onselen (2019: 31) shows that CSR principles and guidelines are often disregarded in favour of large mining and industrial corporations due to vested interests. As such, there are times when members of mining communities need to fight for their basic rights. Lack of awareness about CSR principles and poor adherence to good governance principles often affects mining communities adversely. Ma and Bu (2020: 2) has pointed out examples in which valuable mining operations have failed due to lack of respect for CSR principles, lack of good leadership and disregard for the basic rights of indigenous people living in and around mines. Lobbyists spend a large amount of time and money influencing elected representatives on key strategic issues. Such lobbyists are solely interested in promoting the interests of large mining companies and industry at the expense of poorly developed mining communities. For this reason, the promotion of CSR principles and guidelines in mining communities carries immense weight in terms of the need to empower poor people living in mining communities. As such, initiatives involving the promotion and successful implementation of CSR principles and guidelines in poorly developed mining communities must be led by national governments and local municipalities if they are to succeed and bear fruit (Dong, Tong, Li, Zhou, Wang & Liu, 2019: 1562).

The key tenets of CSR are good leadership, good corporate governance, accountability, honesty, transparency, personal integrity, discipline, fairness to members of the community who need to be given access to clean water, accountability, objectivity, transparency and good

skills of listening to the people (Jamali, El Dirani & Harwood, 2015: 125). Good leaders take the time to work on valuable comments and suggestions from members of the community. Good leaders are not corrupt. Good leaders believe in and value merits that are necessary for the successful implementation of mining projects. Due to irresponsible mining activities, groundwater resources are dwindling in almost all developing nations of the world at an alarming rate (Jongwe, Moroz, Gordon & Anderson, 2020: 31). The authors have argued that respecting the basic rights of indigenous people and respecting CSR principles are quite helpful for alleviating and mitigating this problem. It has now become necessary to enforce CSR principles in all mines and industry in order to protect the rights of indigenous people. It is also equally important to promote awareness about the benefits of CSR values and appellations. Mining companies should be encouraged and motivated to work with local municipalities to promote awareness about CSR values and guidelines.

Boiral, Heras-Saizarbitoria and Brotherton (2020: 1020) have shown that the governance and administration of scarce resources such as water in draught-stricken local municipalities must be given priority over the mining rights of mining companies. The authors have argued that unless mining companies agree to adhere to CSR principles fully, scarce resources such as water will disappear much faster than the rate at which they are dwindling. CSR guidelines must be promoted aggressively in all mining companies in order to preserve and protect natural habitat and dwindling natural resources. Speedy legal actions should be taken against mining companies that do not comply with CSR guidelines. Doing so is essential in order to protect the rights of indigenous people and the poor. Drastic measures must be taken in order to discourage corrupt practice by elected officials. Agudelo, Johannsdottir and Davidsdottir (2020: 2) have suggested that mining companies, the private sector, human-rights groups, civil

society and non-governmental organisations must be encouraged and supported to take part in the planning and implementation of CSR principles and guidelines.

Based on a study conducted in Brazil, Pureza and Lee (2020: 1410) have pointed out that the provision of clean water to the people is often undermined due to lack of adherence to CSR principles and guidelines in large mining companies. The other problems highlighted by the authors are lack of respect for good leadership, lack of accountability, lack of respect for the rights of indigenous people, the abuse of authority, and lack of respect for the rule of law and basic human rights. The authors have shown that irresponsible mining and industrial activities are the key reasons for the acute shortage of clean water in developing nations of the world including Sub-Saharan Africa. According to the authors, the promotion of CSR in rural and indigenous communities is a key responsibility of national governments and local municipalities.

The provision of primary health care to the masses often fails due to lack of clean water in poor African communities. O'Brien, Ouschan, Jarvis and Soutar (2020: 12) have shown that the key obstacles to satisfactory service delivery to indigenous people are lack of respect for CSR guidelines, lack of specialised skills, inability to manage and implement municipal projects successfully, influx of rural migrants into city centres, population explosion, land degradation, abject poverty, lack of knowledge, lack of good leadership, lack of respect for human rights, inability to enforce the law, maladministration by elected officials, lack of accountability, political interference and rampant corruption as key barriers to the successful completion of basic developmental projects that are highly valuable to poorly developed mining communities.

The task of transforming old governance systems into vibrant and helpful government systems requires the promotion and adoption of CSR principles. CSR principles accommodate a far broader range of interests of the poor and indigenous people. They also provide for the basic needs of the young and the old. In fact, CSR principles accommodate the needs of all segments of society. CSR principles ensure fairness, equity, respect for basic human dignity, and respect for the rule of law. They are based on objectivity. Subsidiarity and control at the lowest possible level should be a central principle for sustainable development and good governance in order for decisions to be fair and objective. Resources must be allocated to deserving parties based on the rule of law. Transparency and accountability are both needed in order to ensure fairness to all. Shifting power down to lower levels is vital in order to bring in local knowledge, increase accessibility to decision-making, and get a broader range of voices into the debate. Innovations are needed to ensure that the marginalised have a voice that counts through coalition building, organisation and mobilization (O'Brien, Ouschan, Jarvis & Soutar, 2020: 17).

At national level, accountability and transparency are needed in order to hold those in power to account. Change management and good leadership are essential components of fairness to the people. Parliamentary and press oversight are key requirements for fairness. Whistleblowers must be protected from corrupt leaders. Ruukonen and Temmes (2019: 466) have shown the need for the adoption of CSR principles in poorly developed mining communities. According to the authors, the pace of adoption of CSR principles, and the degree of respecting good leadership and good corporate governance principles in mining companies is less than satisfactory at the moment. The accountability challenge is compounded by corruption, political interference, alliances cemented between government officials and powerful entrepreneurs. The international nature of much of the corporate sector involved in

natural resource use means that even the governments of the countries in which they are headquartered have limited ability to influence their actions and decisions.

Globally, we urgently need better means to agree and implement measures and to achieve our collective goals. Given the large numbers of states, and their separate jurisdictions, more effective, and far-reaching international institutions, and rules are necessary, yet nation states, are unwilling to submit to collective agreements, which constrain their freedom of maneuver. Equally, greater control over international, financial and corporate actors is needed, to reduce their ability to escape, fiscal and other responsibilities, through freedom of movement, between different jurisdictions. Global efforts to address climate change, have resulted in a complex international governance architecture, which has largely replicated geopolitical and global economic power relations, among nations. There has been little room in these evolving governance arrangements, for the priorities of weaker countries, and marginalized people, to be heard and addressed. Growing reliance on the G20, as a forum, for sorting out global problems, runs the risk of disempowering, the large number of smaller, less economically prominent nations.

Development economists and policymakers often recommend the adoption of CSR principles in large mining companies. However, the pace of adoption of CSR guidelines and principles is low. Fordham and Robinson (2019: 1409) have pointed out that the adoption of CSR guidelines and principles in mining companies and industries is taking place at a low pace at the moment, especially in developing nations. According to the authors, more needs to be done to promote social values that drive corporate social responsibility and sustainability in mining companies and large industries at a faster pace of transformation. This need is urgent in developing nations such as South Africa. CSR principles are vital for addressing sustainability and for alleviating

poverty among the masses. Yet, market conditions influence the rate of economic growth, job creation and the alleviation of poverty among the masses.

Medina-Munoz and Medina-Munoz (2020: 3) have pointed out that CSR is highly valuable for poverty alleviation in developing nations such as South Africa in which the rate of unemployment is quite high. The authors have shown that CSR enables private sector companies to share the burden of alleviating poverty among the masses along with national and local governments. In this situation, the role of national and local governments should be to create economically enabling working environment for private sector companies. Based on a survey conducted in 17 Sub-Saharan African countries, You, Dal Bianco and Amankwah-Amoah (2020: 157) have argued that national economies must be able to grow at a rate of 10% or more annually in order for developing nations such as South Africa to create enough jobs for the unemployed youth. Mather and Fanning (2019: 275) have shown that the promotion of CSR principles in private sector companies reduces the burden of creating jobs for all unemployed people in developing nations. According to the authors, the promotion of CSR guidelines in private sector companies means the creation of sustainable development opportunities by the private sector.

You, Dal Bianco and Amankwah-Amoah (2020: 158) have shown that economic stability is essential for ensuring sustainable development and growth. The authors have shown that lack of economic sustainability is a key cause of failure and poverty in most Sub-Saharan African nations. According to the authors, the rate of population growth and the need for employment opportunities cannot be matched unless the economy grows at 10% or above annually over a period of 20 years or longer. Yet market governance, also offers major challenges. Markets and business, have the potential, to generate new and decent jobs, and use natural assets, more

sustainably. But market signals, and incentives must be set in ways that mobilize businesses, and others, to support sustainable growth, to create the missing markets for environmental goods, and services, and to ensure, more equitable participation. They also need government to assure the institutional and regulatory infrastructure that allows markets to operate effectively, such as support to property rights. Another worry concerns the lack of accountability, of market chains, and transnational operations, which can evade national laws and regulatory frameworks. A third relates to finding the incentives, for environmentally sustainable practices, that pertain to the mainstream, as opposed to non-sustainable businesses.

Amor-Esteban, Galindo-Villardón, García-Sánchez and David (2019: 127) have constructed an index for assessing the degree to which industries and large corporations adhere to CSR guidelines. Adherence to CSR guidelines depends on the availability of good leadership and accountability. Good governance policy fails because decisions are often made in sectoral compartments in which there are various competing and conflicting interests. From the point of view of national governments, prioritisation must be always made. Not all requests can be accommodated by national governments.

Based on a study conducted in Romania, Dura, Driga and Paun (2019: 435) have argued that CSR progress reports must be assessed on a regular basis by local municipalities and national governments in order to identify obstacles to compliance. Cross-ministerial buy-in is essential. Poverty alleviation projects that are based on sustainable development and CSR principles should be funded and supported by local municipalities and national governments. Failure to do so leads to loss of confidence and commitment from private sector companies such as mines. Leadership means the allocation of resources that are needed for implementation. This is the principal duty and obligation of national governments and local municipalities. Bai and Tu

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Moodie (2016: 841) has outlined the main causes of decline in the output of platinum in South African mines. The leading causes are lack of trust between employees and employers, failure to adopt CSR principles and guidelines in an open, verifiable and transparent manner, the deep and dangerous nature of platinum mines, lack of leadership, the drop in the global demand for platinum products, stiff competition from countries such as Australia, China, Brazil and Russia, and political interference. According to the author, embracing corporate social responsibility is highly helpful for re-establishing mutual trust between employers and workers.

Mutual understanding is made possible through embracing CSR principles and guidelines. Sinwell (2015: 2012) has shown that conflicts between trade unions and mine companies can be resolved amicably by using CSR principles and good leadership. The author has shown that CSR policies are valuable for fostering mutual understanding, collaboration, fruitful wage negotiations, the provision of skills development training opportunities and improved working conditions. For CSR principles to be implemented effectively in mining communities, it is necessary to promote anti-corruption measures and the strict enforcement of municipal bylaws on the payment of tax to local municipalities, waste collection and disposal and dumping toxic chemicals in and around water reservoirs. It is also necessary to promote awareness campaigns on primary health care principles, personal hygiene and environmental sanitation.

Figure 2.6.1 shows a practical framework for enhancing the level of compliance with CSR guidelines and principles in South African junior mining companies. The framework is suitable for ensuring satisfactory adherence to CSR in South African junior mines. The framework entails the promotion of awareness campaigns in South African junior mines, the

promotion of education on occupational health and safety, environmental, ecological, sanitation, hygiene and primary health care education to communities living in and around junior mines.

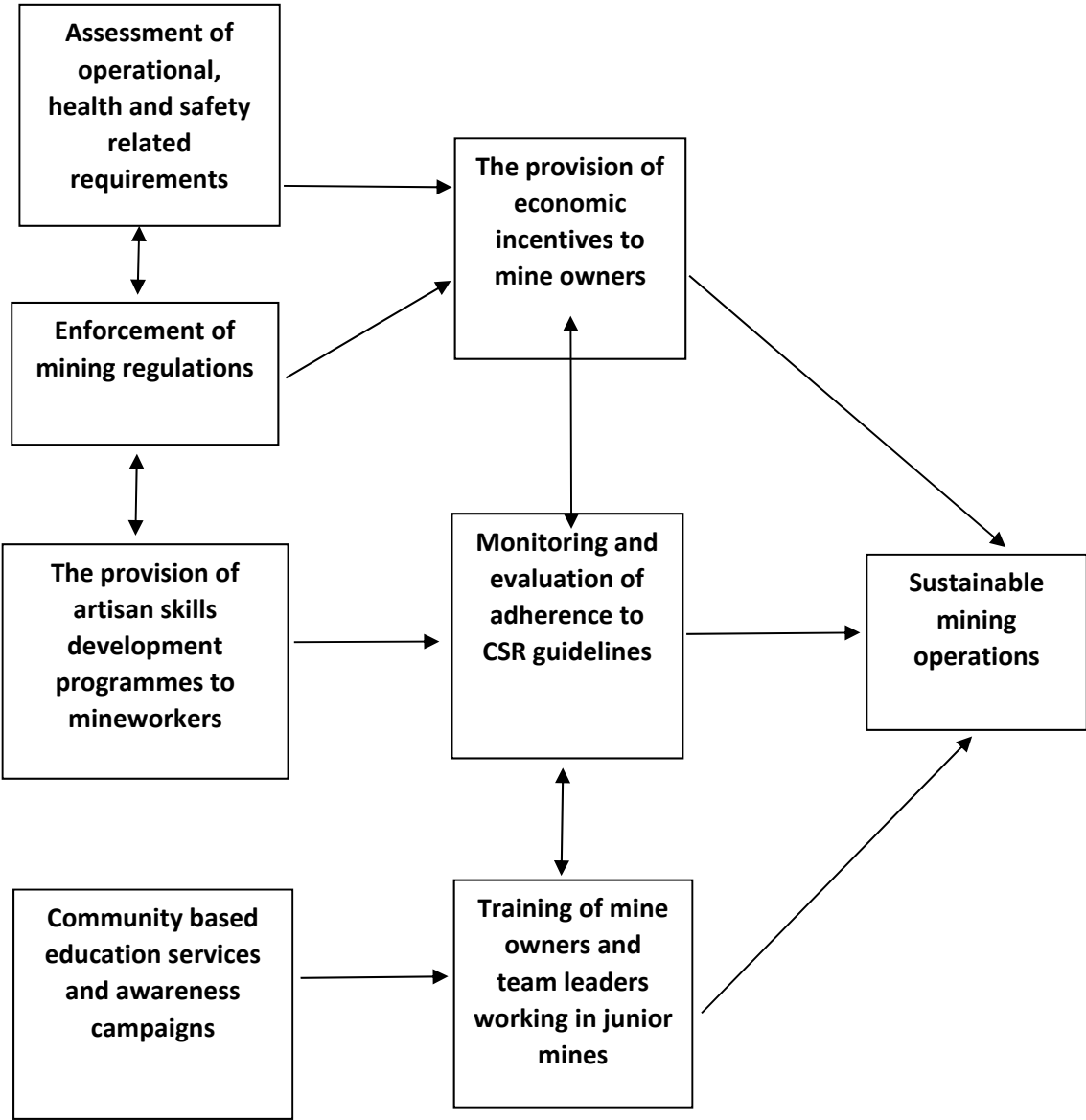


Figure 2.6.1: Framework for ensuring satisfactory adherence to CSR

Source: Maleejane (2020: 83-92)

The framework shown in Figure 2.6.1 entails the provision of tangible economic benefits and rewards to mine owners, mine operators and members of the community who actively protect the general environment, vulnerable ecosystems and natural habitat. The framework is analogous to the framework constructed by Frederiksen (2019: 162-170) based on CSR principles and guidelines. The framework entails the provision of awareness education, the provision of incentives and a strict enforcement of municipal bylaws and legislation on mining operations. The framework is suitable to the needs of people living in and around junior mines in South Africa.

Saenz (2019: 690) points out that three steps must be followed in order to adhere sufficiently to CSR principles in junior mines. These 3 steps are the construction of a CSR plan of action, the creation of a communication channel, and the creation of an appropriate CSR strategy that is suitable for meeting the basic survival and operational needs of all stakeholders of the mining community sufficiently enough.

Hughes (2019: 884) has argued that sufficient adherence to CSR principles entails the ability and commitment to live and work in the local community in perfect harmony. To do so, it is necessary to develop a plan that explains what kind of relationship will be established with members of the host community, what services are to be provided to members of the community, and how operational and logistical issues such as safety and security, transportation, access to water, access to electricity, access to primary health care, sanitation, waste collection and disposal, access to skills based and artisan mentorship programmes are to be provided to employees working in junior mines. The plan should also explain how differences in opinion and conflicts are going to be resolved amicably.

Kumi, Yeboah and Kumi (2020: 181) have argued that CSR principles and guidelines must be accompanied by effective communication in order to bear fruit. The work done by the authors shows that effective communication is a significant aspect of promoting CSR in mining communities. Guo, Nguyen, Vu and Bui (2019: 3) have shown that it is vital to make sure that the basic needs of mining communities are met in order for CSR principles to be adopted effectively. Strong legal framework should be put in place to create economic stability and facilitate foreign investments. Companies should look into forming alliances with helpful stakeholders in order to fully fund development initiatives that are based on the critical needs of people living in the mining community.

Based on a study conducted in the Witbank region of Mpumalanga Province, Worku (2017: 121) has identified key determinants of viability in junior mining companies. The study has found that adherence to the basic principles of CSR, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working relationship between mining communities and owners of junior mines. Responsible mining activities include the conservation and preservation of scarce resources such as groundwater. CSR guidelines are vital for protecting the natural environment in mining communities. Groundwater is a highly valuable and scarce resource that is available in limited quantity. The utilisation of groundwater requires extreme caution and care in all mining communities. Walters, Quinlan and Johnstone (2017: 381) have shown that CSR guidelines are highly valuable for saving and protecting groundwater reserves in mining communities, and for avoiding conflicts over scarce natural resources.

Stewart and Nite (2017: 1955) have shown that CSR is essential for ensuring the safety and health of mineworkers. The authors have shown that CSR is also highly valuable for ensuring

overall job satisfaction and productivity in mines. Ensuring job satisfaction and productivity in mines requires adherence to CSR guidelines and principles. CSR principles are helpful for the efficient utilisation of modern technological and innovative methods of saving and conserving natural resources in mines. CSR enables mineworkers to use appropriate technologies in mines. These appropriate technologies are highly efficient and are designed for minimising the loss of lives in mines. The ability of junior mines to use appropriate technology is a key indicator of their ability to minimise the amount of harm inflicted on the natural environment due to mining activities (Liu, Nie, Hua, Jia, Li, Ma & Peng, 2019: 2059).

Bai, Guo and Tan (2019: 5219) have shown that wastewater produced from mining and industrial activities can be transformed into fresh water by using appropriate technology. CSR enables mineworkers to acquire and use such technologies. By treating wastewater appropriately, it is possible to obtain water that could be used for drinking, cooking, washing and irrigation. Globally, advanced technological methods of treating wastewater have been used with great success (Guanhua, Zhao, Qian, Shang & Kai, 2019: 611). The success achieved by mines operating in countries such as China and Australia is based on CSR principles and guidelines.

Chen, Qin, Zeng and Li (2016: 439-445) have shown that local municipalities need political commitment from their leaders in order to promote the use of CSR principles and guidelines for protecting groundwater resources. Understanding and accepting that water is a resource that must be paid for is an inseparable element of this. The rewards of saving water are quite high as the next generation of South Africans will need water in order to survive and be economically successful. Famiglietti (2014: 945) has shown that adherence to CSR principles is the easiest method of conserving water resources. When a resource is scarce, using it in the

most efficient way possible is paramount. The transformation of a water-scarce nation into a water-efficient society requires technical solutions and a change in the mind-set of people. By enacting measures that are based on CSR guidelines, Denmark has managed to contain urban water loss to less than 8%.

The study conducted by Hoang and Kang (2019: 43) has shown that communities must ensure water security by planning for the next generation actively. All members of the community including businesses, industry, political leaders and ordinary citizens share a common goal in saving water. South Africa is a water-scarce nation. As such, it must actively encourage people to save and conserve water. Scandinavian countries such as Sweden, Norway and Denmark have been enforcing strict environmental regulations for the past several decades. As a result, these countries have achieved water security for their current and future generations. Their success is attributed to the optimal utilisation of water resources as well as willingness to enforce environmental regulations and guidelines with complete vigour and political commitment. These nations have had a long history of developing environmental regulations, promoting private-public partnerships, conserving water, and promoting partnerships among businesses, industry, government and research institutions.

Ensuring adequate compliance with CSR guidelines and regulations that are used internationally is essential for a mutually beneficial mining activity in mining communities that host the 6 junior mining companies of this particular study. Adequate compliance with CSR guidelines and regulations are highly beneficial for ensuring long-lasting and productive working relationships between mining companies and host communities. Satisfactory compliance with CSR guidelines and principles is based on the basic principles of good leadership, good corporate governance and commitment to protect and preserve natural

habitat, the natural environment and vulnerable communities from undue harm, pollution, contamination, abuse, corporate greed and exploitation.

Community based surveys conducted by Maleejane (2022) and Worku (2017) in South African junior mines have found that the promotion of awareness campaigns about the potential benefits of CSR and good corporate governance is highly helpful for ensuring a harmonious working relationship between junior mining companies and their host communities. The authors have shown that good leadership principles such as accountability, transparency, fairness and objectivity are key requirements for the successful implementation of CSR guidelines and principles in South African junior mining companies. Sufficient adherence with CSR guidelines by junior mining companies is vital for minimising pollution, irresponsible mining activities, corporate greed, lack of accountability and illegal mining activities in host communities.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter describes the methodological approaches used for conducting the study in areas such as the design of study, sample size calculation, data collection, data analyses and the interpretation of results obtained from the analyses of data sets. A combination of quantitative and qualitative methods of data collection and analyses were used in the study. The chapter provides details about tests used for ensuring the validity and reliability of tools used for the measurement of variables of study. Quantitative data was gathered by using a self-administered questionnaire of study to 439 employees working in 6 junior mining companies. Qualitative data was gathered by conducting 12 one-hour-long individual interviews with officials working in the 6 junior mining companies. Results obtained from quantitative and qualitative methods were integrated in order to construct a realistic framework of study.

The overall objective of research was to assess and evaluate the extent to which CSR principles and guidelines are adhered to by the six South African junior mining companies. The research work entailed the use of quantitative and qualitative methods of data collection and analyses. Based on results obtained from the study, a framework has been developed for ensuing enhanced compliance with CSR guidelines and regulations in the six junior mining companies. The framework is also highly valuable for predicting the level of compliance to CSR guidelines and regulations in South African junior mining companies.

A combination of quantitative and qualitative methods of data collection and analyses were used for conducting the study. The quantitative aspect of research entailed the collection of objective data by using a self-administered questionnaire. The qualitative aspect of research

entailed the collection of subjective data by conducting 1-hour-long individual indepth interviews with officials working in the 6 junior mining companies. Results obtained from quantitative and qualitative methods of data analyses were integrated in order to construct a practical framework that could be used for the assessment and prediction of the level of compliance with CSR guidelines and principles in South African junior mining companies.

A key task carried out by the study was exploring, describing, identifying and quantifying socioeconomic factors that affect the level of compliance of South African junior mining companies with CSR guidelines, regulations and principles. This task was carried out by way of using suitable quantitative and qualitative methods of research. According to Beh and Lombardo (2021), quantitative and qualitative methods of data collection and analyses complement each other as some of the research questions require subjective or qualitative methods of gathering and analysing data. For example, the following research questions require a qualitative enquiry in order to be answered adequately:

- What are the key obstacles to sufficient compliance with CSR guidelines and principles in South African junior mining companies?
- What are the key obstacles to quality business leadership in South African junior mines?
- What are the views expressed by host communities about the level of compliance of junior mining companies with environmental safety and health?

The study used a combination of quantitative and qualitative methods of data gathering and analyses. Results obtained from quantitative and qualitative methods were integrated in order to construct a practical framework of study that enables junior mines to comply better with CSR guidelines and principles. Both methods are highly valuable for providing adequate

answers to objective and subjective questions of research. Results obtained from quantitative and qualitative methods of research were later integrated with each other. Integration of findings was helpful for drawing up a plan of action and a framework for enhancing the level of compliance with CSR guidelines and principles.

Justification of the choice of methods of data collection and analyses

Theoretical justifications were provided for the various methods of data collection and analyses used in the study. Braun, Clarke and Hayfield (2022:424) indicate that the ability of researchers to provide adequate answers to their research questions depends upon their ability to use the most suitable methods of research. In this particular study, a key point of interest was the need to find out and identify key obstacles to sufficient compliance with CSR guidelines and policies in South African junior mining companies. To achieve this goal, it was necessary to conduct an in-depth and critical review of the literature in order to identify appropriate methods of quantitative and qualitative methods of data collection and analyses. The six junior mining companies have employees and administrators. Each mining company interacts with members of host communities in which mining activities are carried out. The mining companies extract minerals such as iron ore and coal and then process these products to produce commodities for local markets. All six mining companies use labour forces that are not highly skilled or highly educated. All six mining companies work closely with representatives of local communities.

The stakeholder theory (Freeman and Dmytriyev, 2017:7) shows that it is essential for mining companies to work closely with host communities in order to ensure a long-lasting and mutually beneficial working relationship. The theory shows that compliance with CSR

guidelines and principles lays out the foundation for a long-lasting and mutually rewarding relationship between mining companies and host communities. Commodities that are extracted and produced by junior mining companies are sold to local markets mostly to better-equipped companies that process mineral products. The value chain of producers and consumers in the mineral extraction and processing sector is quite complex. Commodities that are extracted from mines are made available to local markets in different categories, volumes and qualities, and are consumed by companies that process them further by using advanced technological processes locally and abroad. The key stakeholders in this value chain are the mining companies, employees of mining companies, local or host communities, local markets, international markets, contractors and service providers that process minerals that are extracted by junior mining companies to local and international markets.

One of the key theoretical frameworks of this study is the stakeholder theory (Freeman and Dmytriiev, 2017). The theory provides a theoretical background to the research. There are very few studies that have been conducted by gathering quantitative and qualitative data from 6 junior mining companies with a view to assess and evaluate the level of compliance with CSR guidelines and principles until now. The study closes this gap in the literature by using suitable methods of data collection and analyses.

The study conducted by Toussaint, Cabanelas and Blanco-Gonzalez (2021:103) shows that the use of an integrated approach is highly recommended for conducting research in the fields of CSR and business ethics. The authors have shown that due to the nature of CSR studies, the use of quantitative methods alone is not enough for gathering key determinants of satisfactory awareness and compliance with CSR and business ethics guidelines and regulations. The participants' perspective and perceptions were not known prior to the data collection process.

In this study, the key purpose of study is to find out, identify, explore and explain underlying factors that affect the level to which people comply with CSR and business ethics principles. In this regard, compliance with CSR guidelines has not been sufficiently studied in South African junior mining companies. The study conducted by Hilson, Hilson and Dauda (2019) has called for further research in this area of study. This particular study can be viewed as an answer to the call for research made by the authors. An interpretive research paradigm was used in order to be able to assess and critically evaluate the strength of associations among pairs of factors that are related to CSR (Westfall and Arias, 2020). Two-by-two tests of associations (Westfall and Arias, 2020) are theoretically reliable enough in cases where the sample size of study is large. The variables of study used in this research are objective and subjective in nature. Thus, the use of quantitative and qualitative methods of data collection and analyses is appropriate for the study (Beh & Lombardo, 2021).

3.1 Study design

The design of the study was descriptive, exploratory and cross-sectional (Washington, Karlaftis, Mannering & Anastasopoulos, 2020). The design was descriptive and exploratory as the study was conducted in order to explore and describe socioeconomic factors that are known to affect the level of awareness and compliance with CSR related guidelines and regulations in the six junior mining companies. The design was cross-sectional as data was gathered only once from eligible participants of study in the course of research. The aim of research was to explore various factors that undermine the level of compliance with CSR guidelines.

Warburton (2020) points out that economic analysis requires the ability to measure attributes with no bias and measurement related errors. The author has shown the need for minimising

bias and measurement related errors. The 439 employees working in the 6 junior mining companies and the 12 officials selected for indepth interviews were all selected purposively for the study. These were people who satisfied the criteria of inclusion into the study. According to Beh and Lombardo (2021), Warburton (2020) and Levy and Lemeshow (2013), the use of purposive sampling is highly valuable in cases where the people selected to take part in the study have the ability to provide valuable information and data about the research questions being studied.

Washington, Karlaftis, Mannering and Anastasopoulos (2020) point out that a questionnaire is suitable for gathering data from people who are capable of reading and writing questions easily on their own with minimal assistance from the researcher. The authors recommend that all questionnaires be tested in the field before they are used for actual data collection. Hilson, Hilson and Dauda (2019:341) have shown that lack of awareness about CSR guidelines and principles is a key barrier to satisfactory compliance with CSR guidelines in junior mining companies. Sufficient awareness about the benefits of CSR is a key requirement for compliance with business ethics and good corporate governance.

According to Beh and Lombardo (2021), purposive sampling is ideal in cases where participants are well aware of the research problem that is being studied, and are capable of providing reliable or credible data. In this study, there was a particular interest in 439 employees who carried out daily work-related routines and activities in the 6 junior mining companies. These 439 employees were capable of reading and writing in English with no further assistance from the researcher. They were also fairly well aware of challenges and difficulties experienced in the junior mines due to work-related activities and obligations. As

such, gathering data from these 439 employees was in order according to Beh and Lombardo (2021) based on purposive sampling principles.

In addition to collecting quantitative data from 439 employees, qualitative data was collected from 12 officials working in the 6 junior mining companies. The 12 officials selected from the 6 junior mining companies were also highly knowledgeable about CSR and business ethics due to their duties and responsibilities in the mines. The 12 officials were interviewed personally by using a taperecorder. Each one of these 12 officials was well informed about the potential benefits of CSR and business ethics. They were also aware about the need to protect the general environment. Purposive sampling was used in this study as the researcher had prior knowledge about the purpose of the research, the challenges faced by junior mining companies the cases in which these companies operated.

It was highly beneficial to gather data from 6 junior mining companies as part of the study. The collection of valuable information from all 6 junior mining companies has enabled the researcher to understand socioeconomic factors that affect the level of compliance with CSR and business ethics in South African junior mining companies. The junior mines were readily available to share their business leadership challenges and experiences pertaining to issues of CSR. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling, and judgement sampling. Hadebe (2022:39-53) has conducted a study in Zimbabwe and South Africa, and has found that the key motivation of migration into South African junior mines is the search for jobs and livelihood. The author has shown that sufficient compliance with CSR guidelines and policies is highly helpful for sustaining the general environment in which mining operations are carried out.

Lewins, Heusden and Baldwin-Ragaven (2022:199-227) have shown that there is a need for promoting awareness about primary health care, personal hygiene, business ethics and CSR in South African communities. The authors have shown that mining workers and communities who have no access to basic health services are immediate victims of deadly infections such as Covid-19. It follows that compliance with CSR guidelines is highly valuable for protecting the livelihoods and qualities of health of ordinary people.

Magidi and Hlungwani (2022) have shown that failure to control mining activities carried out in junior mines often results in significant harm on the environment and rural livelihoods in Zimbabwe. The authors have argued that it is necessary to carry out research surveys on a regular basis in order to monitor and evaluate mining activities. In this study, data was collected on various independent variables of study or socioeconomic and management-related variables that are known to influence the level of adherence to corporate social responsibility guidelines and principles in mining companies in all parts of the world. The 6 junior mining companies that took part in the study include iron ore and coal mining companies, contract mining companies, mineral processing companies and mineral commodities trading companies. Some companies are in shareholding of the mine resources, shareholders while others were contracted to mine resources that belongs to other business entities. While other companies are traders who do not own miners but rather have off take agreements to sell mining products. One company in Assen town of the Northwest province, another is in Thabazimbi township in Limpopo province, one has over 5 mineral processing operations in Middleburg, Mpumalanga Province. One of the mines has a mining operation in KwaZulu-Natal province. Two mineral commodity trading companies are based in Gauteng province. The differing characteristics, location and nature on mining company and ownership brought about diversification for futhere strenghtning of the research results.

All 6 junior mines meet the criteria of inclusion into the study. They were willing to take part in the study. All 6 junior mines were duly licensed companies by the Department of Mineral Resources and Energy of South Africa (DMRE). All 6 junior mining companies have conducted a detailed Environmental Impact Assessment (EIA) report to the DMRE and the relevant stakeholders, and are currently operating in South Africa with proper license and accreditation as producers of basic mineral commodities. The mines are required to abide by their operating licenses. Failure to comply with operating license results in the withdrawal of a license by South African law. The legal authority in this regard is the DMRE, which is required by law to monitor and evaluate the level of compliance of these junior mining companies with the relevant pieces of legislation.

One of the key legislative and license-related requirements is the need to abide by the South African Occupational Health and Safety Act (OHSA). The Act (Act no. 85 of 1993) allows officials and inspectors of the DMRE to inspect all operational activities at any time and withdraw or suspend their operational license if doing so becomes necessary (Musavengane, Leonard & Mureyani, 2022). The authors have shown that it is highly valuable to monitor, evaluate and inspect activities carried out in South African junior mining companies in order to see if there is non-compliance with the Occupational Health and Safety Act. In this particular study, one of the key requirements of inclusion into the study was complete compliance with the Occupational Health and Safety Act (Act no. 85 of 1993).

The 6 junior mining companies that were selected into the study were A. M. Thabazimbi Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources, Ingwenya Mineral Processing and Assen Iron Ore Mine (PTY) Ltd). The degree of adherence to corporate social responsibility (CSR) guidelines was measured based on a composite measure proposed by Amor-Esteban,

Galindo-Villardón and García-Sánchez (2020: 1914-1936). The researcher of this study selected companies that agreed to partake in the study and are licensed by the Department of Mineral Resources and Energy (DMRE). All 6 companies had submitted their reports on Environmental Impact Assessment (EIA) to the DMRE and all other relevant stakeholders at the time of study. As such, they were all eligible to take part in the study.

Thabazimbi iron ore mine is a subsidiary of ArcelorMittal SA operating in the periphery of Thabazimbi Township in Limpopo province of South Africa. Assen iron ore operates an iron ore mine next to the Village of Assen outside Britz in the Northwest province. Ingwenya mineral processing has its operation in the Witbank and Kwazulu Natal provinces. Whereas Boipelo Mining operates in the Mpumalanga Areas. Li Coal and Waterfall operates from Gauteng.

The use of both quantitative and qualitative approaches produced a deeper and broader understanding of the phenomenon being studied, followed by exploratory case-study methods to reach to strong research results outcomes. A case study design usually goes deep into the causes of events that interest using very small samples (Beh & Lombardo, 2021). A combination of both methods even gave more confidence in the results and the conclusions drawn from the study and ascertain findings and interpretations. The main roles of quantitative component were to describe the phenomena observed during the research, assess and evaluate the extent to which CSR principles and guidelines are adhered to in 6 South African junior mining companies; and find out the key determinant factors to adherence of CSR guidelines and principles by junior mining companies of South Africa. This was achieved by getting data using a 5-point Likert questionnaire from the 439 respondents to who fulfil criteria of inclusion into the study.

The principal participants of study were 439 employees who worked in the 6 junior mining companies. The secondary participants were 12 officials who worked in the 6 junior mining companies. Quantitative data was collected from the 439 employees by using a questionnaire. One-hour-long interviews were conducted with the 12 officials by using a taperecorder. The sample size of study was large enough (Levy and Lemeshow, 2013) to use robust parametric statistical methods of data analysis such as Structural Equations Modelling (SEM), factor analysis and the Pearson chi-square test of association (Byrne, 2013) in order to develop a corporate social responsibility adherence framework, which is an instrument that can further be used by other junior mining companies to adhere to the CSR agenda. Since the research is exploratory in nature, the use of factor analysis and structural equations modelling (SEM) was appropriate.

As part of the quantitative or statistical aspect of study, a thorough due diligence was conducted in each one of the 6 junior mines in a form of an audit review. It was then confirmed that there were over 439 respondents who were eligible to officially part take in my planned study. These 439 respondents are employees in the 6 junior mines and community stakeholders that fulfil the criteria of inclusion into the planned study.

Qualitative methods of data collection and analysis are also vital for assessing and evaluating subjective variables of study. As part of the qualitative (Ritchie, Lewis, Nicholls & Ormston, 2013: 89) aspect of study, data was collected from 12 key officials (senior mine managers, executive managers, managing directors, senior board members, board chairmen and key community stakeholders). One-hour-long individual interviews were conducted with each of the 12 respondents using a digital tape recorder. The interviews were later be transcribed, coded and tallied. Thematic analysis and triangulation were used for ensuring trustworthiness (Braun,

Clarke & Hayfield, 2022:424-445). In order to take part in the study, eligible employees of junior mines must be responsible for carrying out functional duties that are relevant to CSR guidelines, regulations and principles or environmental, health-related or sanitation including occupational health and safety, and liaison with members of local communities in which mining activities are carried out.

3.2 Research strategy

The study aimed at using a combination of quantitative and qualitative methods of data collection and analysis. For quantitative aspect of study, data was collected from 6 eligible junior mines by using a pre-tested, validated and structured questionnaire of study. Quantitative methods are vital for providing analysis of continuous variables of study (Beh & Lombardo, 2021). Qualitative methods are vital for providing analysis of subjective variables of study (Braun, Clarke & Hayfield, 2022: 424-445). For the qualitative aspect of study, data was collected from 12 respondents working in the 6 eligible junior mines by conducting individual in-depth interviews. Data will be collected from both employees and administrators working in the 6 junior mines.

Quantitative data analysis will be performed by using methods such as confirmatory factor analysis and structural equations modelling (Chatfield & Collins, 2018). Qualitative data analysis (Braun, Clarke and Hayfield, 2022: 424-445) was conducted by using thematic analysis and triangulation. Themes were created out of codes and categories. Two themes were identified for performing thematic analysis. Theme 1 was evidence of the successful

implementation of basic CSR principles and guidelines at the workplace. Theme 2 was key obstacles to the successful implementation of basic CSR principles and guidelines at the workplace. Additional text analysis was carried out by examining past and present records belonging to the 6 junior mining companies.

3.3 Justification for using a combination of quantitative and qualitative methods

According to Braun, Clarke and Hayfield (2022: 424-445), the analysis of variables that are subjective in nature requires the use of qualitative or subjective enquiry and analysis. Examples of such variables are the degree of adherence of good leadership principles, Degree of adherence to corporate social responsibility guidelines and principles) require the use of qualitative methods of data collection and analysis.

According to Beh and Lombardo (2021), the analysis of variables that are objective in nature requires the use of statistical or quantitative methods of data collection and analysis. Some of the research questions were answered by using quantitative methods of data collection and analysis as they required for the collection of data on variables that are objective in nature subsequently facilitating the execution of structural equations modelling. Such variables can be effectively measured objectively.

According to Beh and Lombardo (2021), the use of a combination of quantitative and qualitative methods of data collection and analysis is highly appropriate and helpful for providing adequate answers to all research questions of study. Findings from the research results from quantitative and qualitative methods were later integrated to arrive to feasible recommendations and remedial actions at the end of my study. Integrating results obtained

from quantitative and qualitative methods of data collection and analysis is ideal for strengthening the rigor of my research findings and feasible recommendations. It is also highly valuable for constructing a suitable framework of study to junior mines study (Lo, Rey-Martí and Botella-Carrubi, 2020).

3.4 Sample size of study and sampling techniques

The study was conducted in six South African junior mines. The study's focus was to assess and evaluate the extent to which CSR principles and guidelines are adhered to in South African junior mining companies, then develop a CSR conceptual framework. These junior mining companies are Assen Iron Ore Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources and Ingwenya Mineral Processing. Letters of permission for data collection was obtained from each one of the 6 junior mining companies. These junior mines operate or run their business within a close proximity to a community that is supposed to be its principal stakeholder. Liaison with key community members or leaders such as "Induna" who are the principal stakeholders has been done and have attested to have interacted with these junior mines officials for the purposes of discussing pollution prevention issues on these communities.

Four hundred and thirty nine (439) respondents out of the six junior mining companies and communities were identified as the questionnaire respondents to fulfill the quantitative approach. These were Assen iron ore mine (93 respondents), Thabazimbi iron ore mine (129 respondents), Li Coal (18 respondents), Waterfall Resources (29 respondents), Boipelo mining (70 respondents) and Ingwenya Minerals processing (100 respondents).

Since the study was exploratory the case study approach was the method of choice due to intensive investigation. This approach expanded the principal researcher's perception and gave a vivid insight into the experienced CSR phenomenon by the junior mining companies. The research's main objective was to explore the business leadership challenges that hinder the good corporate governance of junior mining companies. The case study method was ideal in this specific study as is known to be rich with sociological material facilitating intense probing and finding out interrelation clues to several management problems. The case study method enables adequate understanding behavioral pattern of the concerned unit under scrutiny (Beh & Lombardo, 2021). Through case study the principal researcher obtained real and first-hand accounts of personal experiences of the employees of the junior mining companies and community members which enlightened this industry's inner challenges, associations between various along with the drivers that results in certain behavioral trends. The researcher used more of the several research methods under the case study being reports of individuals through in-depth interviews and questionnaires.

Thus, the sample size of study produced quite a large number of 439 respondents who gave feedback on the quantitative 5-point scale likert questionnaire. Thus, the large sample size of study (n=439) enabled the researcher to use robust statistical tests that were based on the chi-square random variable and large degrees of freedom. A sample of size 439 was large enough to perform robust Structural Equations Modelling (SEM) according to Mueller and Hancock (2018) and Chatfield and Collins (2018). The junior mines that have agreed to participate in the study, are licensed by the department of DMR in the Republic of South Africa making them a perfect fit for the inclusion. The quantitative aspect of study will include all employees of the companies who meet the criteria of inclusion into the study.

All employee who has been working in the companies for at least a year were included in the study. This sampling strategy is referred to as a census (Levy & Lemeshow, 2013: 64), and is appropriate for the study. For the qualitative study, individual in-depth interviews were conducted with 12 managers working in the 6 junior mines.

3.5 Data collection procedures

The research objective was to understand CSR phenomena in the junior mining companies of South Africa and at the same time to not generalize but rather understand the complexity of the phenomenon using the 6 junior mining cases. Two types of data sets were collected as part of the planned research, these were quantitative (statistical) and qualitative (subjective). The planned research used quantitative (statistical) and qualitative (subjective) methods for performing the critical paths for the research methodology such as the collection, editing, capturing, analysis and interpretation of results of data analysis. A pre-tested, validated and structured questionnaire of study was used for quantitative route. All perceived values of interest were measured by using a 5-point ordinal or Likert scale in which category 1 denoted the lowest level, and category 5 denoted the highest level.

To execute the qualitative route individual in-depth interviews were conducted with 12 senior managers working in each of the 6 junior mines by using a digital tape recorder. The list of variables of study includes relevance and effectiveness of CSR initiatives, the barriers to implementation of CSR, company-community relations, the CSR programs and the degree of adherence to CSR guidelines. A combination of these methods thoroughly grasped the phenomena and helps compare the similar findings of the two. Thus, it was possible to have a full understanding of the research question, full proof results validation and answered the

research question by developing conceptual framework and formulate the appropriate recommendations.

Quantitative research and data analysis

Quantitative methods were appropriate for explaining continuous variables of the study (Montgomery, Peck & Vining, 2021). A questionnaire of study was used for collecting quantitative data from the 439 respondents. Standardized questionnaires were issued and distributed to all the 439 respondents at various mining sites and communities. The questionnaire of study was distributed through the senior managers working in the 6 junior mines and other questionnaire batches were self administered to employees and community members. Respondents were allowed to complete the questionnaires of study in privacy and drop their completed questionnaires into a clearly marked and closed box with an opening on top of the box at some mine sites while others were physically handed back by the respondents.

In this very important aspect of study, data was collected from 6 eligible junior mines by using a pre-tested, validated and structured questionnaire of study. All perceived values of interest were measured by using a 5-point ordinal or Likert scale in which category 1 denoted the lowest level, and category 5 denoted the highest level. All views that were related to CSR were measured as perceived values for performing categorical data analysis. This method was fitting for the assessment and evaluation of the quality of corporate leadership and overall productivity in junior mining companies. Quantitative data analysis was executed using frequency tables, crosstab analysis, confirmatory factor analysis and structural equations modelling (Mueller & Hancock, 2018; Chatfield & Collins, 2018).

A self-administered questionnaire of study was used for collecting data from the 439 employees who worked in the 6 junior mining companies. The questionnaires were administered by distributing a hard copy of the questionnaire to each one of the 439 eligible employees at the 6 junior mining companies. The questionnaire of study consisted of several questions that were socioeconomic in nature. These variables are known to influence the level of adherence to corporate social responsibility (CSR) guidelines and principles in mining companies in all parts of the world (Hilson, Hilson & Dauda, 2019). The respondents then expressed either a favourable or unfavourable attitude towards the given object to which the respondent is asked to react (Beh & Lombardo, 2021). The respondents indicated their agreement or disagreement, satisfaction, or dissatisfaction with each statement in the qualitative questionnaire of study. Each response was allocated a numerical scoring between 1 to 5, denoting its favourableness or unfavourableness, and the scores were totalled to measure the respondent's attitude towards each specific question in the data collection instrument. The overall score represented the respondent's position on the continuum of favourable/unfavourableness towards an issue. Subsequently data was collected from 439 respondents on 46 variables of study that are known to affect the degree of adherence of junior mining companies to CSR guidelines.

Quantitative or statistical data analysis was performed by using the statistical package STATA version 17 (STATA Corporation, 2022) based on data collected from 439 participants of study on 46 independent variables of study. Procedures for univariate, bivariate, multivariate, ordered logit regression analysis, factor analysis and structural equations modelling were followed in STATA. Standard goodness-of-fit tests were used for testing the adequacy of each estimated regression model. All such tests confirmed that the estimated models fitted the data quite well.

Qualitative research and data analysis

Qualitative or subjective data was gathered from 12 officials working in the 6 junior mining companies as part of the study by conducting 1-hour-long individual indepth interviews. Qualitative methods are appropriate for exploring and explaining subjective variables of study (Braun, Clarke & Hayfield, 2022:424-445). The key techniques used for performing qualitative data analysis were tallying, coding, thematic analysis, text analysis and triangulation. In order to take part in the study, eligible employees of junior mines must be responsible for carrying out functional duties that are relevant to CSR guidelines, regulations and principles or environmental, health-related or sanitation including occupational health and safety, and liaison with members of local communities in which mining activities are carried out. Also a few community members residing in the proximity of the mines such as community leaders,” indunas” were subjected to in-depth oral interviews.

Individual in-depth interviews were conducted with 12 senior managers working in each of the 6 junior mines by using a tape recorder. The list of variables of study includes relevance and effectiveness of CSR initiatives, the barriers to implementation of CSR, company-community relations, the CSR programs and the degree of adherence to CSR guidelines. Face to face individual in-depth interviews were conducted with 12 respondents by means of a by tape recorder. There were verbal exchanges in the form of question and answers in a safe, secure and private environment.

3.6 Data analysis

Quantitative methods of data analysis

Quantitative methods were appropriate for explaining continuous variables of the study (Montgomery, Peck & Vining, 2021). A questionnaire of study was used for collecting quantitative data from the 439 respondents. Standardized questionnaires were issued and distributed to all the 439 respondents at various mining sites and communities. The questionnaire of study was distributed through the senior managers working in the 6 junior mines and other questionnaire batches were self administered to employees and community members. Respondents were allowed to complete the questionnaires of study in privacy and drop their completed questionnaires into a clearly marked and closed box with an opening on top of the box at some mine sites while others were physically handed back by the respondents.

In this very important aspect of study, data was collected from 6 eligible junior mines by using a pre-tested, validated and structured questionnaire of study. All perceived values of interest were measured by using a 5-point ordinal or Likert scale in which category 1 denoted the lowest level, and category 5 denoted the highest level. All views that were related to CSR were measured as perceived values for performing categorical data analysis. This method was fitting for the assessment and evaluation of the quality of corporate leadership and overall productivity in junior mining companies. Quantitative data analysis was executed using frequency tables, crosstab analysis, confirmatory factor analysis and structural equations modelling (Mueller & Hancock, 2018; Chatfield & Collins, 2018).

A self-administered questionnaire of study was used for collecting data from the 439 employees who worked in the 6 junior mining companies. The questionnaires were administered by distributing a hard copy of the questionnaire to each one of the 439 eligible employees at the 6 junior mining companies. The questionnaire of study consisted of several questions that were socioeconomic in nature. These variables are known to influence the level of adherence to corporate social responsibility (CSR) guidelines and principles in mining companies in all parts of the world (Hilson, Hilson & Dauda, 2019). The respondents then expressed either a favourable or unfavourable attitude towards the given object to which the respondent is asked to react (Beh & Lombardo, 2021). The respondents indicated their agreement or disagreement, satisfaction, or dissatisfaction with each statement in the qualitative questionnaire of study. Each response was allocated a numerical scoring between 1 to 5, denoting its favourableness or unfavourableness, and the scores were totalled to measure the respondent's attitude towards each specific question in the data collection instrument. The overall score represented the respondent's position on the continuum of favourable/unfavourableness towards an issue. Subsequently data was collected from 439 respondents on 46 variables of study that are known to affect the degree of adherence of junior mining companies to CSR guidelines.

Quantitative or statistical data analysis was performed by using the statistical package STATA version 17 (STATA Corporation, 2022) based on data collected from 439 participants of study on 46 independent variables of study. Procedures for univariate, bivariate, multivariate, ordered logit regression analysis, factor analysis and structural equations modelling were followed in STATA. Standard goodness-of-fit tests were used for testing the adequacy of each estimated regression model. All goodness-of-fit tests showed that the estimated models fitted the data quite well.

Quantitative data analysis was performed in 3 sequential steps. First, univariate methods of data analysis were used for generating frequency tables and summary statistics by taking one variable at a time using Stata. Secondly, bivariate analysis was done by taking pairs of categorical variables. Bivariate analysis enabled the researcher to reduce the number of predictor variables from 46 to 9. Thirdly commands from Stata were used for multivariate analysis. The multivariate was executed using ordered logit regression analysis to be confirming that adherence to CSR guidelines was influenced by 3 predictor variables. Stata's logistics regression was employed to model dichotomous (0 or 1) outcomes. Fourthly, confirmatory factor analysis (CFA) was performed to corroborate findings obtained from ordered logit regression analysis. The large sample size of study (n=439) meant that the use of confirmatory factor analysis (CFA) was justified. Confirmatory factor analysis (CFA) is useful for finding out whether there is a relationship between observed variables and their underlying latent constructs (Keith & Reynolds, 2018). This procedure showed that the 3 influential predictor variables identified by using ordered logit regression analysis (Hosmer Jr, Lemeshow & Sturdivant, 2013) were highly influential and accounted for adherence to CSR guidelines and principles. Finally, Structural Equations Modelling (SEM) was used to obtain regression estimates for these 3 influential predictor variables (Kline, 2015).

The crosstab associations were generated by using the Pearson chi-square test of association (Pardoe, 2020). Exploratory Factor Analysis (EFA) was used for performing data reduction (Westfall & Arias, 2020). Variables for which the coefficient obtained from the Cronbach Alpha test that fell short of 0.75 cut-point were discarded from data further analysis. Two-by-two tests of associations obtained from Pearson's chi-squared tests of associations (Westfall and Arias, 2020) were used for identifying factors that were significantly associated with compliance with CSR guidelines and regulations. Highly significant two-by-two associations

were identified by using small probability values ($p < 0.0001$) and large magnitudes of observed chi-squared values as criteria of strength (Westfall & Arias, 2020).

Qualitative data analysis

Qualitative methods of data collection and analysis (Braun, Clarke and Hayfield, 2022:424-445) were used in the study for analysing results of individual interviews conducted with 12 officials working in the 6 junior mining companies that took part in the study. First, one-hour-long interviews were conducted with 12 officials working in the 6 junior mines. Secondly, these interviews were transcribed and quality-assured by allowing the 12 participants to read their transcribed versions of their interviews. Thirdly, tallying, coding and categorisations were done on the transcribed versions of interviews. Two themes were created out of codes and categories.

Qualitative methods of data collection and analysis are useful in cases where participants need to share their unique experiences and perspectives with an audience. A state of saturation was reached after interviewing the 12 participants of study. Qualitative data was highly useful in the study as no quantitative methods could be used for explaining subjective phenomena.

Warburton (2020) recommends the use of triangulation as a method of ensuring the level of trustworthiness of results obtained from qualitative research. In-depth interviews were conducted by using a list of interview questions. These interview questions were posed to each one of the 12 officials who took part in the interviews similarly.

One-hour-long individual interviews was conducted with each of the 12 respondents by using a tape recorder then later transcribed, coded and tallied. The oral in-depth interview questionnaire format was designed logically to explore various barriers to the successful implementation of corporate social responsibility principles by junior mining. By using codes and categories, 2 themes were identified. Triangulation was used for ensuring trustworthiness. Saturation was achieved after interviewing the 12 participants (Braun, Clarke & Hayfield, 2022). The key methods of qualitative analysis were thematic analysis and text analysis. Triangulation was used for ensuring the accuracy of findings obtained from thematic and text analysis. Saturation was attained after interviewing the 12 officials.

A pre-interview briefing of the respondents was outlined; the brief description about the purpose of the study, what participation entailed in terms of rules, activities and duration, a statement indicating that participation was voluntary and may be terminated at any time without having to explain why. An assurance was also made that responses obtained from respondents would be kept in confidence, and that analysis and reports would be made strictly anonymous. During the execution of the in-depth structured interviews the following processes and procedures of an interview schedule were strictly observed. The principal researcher introduced the topic to the 12 selected respondents individually. The respondent made opening statements regarding their experience with the CSR topic. The researcher conducted interviews by using the list of interview questions. Each interview was tape-recorded and transcribed.

The respondents were asked several questions relating to Corporate Social Responsibility (CSR) principles in the junior mining sector by the Principal Researcher. For example, the first question, naturally very important in this research work, tested the respondent's general knowledge on general knowledge of CSR, the question was posed in the manner; "*What is*

your understanding of Corporate Social Responsibility in your own words?”. In terms of the study this answer is important in determining the success rate of getting a reliable answer on the next questions to follow regarding barriers to the successful implementation of CSR strategies by Junior Mining companies of South Africa etc. Further questions relating to the quantitative aspect are outlined in detail in Appendix B of the thesis.

The data, presented in the following chapters in a thematic analytical style relates to the different dimensions of the concept, perceptions, awareness level and their perceptions related to CSR of junior mining companies. The final qualitative results were discussed under the main themes (sub-sections) qualitatively and strengthened with secondary data analysis.

Qualitative or subjective data was gathered from 12 officials working in the 6 junior mining companies as part of the study by conducting 1-hour-long individual indepth interviews. Qualitative methods are appropriate for exploring and explaining subjective variables of study (Braun, Clarke & Hayfield, 2022:424-445). The key techniques used for performing qualitative data analysis were tallying, coding, thematic analysis, text analysis and triangulation. In order to take part in the study, eligible employees of junior mines must be responsible for carrying out functional duties that are relevant to CSR guidelines, regulations and principles or environmental, health-related or sanitation including occupational health and safety, and liaison with members of local communities in which mining activities are carried out. Also a few community members residing in the proximity of the mines such as community leaders,” indunas” were subjected to in-depth oral interviews.

This aspect involved interviews with 12 key officials composed of senior managers, managing directors, board members, board chairmen and key community stakeholders (a group of residents and *Indunas*). The interviews were tape recorded then transcribed verbatim, then qualitative data coding was employed by creating and assigning codes to categorize interview transcripts extracts. Coding reduced vast data into small “units” of data. Deductive coding was used implying that not every piece of text was coded rather only the relevant or interesting issue about the research questions was coded. Themes were created manually out of codes and tallied answers. This was done by using manual tallying and codes by hand, based on hardcopies of transcripts of interviews. Pens and highlighters were used for marking key words, phrases, sentences and expressions. Reduction saved a lot of resources and time as the researcher did not code every single transcript line to do line-by-line. Coding is an inductive analysis approach (Braun, Clarke & Hayfield, 2022:424-445).

Individual in-depth interviews were conducted with 12 senior managers working in each of the 6 junior mines by using a tape recorder. The list of variables of study includes relevance and effectiveness of CSR initiatives, the barriers to implementation of CSR, company-community relations, the CSR programs and the degree of adherence to CSR guidelines. Face to face individual in-depth interviews were conducted with 12 respondents by means of a by tape recorder. There were verbal exchanges in the form of question and answers in a safe, secure and private environment. Thematic analysis is the best strategy to determine the respondent’s perceptions, assumptions, understanding, experiences from interview transcripts. Thematic analysis is the process of identifying patterns or themes within qualitative data Braun & Clarke (2006). Thematic analysis permits a lot of flexibility in interpreting the qualitative data and allowed the researcher to approach large data sets more easily by sorting them into broad

themes as it is not tied to a particular epistemological or theoretical (Braun, Clarke & Hayfield, 2022:424-445).

The thematic keywords were identified to clearly articulate the emerging themes, meaning from the data is extracted to deduce a narrative. Since the study sought to explore barriers to the successful implementation of CSR by junior mining companies of South Africa the key themes to discover from the coding and categorization process were evidence of the successful implementation of basic CSR principles and guidelines by junior mining companies and business leadership challenges that are a hindrance to the successful implementation of basic CSR principles and guidelines by junior mining companies of South Africa.

3.7 Validity and reliability of measurement tools

Pretesting and validation was performed by administering the questionnaire of study to eligible respondents with a view to make amendments to the questions in the questionnaire of study. Doing so was helpful for assessing or evaluating the degree of validity and reliability of the questions in the questionnaire of study and the list of interview questions.

Content validity was ensured by conducting a pilot study at the two mines who are not part of the main study, the six junior mines, Thabazimbi & Assen Iron Ore Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources and Ingwenya Mineral Processing. The qualitative questionnaire of study was administered to 2 managers at each one of the 2 mines before the study is conducted. The procedure was helpful for refining the questionnaire of study before it

is used for data collection (Beh & Lombardo, 2021). Ensuring validity is necessary for making sure that the research measures what it is expected to measure (Beh & Lombardo, 2021).

Reliability and consistency were ensured by using the Cronbach Alpha test of reliability and internal consistency (Ritchie, Lewis, Nicholls & Ormston, 2013: 52-53). Variables of study for which Cronbach Alpha coefficients were equal to 0.75 or more are reliable and consistent enough to be used in data analysis.

External validity was performed to ensure the extent to which the results of the research apply to situation beyond this current study. It is concerned with the question: can a study's research findings be generalized to other settings or groups? (Leedy & Ormrod, 2013: 32-33). The researcher was aware that the findings of the research cannot be generalised but need to correlate with the data that the researcher would have gathered from the field especially considering the research was a case study. However, the researcher kept documentation and records used to gather data to ensure that it can be validated, and the information is not based on assumptions. Any assumptions made in the research study were clearly outlined on the document. Internal validity ensured the data collection processes and instruments were standard throughout. In a questionnaire-based survey, internal validity would be established where an intervention can be shown statistically to lead to an outcome. There the researcher must ensure that this threat is overcome by standardising the questionnaire and that it is set up in a manner that it will give accurate data. Same with the interviews, are structured in a way that there is some level of consistency in the answers provided (Leedy & Ormrod, 2013: 33).

3.8 Conclusion

The study approach followed the collection of data from 6 junior mining companies that yield 439 individual questionnaire responses for quantitative and 12 key individuals for qualitative in-depth interviews. These mines are AM Thabazimbi & Assen Iron Ore Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources and Ingwenya Mineral Processing. Letters of permission for data collection granted by the junior mining companies for the principal researcher to test the guidelines and principles of these junior mining companies. A thorough due diligence was conducted in each one of the 6 junior mines and their surrounding communities in a form of an audit review. As part of the quantitative aspect of study, data was gathered from 439 respondents who were employed by the 6 junior mining companies that took part in the study. This sample size of study (n=439) was large enough (Levy and Lemeshow, 2013) to use robust parametric statistical methods of data analysis such as Pearson's chi-square tests of association (Montgomery, Peck and Vining, 2021), confirmatory factor analysis (Keith and Reynolds, 2018) and Structural Equations Modelling (Chatfield & Collins, 2018).

As part of the qualitative aspect of study (Ritchie, Lewis, Nicholls and Ormston, 2013: 89), qualitative data was collected from 12 key officials by conducting one-hour-long individual in-depth interviews. These 12 people were senior mine managers, executive managers, managing directors, senior board members, board chairmen and key community stakeholders. Saturation was reached after conducting 12 one-hour-long interviews. Thematic and text analysis were the key methods of conducting qualitative analysis. Triangulation was used for ensuring trustworthiness (Braun, Clarke & Hayfield, 2022).

Beh and Lombardo (2021) recommend that results obtained from quantitative and qualitative methods of data collection and analysis should be integrated in order to draw up feasible recommendations of study. Accordingly, findings obtained from quantitative and qualitative methods were integrated with each other as a means of identifying and substantiating robust feasible recommendations and remedial actions at the end the study. Integrating results obtained from quantitative and qualitative methods of data collection and analysis were quite ideal for strengthening the rigor of the research findings and feasible recommendations. This approach was highly valuable in modelling and constructing a suitable framework of study to junior mines for adherence to CSR guidelines and principles. The integration of the two methods of data collection and analysis was highly valuable for providing adequate and theoretically reliable answers to the research questions of study.

CHAPTER FOUR: RESULTS FROM QUANTITATIVE DATA ANALYSIS

Results obtained from various procedures of quantitative or the statistical data analysis are presented in this chapter of the thesis report. The results of data analysis are obtained from the analysis of data sets collected from 439 owners, operators' employees and immediate community leaders directly associated with the 6 junior South African mines partaking in the research study. A total of 439 respondents working in 6 junior mining companies completed the self-administered questionnaire of study as part of the quantitative aspect of study. The 6 junior mining companies in which the 439 employees worked were Assen Iron Ore Mine [93 respondents (86 employees and 7 community members), Thabazimbi Iron Ore Mine [129 respondents (115 employees and 14 community members)], Li Coal Mining Company [18 respondents], Waterfall Resources Mining Company [27 respondents], Boipelo Mining Company [70 respondents (57 employees and 13 community members)] and Ingwenya Minerals Processing Company [102 respondents (89 employees and 13 community members)].

The aim of study was to assess and evaluate the extent to which Corporate Social Responsibility (CSR) principles and guidelines are adhered to in 6 South African junior mining companies. These 6 junior mining companies are A. M. Thabazimbi Mine, Boipelo Mining, Waterfall Resources, Li Coal Resources, Ingwenya Mineral Processing and Assen Iron Ore Mine (PTY) Ltd. Letters of permission for data collection have been obtained from each one of the 6 junior mining companies.

4.1: RESULTS FROM DESCRIPTIVE STATISTICS

The degree of adherence to corporate social responsibility (CSR) guidelines and principles was assessed by using a composite index developed by Hilson, Hilson and Dauda (2019: 340-352) for conducting a similar study. Table 4.1.1 shows that 424 of the 439 respondents of study (96.58%) agreed that the junior mining companies adhered adequately to corporate social responsibility guidelines and principles by the standards of Hilson, Hilson and Dauda (2019). The remaining 15 of the 439 respondents of study (3.42%) disagreed that junior mining companies adhere adequately to corporate social responsibility guidelines and principles by the standards of Hilson, Hilson and Dauda (2019). The majority of respondent's attitude from the questionnaire of study is that the junior mining companies in the study adhere to CSR guidelines and principles, this positive response meant that stakeholders have a very strong positive perception that junior mining companies do adhere to CSR principles.

Table 4.1.1: Perception about the quality of health care services (n=439)

Variable of study	Number (Percentage)
Degree of adherence to corporate social responsibility (CSR) guidelines and principles by the standards of Hilson, Hilson and Dauda (2019: 340-352)	Adequate: 424 (96.58%) Inadequate: 15 (3.42%)

Figure 4.1.1 shows a pie chart for the degree of adherence to corporate social responsibility (CSR) guidelines and principles by the standards of Hilson, Hilson and Dauda (2019: 340-352).

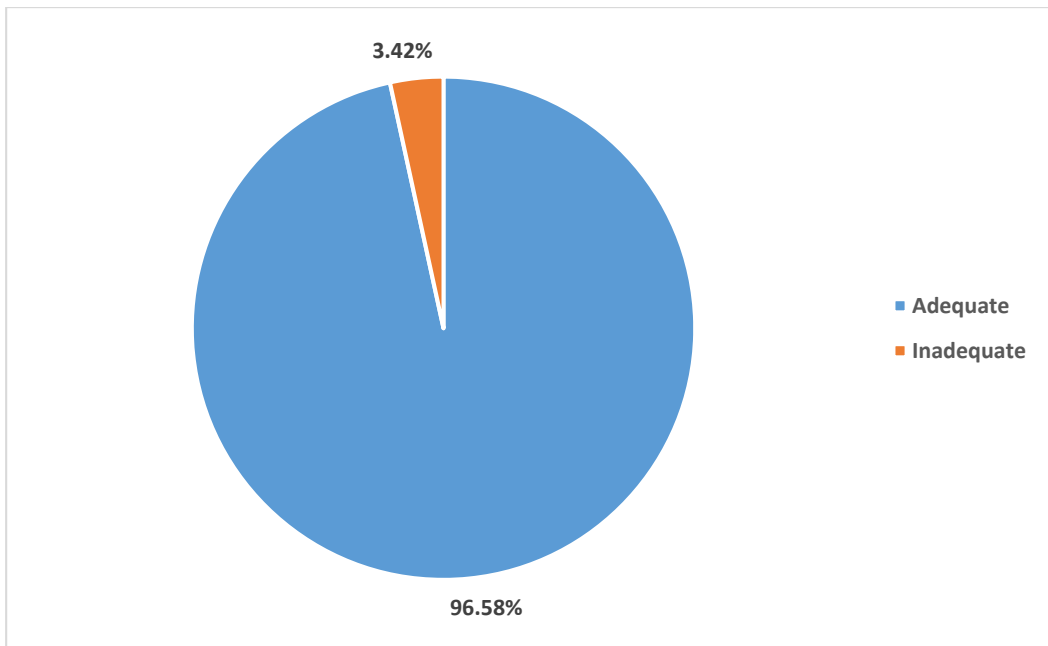


Figure 4.1.1: Assessment of adherence to CSR guidelines and principles

Table 4.1.2 shows that 274 of the 439 respondents (62.41%) who took part in the study were male, whereas the remaining 165 respondents (37.59%) were female. About 52% of respondents were satisfied with the extent to which junior mining companies adhered to corporate social responsibility guidelines and principles while conducting routine mining operations. The gender breakdown is as follows; the dominance of male respondents is very much consistent with the nationwide gender demographics in the mining sector (Stats SA 2019). The South African mining sector remains a male-dominated industry with a minimal participation of women who are employed and decision-making positions in the junior mining industry. About 72% of respondents were satisfied with the extent to which junior mining companies conducted routine mining operations in a socially responsible manner. About 74% of respondents were satisfied with the extent to which junior mining companies cared for the general environment and natural resources. It is apparent that junior mining companies are highly rated on key CSR elements by the stakeholders, being Socially Responsible Manner, General Environment and Natural resources.

Table 4.1.2: Level of satisfaction with the degree of adherence to CSR guidelines (n=439)

Variable of study	Number (Percentage)
Gender of respondents	Male: 274 (62.41%) Female: 165 (37.59%)
Level of satisfaction of respondents with how well junior mining companies adhere to corporate social responsibility guidelines and principles	Good: 70 (15.95%) Above average: 107 (24.37%) Average: 50 (11.39%) Below average: 176 (40.09%) Poor: 36 (8.20%)
Level of satisfaction of respondents with how well junior mining companies conduct mining operations in a socially responsible manner	Good: 44 (10.02%) Above average: 115 (26.20%) Average: 157 (35.76%) Below average: 88 (20.05%) Poor: 35 (7.97%)
Level of satisfaction of respondents with how well junior mining companies care about the environment and natural resources	Good: 93 (21.18%) Above average: 96 (21.87%) Average: 137 (31.21%) Below average: 87 (19.82%) Poor: 26 (5.92%)

Figure 4.1.2 shows a pie chart for the gender distribution of respondents.

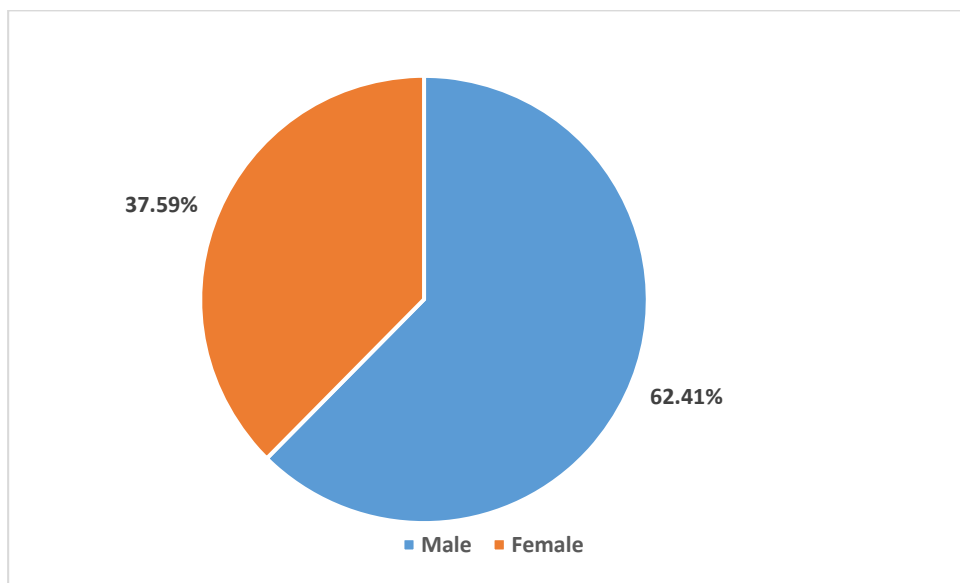


Figure 4.1.2: A pie chart for the gender distribution of respondents

Figure 4.1.3 shows a bar chart for the perception held by respondents about how well their junior mining companies adhere to CSR guidelines.

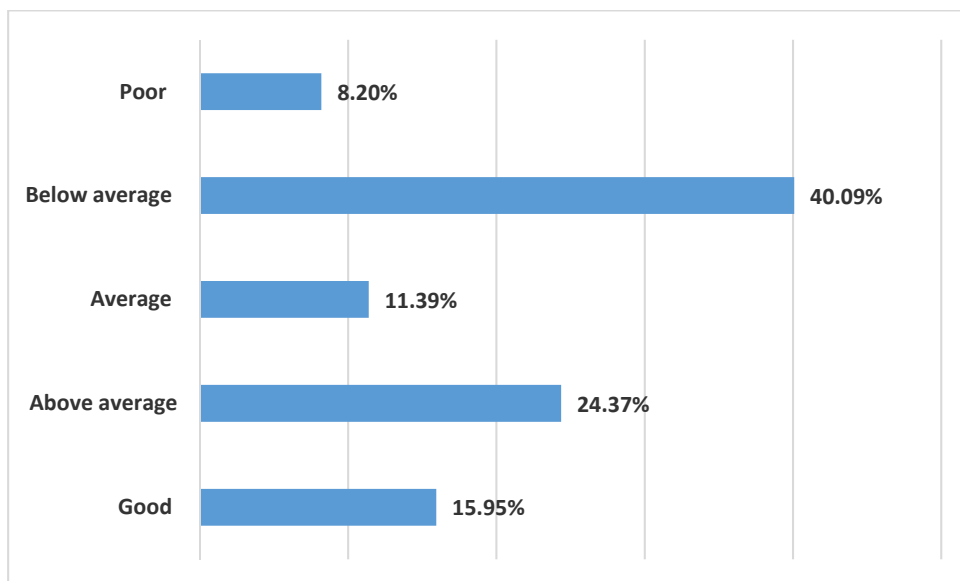


Figure 4.1.3: The perception about how well mining companies adhere to CSR guidelines

Figure 4.1.4 shows a bar chart for the perception held by respondents about conducting responsible mining operations.

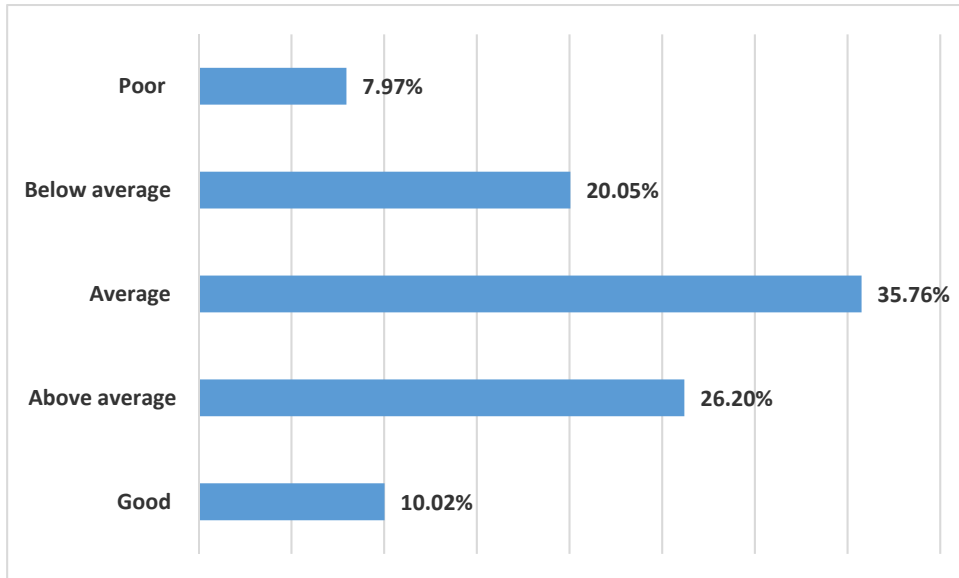


Figure 4.1.4: Perception about conducting responsible mining operations

Figure 4.1.5 shows a bar chart for the level of commitment shown by the junior mining companies that were selected for the study to environmental protection and preservation in the course of conducting routine day-to-day mining operations in local communities.

About 43.05 % of respondents are satisfied with the commitment of junior mining companies towards environmental protection and preservation into the course of conducting daily mining operations About 56.95% of respondents were either not sure or strongly disagreed with the level of commitment. The prerequisite for junior mining companies to acquire mining license is to have a government approved Environmental Impact Assessment study and report in good order which is a minimum. All the junior mines are licensed by the Department of Mineral Resources of South Africa (DMR) after submission of Environmental Impact Assessments (EIA) The mines are granted operating licenses and can be inspected by DMR officials at any

time if there is non-compliance of Occupational Health & Safety regulations may result in suspension of the operating licenses. It is important that the junior mining companies embark on EIA awareness campaigns with the internal and external stakeholders on these important aspects of CSR. Negative feedback on this part implies that either the stakeholders are unaware of the EIA in place or that the junior mining companies do not adhere to the EIA deliverable, or it could simply entail that there is no enforcement for the DMR.

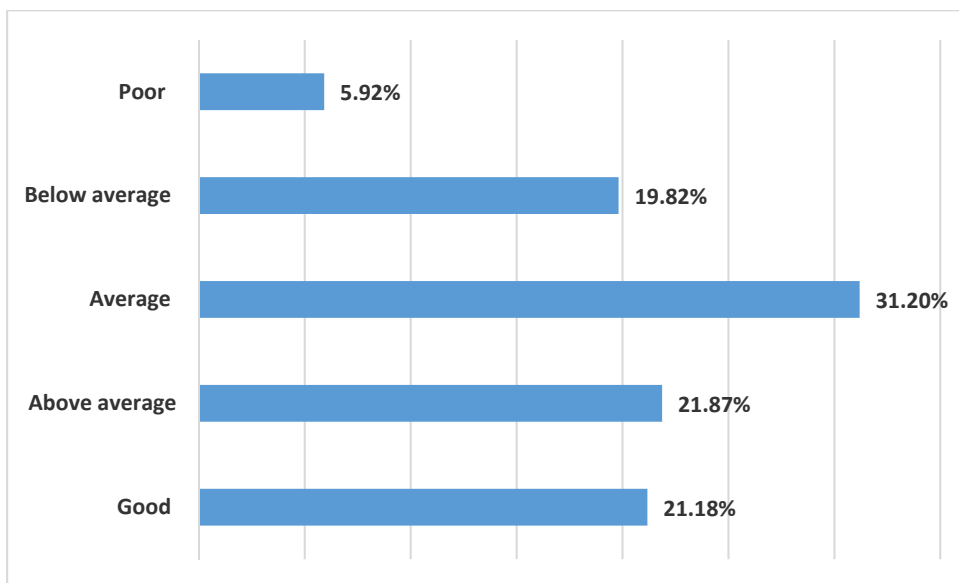


Figure 4.1.5: The level of commitment to environmental protection and preservation

Table 4.1.3 indicates that about 76% of respondents are happy with the extent to which junior mining companies help out local people in their communities. About 77% of respondents believed that junior mining companies view local communities as a principal stakeholder. About 74% of respondents were happy with the level of health care assistance provided by junior mining companies to people living in local communities.

Table 4.1.3: Level of satisfaction with help provided to local people (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies help out local people	Good: 116 (26.42%) Above average: 139 (31.66%) Average: 81 (18.45%) Below average: 67 (15.26%) Poor: 36 (8.20%)
Level of satisfaction with the extent to which junior mining companies view local communities as a principal stakeholder	Good: 95 (21.64%) Above average: 98 (22.32%) Average: 146 (33.26%) Below average: 64 (14.58%) Poor: 36 (8.20%)
Level of satisfaction with health care assistance provided by junior mining companies to people living in local communities	Good: 93 (21.18%) Above average: 96 (21.87%) Average: 137 (31.21%) Below average: 87 (19.82%) Poor: 26 (5.92%)

Figure 4.1.6 shows a bar chart for the extent to which junior mining companies provide health care assistance to people living in their local communities. It was observed that majority of respondents [35.08%=average + 22.78%= above average + 14.12%=good] were satisfied with the health care intervention by junior mining companies in the communities they operate in. All the junior mining companies who participated in the study have some form of health care initiatives in place ranging from mobile clinics, educational health campaigns and well-being

programs to name a few. The objective of the mining companies has some of these health solutions to prevent diseases and subsequently increase miner protection to minimize employee absenteeism.

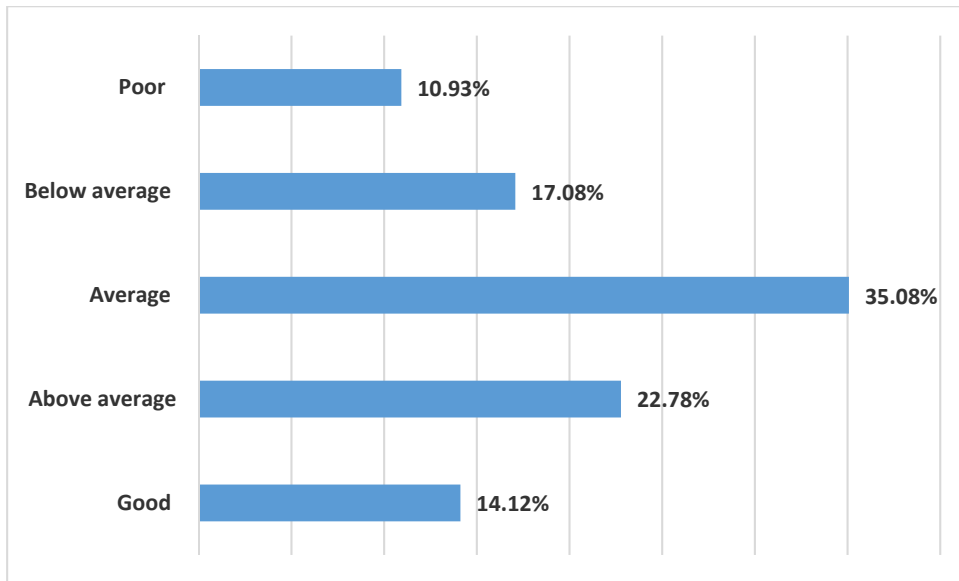


Figure 4.1.6: Level of satisfaction with health care assistance to local communities

Table 4.1.4 shows that about 57% of respondents were happy with the extent to which junior mining companies help out local people with regards to educational services. About 60% of respondents were happy with community development assistance provided to them by junior mining companies. About 80% of respondents were happy with poverty alleviation efforts made by junior mining companies in their local communities.

Table 4.1.4: Level of satisfaction with educational services (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies help out local people with educational services	Good: 25 (5.73%) Above average: 36 (8.26%) Average: 103 (23.62%) Below average: 186 (42.66%) Poor: 86 (19.72%)
Level of satisfaction with the extent to which junior mining companies help people with community development	Good: 64 (14.58%) Above average: 88 (20.05%) Average: 113 (25.74%) Below average: 148 (33.71%) Poor: 26 (5.92%)
Level of satisfaction with poverty alleviation efforts made by junior mining companies to people living in local communities	Good: 85 (19.36%) Above average: 113 (25.74%) Average: 153 (34.85%) Below average: 65 (14.81%) Poor: 23 (5.24%)

Figure 4.1.7 shows a bar chart for the extent to which junior mining companies provide educational assistance to people living in their local communities.

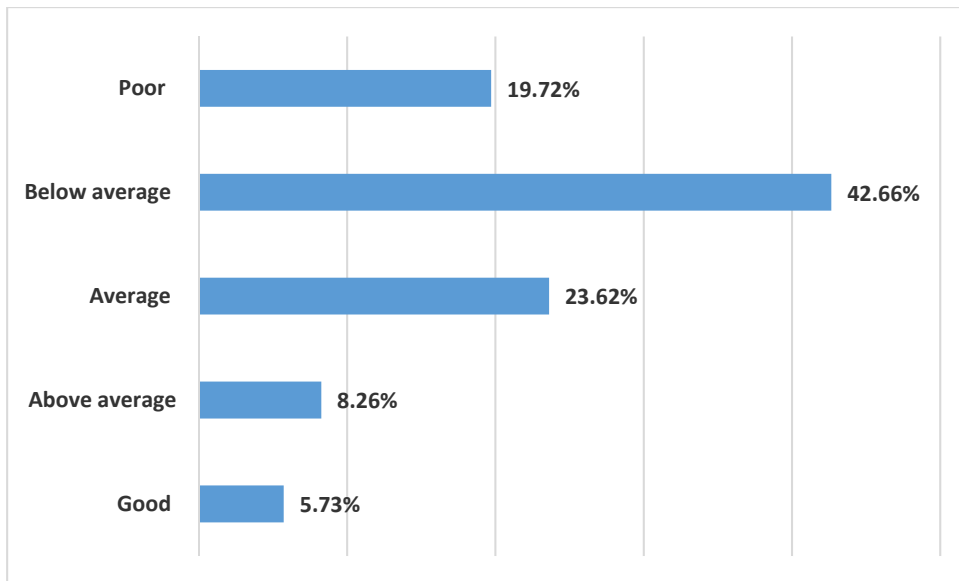


Figure 4.1.7: Level of satisfaction with educational assistance to local communities

The stakeholders of the junior mining companies were dissatisfied with the level of educational assistance provided to local communities by junior mining companies. This corroborated by the summary statistics [Good=19.36%; above average=25.74%; average=34.85%; below average=14.81%; and poor=5.24%]. The result shows that a holistic approach of providing valuable education is needed to enhance the level of satisfaction of employees with the quality of educational services that are provided to local communities by the junior mining companies. The study has found that there is a need for relevant and skills-based education among community members. That is, educational programmes must enable learners to find employment opportunities or create their own livelihoods by using practical vocational and artisan skills. These results show that there is a need for intervention with regards to the provision of educational services to host communities in which mining activities are carried out by the owners of the 6 junior mining companies. Such intervention programmes must include early childhood development programmes and vocational training.

Figure 4.1.8 shows a bar chart for the extent to which local communities were happy with community development assistance that is provided to them by junior mining companies. Over 60% of the respondents agree that the junior mining companies have community development assistance in place. One iron ore miner in the Northwest province is helping its community, Ga-Rasai village with streets lights, two water standpipes and transportation of the villagers' children to a day care center. Another junior mining company with five operations involved in coal processing has supplied and continues to supply its Ulundi community with more than 42-million liters of clean, potable water a year from its water purification plant. The mine is, thus, providing locals and their cattle with much-needed drinking water and this water is pumped over 7 kilometers to the points of use. These development programs are visible and impacts locals by making their daily lives.

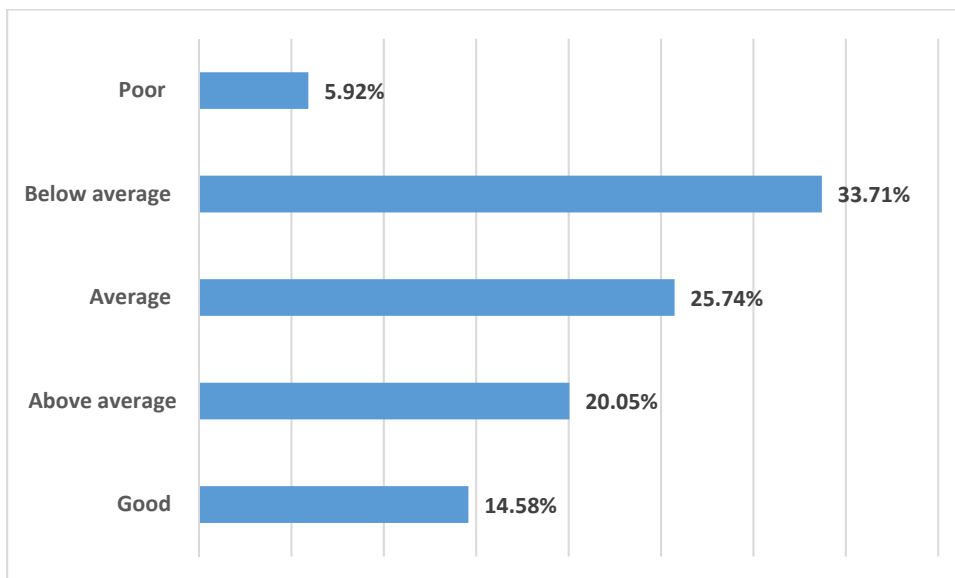


Figure 4.1.8: Level of satisfaction with community development assistance

Figure 4.1.9 shows a bar chart for the extent to which local communities were happy with poverty alleviation assistance that is provided to them by junior mining companies. Many locals are very grateful for the poverty alleviation projects done by the junior mining companies although on in-depth interviews other locals questions the quality and the sustainability of this poverty alleviation assistance. Majority of the locals agree that during the Covid'19 hard lockdown period junior mining companies helped them out with the much-needed food hampers however they would have appreciated it more if the junior mining companies would have assisted them with start-ups packages for small stock subsistence farming or farming.

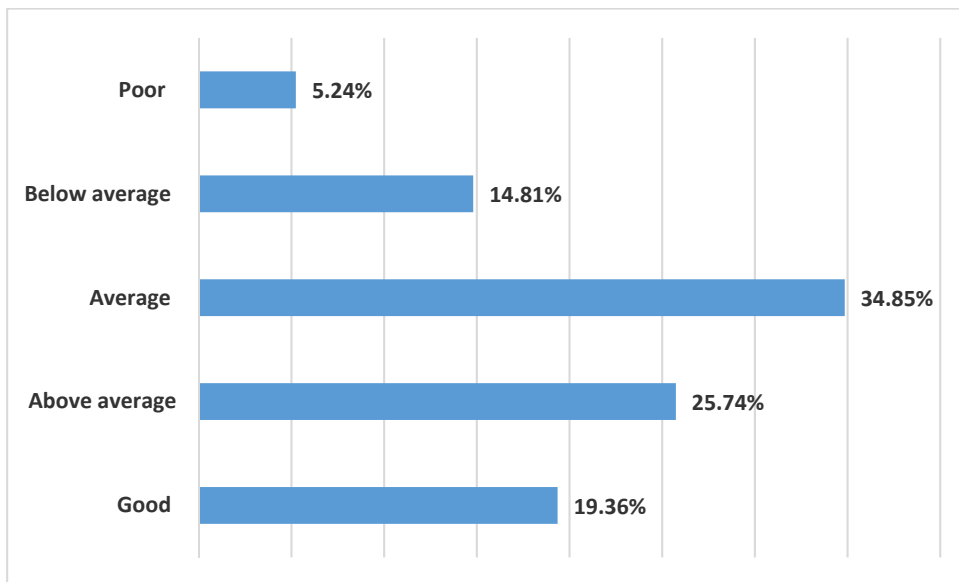


Figure 4.1.9: Level of satisfaction with poverty alleviation assistance

Table 4.1.5 shows that about 56% of respondents were happy with the extent to which junior mining companies help in creating employment opportunities in local communities. About 51% of respondents were happy with the extent to which junior mining companies sponsor causes to boost their public image. About 76% of respondents were happy with the extent to which junior mining companies keep promises made to people living in local communities.

Table 4.1.5: Level of satisfaction with employment opportunities (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies help in creating employment opportunities in local communities	Good: 95 (21.64%) Above average: 64 (14.58%) Average: 87 (19.82%) Below average: 147 (33.49%) Poor: 46 (10.48%)
Level of satisfaction with the extent to which junior mining companies sponsor causes to boost their public image	Good: 6 (1.37%) Above average: 97 (22.10%) Average: 123 (28.02%) Below average: 105 (23.92%) Poor: 108 (24.60%)
Level of satisfaction with the extent to which junior mining companies keep promises made to people living in local communities	Good: 90 (20.50%) Above average: 51 (11.62%) Average: 191 (43.51%) Below average: 58 (13.21%) Poor: 49 (11.16%)

Figure 4.1.10 shows a bar chart for the extent to which people living in local communities were happy with employment opportunities created by junior mining companies to people living in their local communities.

There is a dire need for employment opportunities. The study has found that the issue of employment is a key issue among respondents. About 44% of respondents were not happy with

the pace at which employment opportunities were created. Only 56% of respondents were happy with the pace at which employment opportunities were created. These findings are a reflection of the dire need for jobs in local communities. Members of host communities expect junior mining companies to create more jobs for their community members so that they can have a steady means of household income. South Africans experience unemployment in large numbers. In view of how significant a problem unemployment is, a lot is expected from junior mining companies in terms of creating jobs.

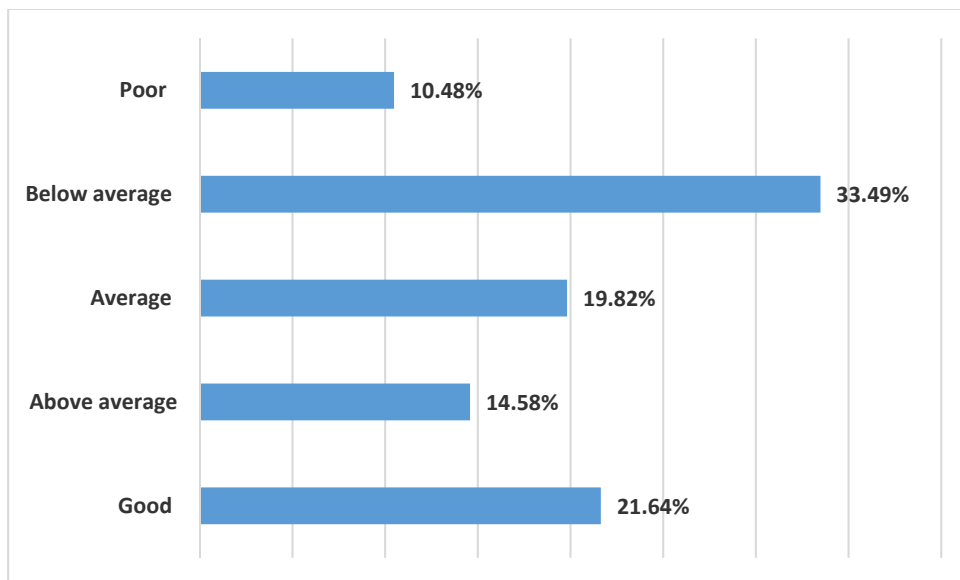


Figure 4.1.10: Level of satisfaction with the creation of employment opportunities

Figure 4.1.11 shows a bar chart for the extent to which local communities were happy with the extent to which junior mining companies kept promises made to local people.

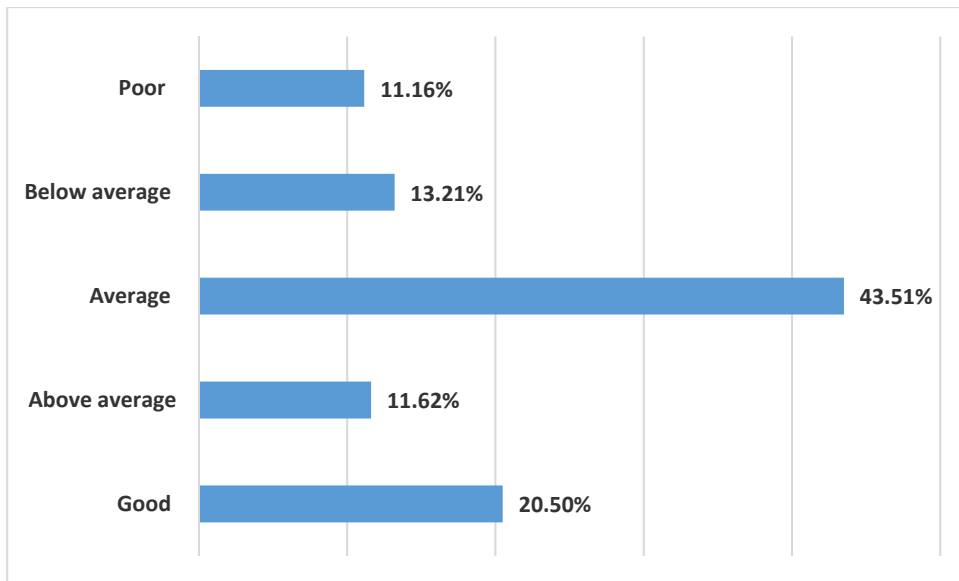


Figure 4.1.11: Level of satisfaction with keeping promises

Table 4.1.6 shows that about 82% of respondents were happy with the extent to which junior mining companies consulted with local communities on social programmes to invest in. Furthermore, about 83% of respondents were happy with the extent to which junior mining companies consulted with local communities on issues that affect the community. About 79% of respondents were happy with the reputations held by junior mining companies in terms of implementing community development programmes.

Table 4.1.6: Level of satisfaction with employment opportunities (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies consult with local communities on social programmes to invest in	Good: 85 (19.41%) Above average: 94 (21.46%) Average: 179 (40.87%) Below average: 23 (5.25%) Poor: 57 (13.01%)
Level of satisfaction with the extent to which junior mining companies consult with local communities on issues that affect the community	Good: 87 (19.82%) Above average: 154 (35.08%) Average: 121 (27.56%) Below average: 36 (8.20%) Poor: 41 (9.34%)
Level of satisfaction with the reputations held by junior mining companies in terms of implementing community development programmes	Good: 79 (18.00%) Above average: 159 (36.22%) Average: 112 (25.51%) Below average: 47 (10.71%) Poor: 42 (9.57%)

Figure 4.1.12 shows a bar chart for the extent to which people living in local communities were happy with the reputations of junior mining companies operating in their communities. Majority of the stakeholders from the study were happy with the reputations of the junior mining company however this could mean brand awareness and a positive image instilled by the junior mining companies to the community.

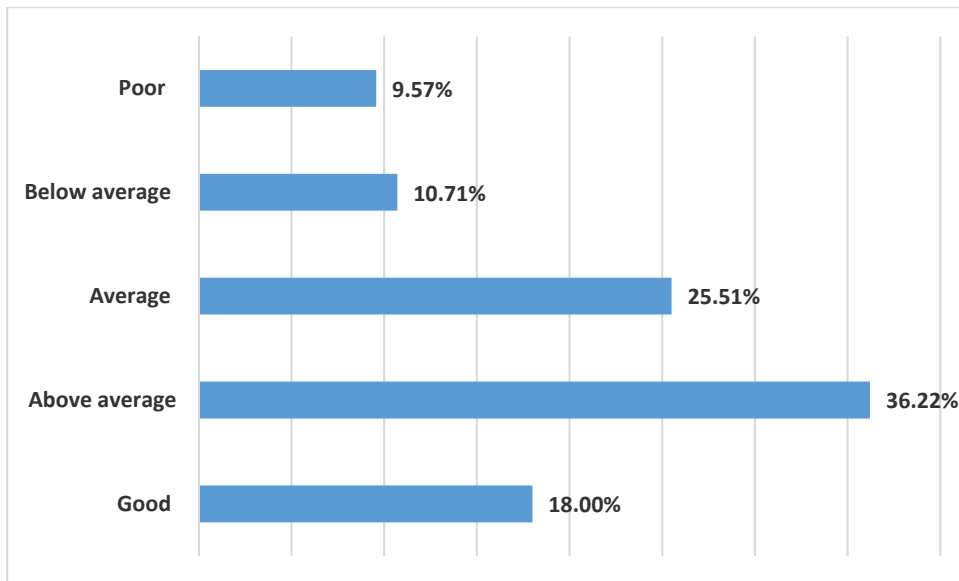


Figure 4.1.12: Level of satisfaction with the reputations of junior mining companies

Table 4.1.7 shows that about 82% of respondents were happy with the extent to which junior mining companies give back to local communities. About 74% of respondents believed that junior mining companies followed the best interest of local communities. About 72% of respondents were happy with the extent to which junior mining companies were giving back to local communities.

Table 4.1.7: Looking after the best interest of local communities (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies look after the best interest of local communities	Good: 65 (14.81%) Above average: 125 (28.47%) Average: 125 (28.47%) Below average: 67 (15.26%) Poor: 57 (13.01%)
Level of satisfaction with the extent to which junior mining companies give back to local communities	Good: 0 (0.00%) Above average: 1 (0.23%) Average: 12 (2.73%) Below average: 165 (37.59%) Poor: 261 (59.45%)
Level of satisfaction with the extent to which junior mining companies are compelled to give back to local communities	Good: 42 (9.57%) Above average: 9 (2.05%) Average: 47 (10.71%) Below average: 179 (40.77%) Poor: 162 (36.90%)

Figure 4.1.13 shows a bar chart for the extent to which junior mining companies followed the best interest of local communities. The results indicate that respondents had a favourable view of actions taken by junior mining companies. The results were generally satisfactory. That is, the estimates Good: 65 (14.81%), above average: 125 (28.47%) and average: 125 (28.47%) indicate general satisfaction. This feedback shows that junior mining companies must be able to be guided by the best interest of local communities in order to maintain their reputations and credibility in the eyes of community members.

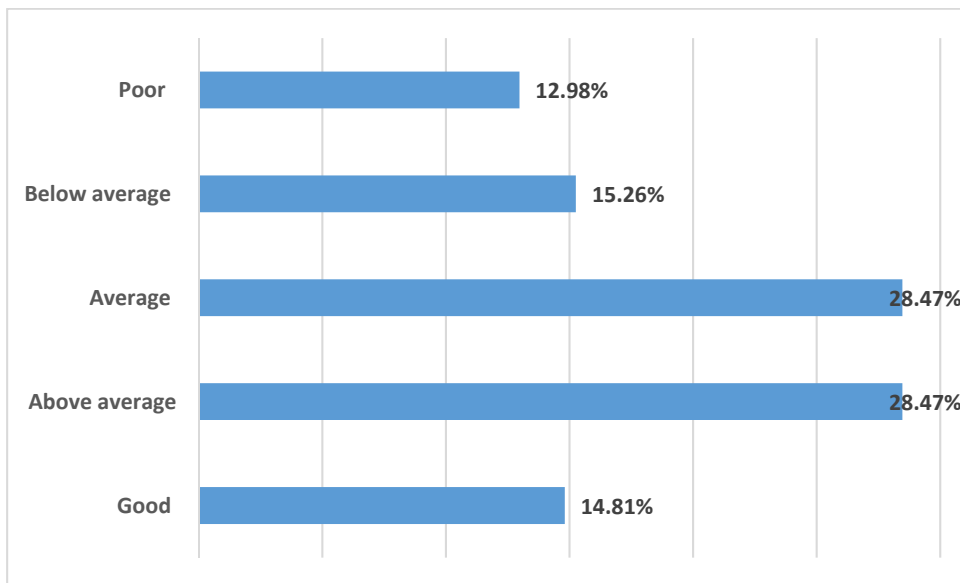


Figure 4.1.13: Following the best interest of local communities

Table 4.1.8 shows that about 56% of respondents were happy with the extent to which junior mining companies were sincere enough in contributing to local communities. About 51% of respondents were satisfied with the extent to which junior mining companies were committed to sustainable causes in local communities. About 61% of respondents were suspicious enough about junior mining companies that support good causes frequently.

Table 4.1.8: Looking after the best interest of local communities (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies were sincere in contributing to local communities	Good: 0 (0.00%) Above average: 28 (6.38%) Average: 219 (49.89%) Below average: 109 (24.83%) Poor: 83 (18.91%)
Level of satisfaction with the extent to which junior mining companies were committed to sustainable causes in local communities	Good: 0 (0.00%) Above average: 62 (14.12%) Average: 160 (36.45%) Below average: 181 (41.23%) Poor: 36 (8.20%)
Extent to which local communities were suspicious about junior mining companies that support good causes frequently	Good: 45 (10.25%) Above average: 108 (24.60%) Average: 116 (26.42%) Below average: 138 (31.44%) Poor: 32 (7.29%)

Figure 4.1.14 shows a bar chart for the extent to which junior mining companies were sincere enough in contributing to local communities. The bottom-line statement interpreted is that majority of the stakeholders have turned out a negative scoring on the sincerity of junior miners, Good: 0 (0.00%) above average: 28 (6.38%) average: 219 (49.89%) below average: 109 (24.83%) and poor: 83 (18.91%). Sincerity goes part and parcel with the element of trust between junior miners and the community despite positive sentiments towards community

development issues. Lack of trust, a perception of lack of sincerity could result in the principal stakeholder being the community, government and employees withdrawing support for the junior miners when they do not show sincere commitment towards the community.

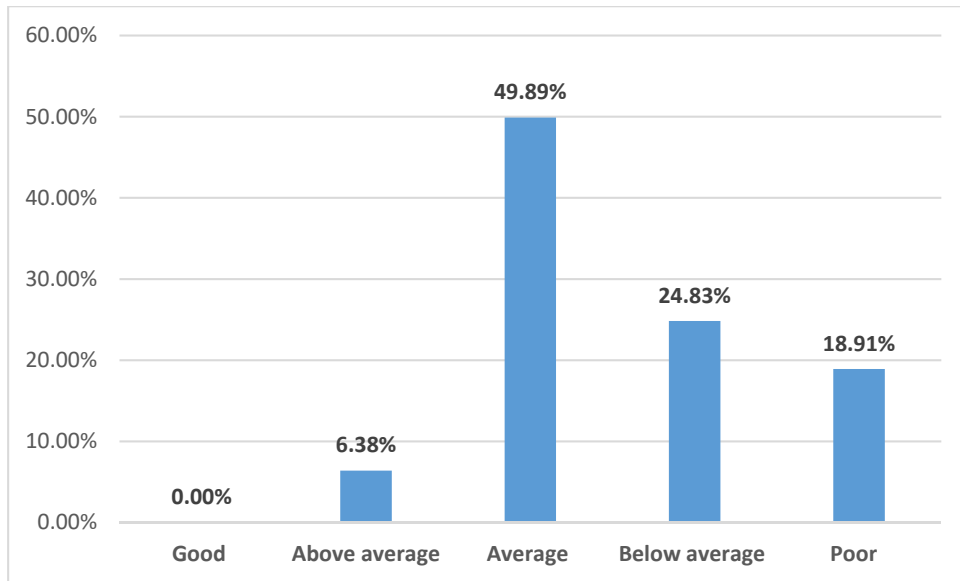


Figure 4.1.14: Sincerity in contributing to local communities

Table 4.1.9 shows that about 65% of respondents were happy with the extent to which junior mining companies were transparent enough in promoting social responsibility. About 57% of respondents were suspicious enough about junior mining companies that promote frequent publicity in the media. About 61% of respondents were positively impressed with junior mining companies that promote good deeds in local communities.

Table 4.1.9: Transparency in promoting social responsibility (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies were transparent enough in promoting social responsibility	Good: 15 (3.42%) Above average: 81 (18.45%) Average: 191 (43.51%) Below average: 116 (26.42%) Poor: 36 (8.20%)
Extent to which local communities were suspicious about junior mining companies that promote frequent publicity in the media	Good: 2 (0.46%) Above average: 109 (24.83%) Average: 139 (31.66%) Below average: 71 (16.17%) Poor: 118 (26.88%)
Extent to which local communities were positively impressed with junior mining companies that promote good deeds in local communities	Good: 30 (6.83%) Above average: 108 (24.60%) Average: 116 (26.42%) Below average: 138 (31.44%) Poor: 32 (7.29%)

Figure 4.1.15 shows a bar chart for the extent to which junior mining companies were transparent enough in promoting social responsibility in local communities. In this section of the questionnaire, it shows the junior mining companies were rated dimly by all the stakeholders being mine owners, management, ownemployees, and residents. Only a few respondents gave positive feedback. These are: good: 15 (3.42%) and above average: 81 (18.45%). This outcome is also corroborated by the feedback received on the qualitative aspect with the management not being very clear or transparent on promotion of CSR strategies and

budgets allocated towards this corporate governance aspect even. Some managers were even not open with the CSR costs; feedback given was “the CSR spend is part of the miscellaneous spend and not officially tracked” (employee 1).

“We do not necessarily track this spend as we do it out of goodwill and whenever the community requests”. (Manager 1).

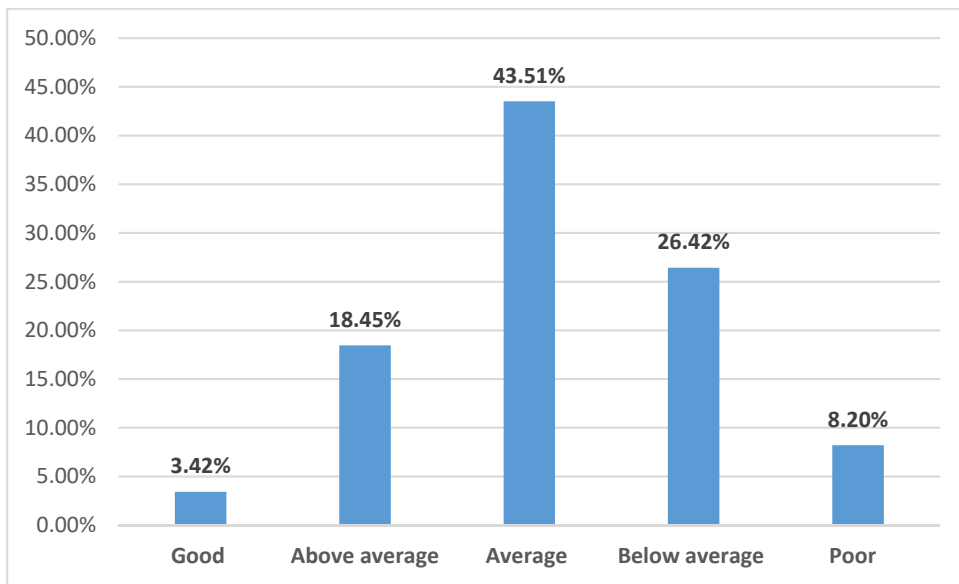


Figure 4.1.15: Transparency in promoting social responsibility in local communities

Table 4.1.10 shows that about 48% of respondents were happy with the extent to which junior mining companies publicised donations they made for worthy causes. About 73% of respondents were prepared to trust junior mining companies that promote good deeds. About 81% of respondents were positively impressed with junior mining companies that keep promises made to local communities.

Table 4.1.10: Publicity about worthy donations made to local communities (n=439)

Variable of study	Number (Percentage)
Level of satisfaction with the extent to which junior mining companies publicise donations made for worthy causes	Good: 67 (15.26%) Above average: 87 (19.82%) Average: 58 (13.21%) Below average: 133 (30.30%) Poor: 94 (21.41%)
Extent to which local communities were prepared to trust junior mining companies that promote good deeds	Good: 30 (6.83%) Above average: 1 (0.23%) Average: 89 (20.27%) Below average: 206 (46.92%) Poor: 113 (25.74%)
Extent to which local communities were positively impressed with junior mining companies that keep promises made to local communities	Good: 66 (15.03%) Above average: 74 (16.86%) Average: 216 (49.20%) Below average: 61 (13.90%) Poor: 22 (5.01%)

Figure 4.1.16 shows a bar chart for the level of satisfaction with the extent to which junior mining companies publicise donations made for worthy causes. Over 51% of respondents [below average: 133 (30.30%) and poor: 94 (21.41%)] were not happy about the use of publicity about donations made to local communities. This finding is very much consistent with the findings made regarding the extent to which junior mining companies were transparent enough in promoting social responsibility in local communities. Donations for a worthy cause are the fundamentals of CSR, key “parts” of the definition of CSR include: the production and

distribution of wealth. The purpose of the corporation is to produce and distribute wealth to their stakeholders; the wealth is distributed by providing financial resources to stakeholders in the form of worthy causes for community development. Junior mining companies should leverage company image by publicising, promoting and reporting on deeds of worthy causes and subsequently changing the negative perceptions that community and public perceptions may reserve about their mining activities.

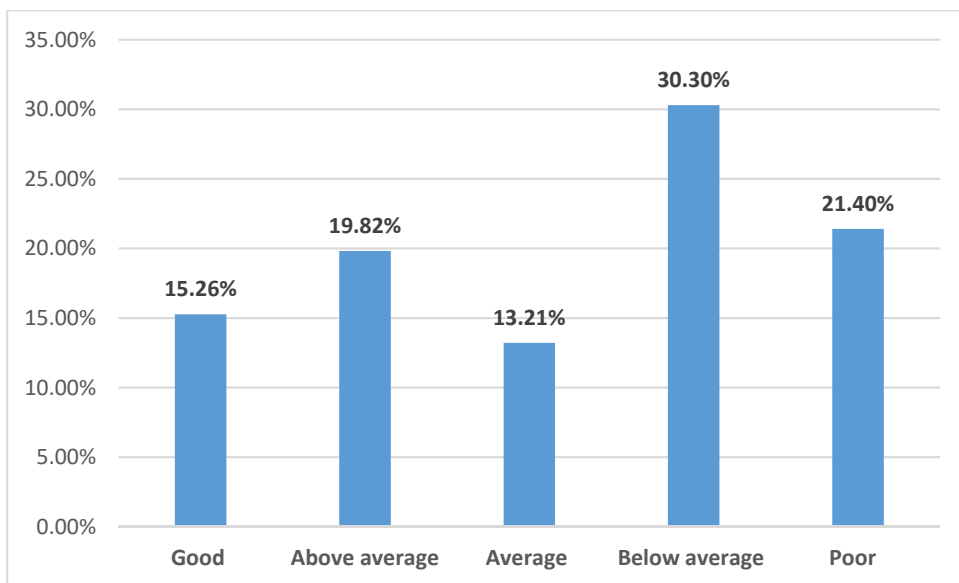


Figure 4.1.16: Level of satisfaction with publicity of donations made for worthy causes

Table 4.1.11 shows that about 32% of respondents trusted junior mining companies that uplifted local communities. About 52% of respondents preferred to buy products from junior mining companies that did well in their local communities. About 37% of respondents preferred working with junior mining companies that gave back to local communities.

Table 4.1.11: Trusting junior mining companies that uplift local communities (n=439)

Variable of study	Number (Percentage)
Level of trust bestowed upon junior mining companies that uplift local communities	Good: 0 (0.00%) Above average: 0 (0.00%) Average: 141 (32.12%) Below average: 167 (38.04%) Poor: 131 (29.84%)
Extent to which local communities buy products from junior mining companies that do well in their communities	Good: 54 (12.30%) Above average: 46 (10.48%) Average: 108 (24.60%) Below average: 160 (36.45%) Poor: 71 (16.17%)
Extent to which local communities prefer working with junior mining companies that give back to local communities	Good: 66 (15.03%) Above average: 48 (10.93%) Average: 89 (20.27%) Below average: 168 (38.27%) Poor: 108 (24.60%)

Figure 4.1.17 shows a bar chart for the extent to which respondents trusted junior mining companies based on good deed in their local communities.

Table 4.1.12 shows that about 33% of respondents felt positive about junior mining companies that do well in their local communities. About 47% of respondents believed that junior mining companies that do well in local communities were also capable of producing better products for

the public. About 35% of respondents believed that junior mining companies that assisted local communities did so in order to provide value for themselves only.

Table 4.1.12: Trusting junior mining companies that uplift local communities (n=439)

Variable of study	Number (Percentage)
Extent to which local communities feel positive about junior mining companies that do well in their communities	Good: 7 (1.59%) Above average: 71 (16.17%) Average: 63 (14.35%) Below average: 179 (40.77%) Poor: 119 (27.11%)
Perceived similarity between junior mining companies that do well in local communities and the ability to produce better products	Good: 9 (2.05%) Above average: 75 (17.08%) Average: 124 (28.25%) Below average: 139 (31.66%) Poor: 92 (20.96%)
Perceived belief that junior mining companies assist local communities to provide value for themselves only	Good: 29 (6.61%) Above average: 46 (10.48%) Average: 77 (17.54%) Below average: 167 (38.04%) Poor: 120 (27.33%)

Figure 4.1.17 shows a bar chart for the extent to which respondents believed that there was a significant association between producing better products to the public and willingness to promote good deeds in local communities.

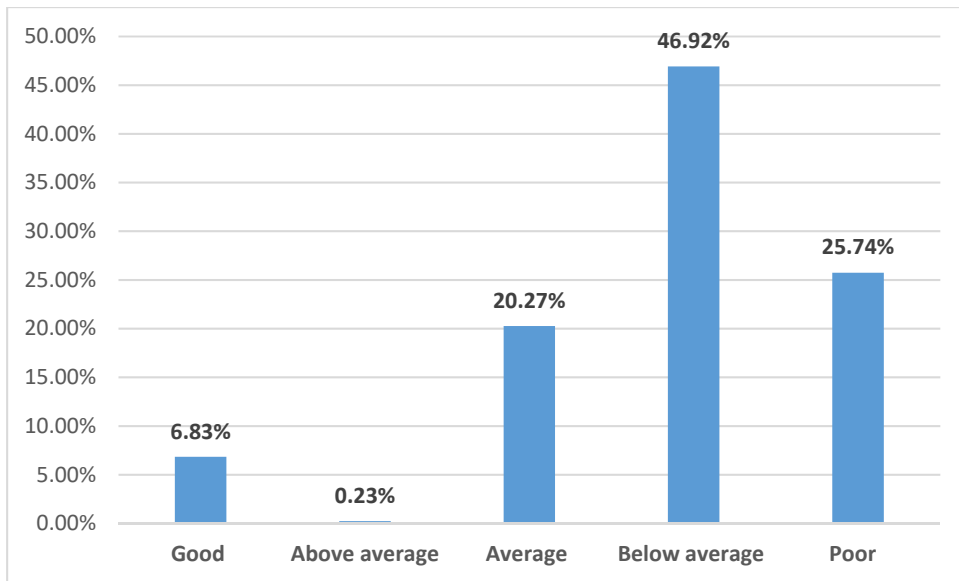


Figure 4.1.17: Perceived similarity between better products and good deeds

Table 4.1.13 shows that about 32% of respondents believed that junior mining companies assisted local communities only when they were profitable. About 14% of respondents believed that there was a significant association between junior mining companies that promote good deeds and commitment from individual employees to promote good deeds in local communities. About 12% of respondents were committed enough to continue supporting junior mining companies that do-good deeds for local communities.

Table 4.1.13: Perceived relationship between assistance and profitability (n=439)

Variable of study	Number (Percentage)
Extent to which local communities feel that junior mining companies assisted local communities only when they were profitable	Good: 3 (0.68%)
	Above average: 96 (21.87%)
	Average: 40 (9.11%)
	Below average: 149 (33.94%)
	Poor: 151 (34.40%)

Perceived association between junior mining companies that promote good deeds and commitment of individual employees to promote good deeds in local communities	<p>Good: 0 (0.00%)</p> <p>Above average: 25 (5.69%)</p> <p>Average: 30 (6.83%)</p> <p>Below average: 222 (50.57%)</p> <p>Poor: 162 (36.90%)</p>
Level of commitment to continue supporting junior mining companies that do good to local communities	<p>Good: 2 (0.46%)</p> <p>Above average: 1 (0.23%)</p> <p>Average: 50 (11.39%)</p> <p>Below average: 218 (49.66%)</p> <p>Poor: 168 (38.27%)</p>

Figure 4.1.18 shows a bar chart for the extent to which respondents were prepared to keep supporting junior mining companies that do well for their local communities. The breakdown of responses was as follows: Good: 2 (0.46%); Above average: 1 (0.23%); Average: 50 (11.39%); Below average: 218 (49.66%); Poor: 168 (38.27%). The respondents do not give any guarantees to supporting junior mining companies for doing good for the local community. The attitude is that junior mining companies are corporate citizenry who should automatically assume social responsibility for the community without expecting gratification for such a responsibility.

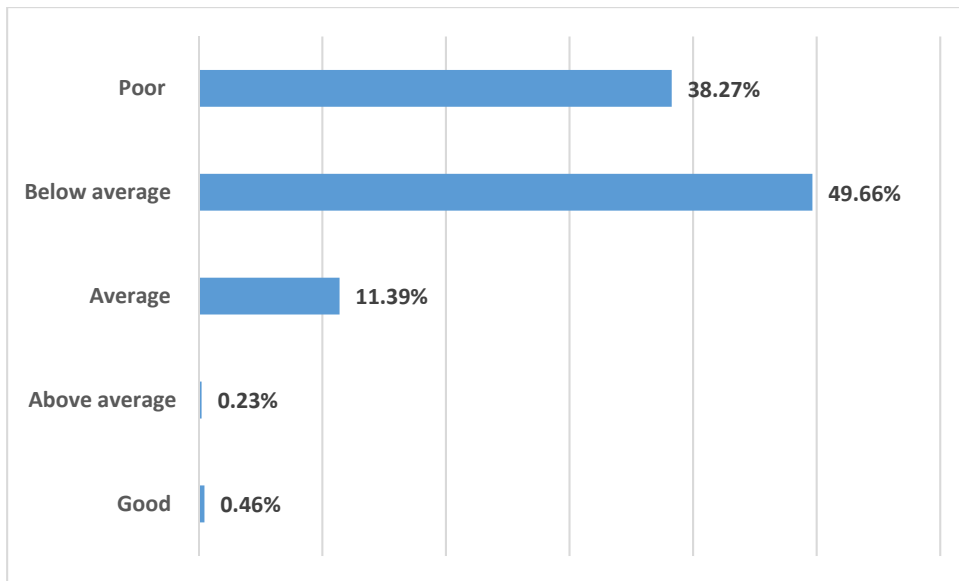


Figure 4.1.18: Commitment to support companies that do well to local communities

Table 4.1.14 shows that about 22% of respondents were committed enough to buy goods, products and services from junior mining companies that do good for society. About 32% of respondents believed that junior mining companies that promote good deeds were better than those who did not do the same. About 20% of respondents were committed enough not to buy from junior mining companies that did not aid local communities. In essence the communities expect junior mining companies to disburse social responsibility deliverables and will not support any junior mining company that does not fulfil the social responsibility duties.

Table 4.1.14: Perceived relationship between assistance and profitability (n=439)

Variable of study	Number (Percentage)
Level of commitment of respondents to buy from junior mining companies that do good to society	Good: 25 (5.69%) Above average: 17 (3.87%) Average: 51 (11.62%) Below average: 191 (43.51%) Poor: 155 (35.31%)
Perception that junior mining companies that promote good deeds are better than those who do not do the same	Good: 0 (0.00%) Above average: 17 (3.87%) Average: 123 (28.02%) Below average: 212 (48.29%) Poor: 87 (19.82%)
Level of commitment not to buy from junior mining companies that do not provide assistance to local communities	Good: 0 (0.00%) Above average: 0 (0.00%) Average: 88 (20.05%) Below average: 220 (50.11%) Poor: 131 (29.84%)

Figure 4.1.19 shows a bar chart for the extent to which respondents were prepared to keep supporting junior mining companies that have a history of helping out local communities. Again, in this aspect the respondent’s feedback was negative and consistence with the notion that there should not be any special treatment of junior minimum companies who are doing their requirements of helping the community.

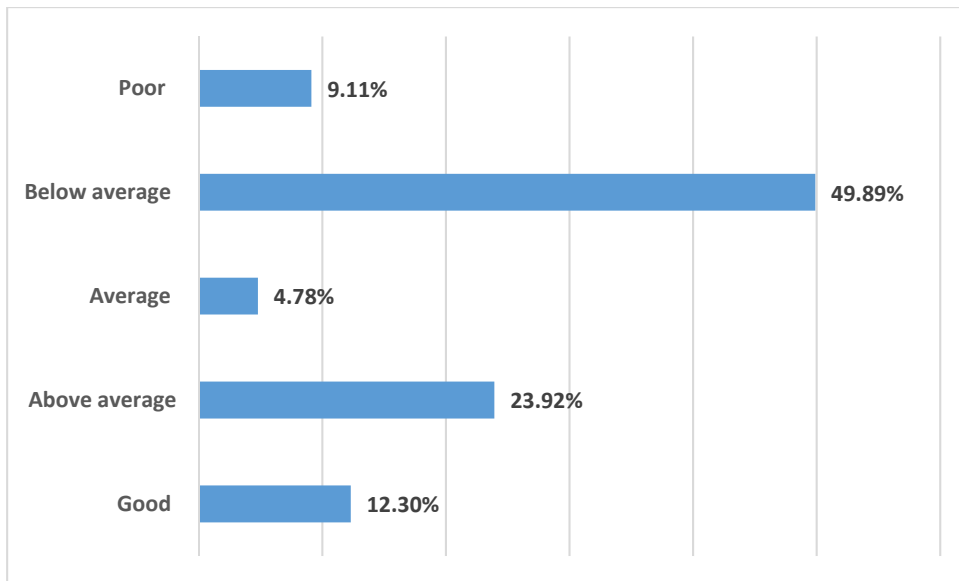


Figure 4.1.19: Commitment to support companies that help out local communities

Table 4.1.15 shows that about 22% of respondents were committed enough to buy goods, products and services from junior mining companies with a good track record of CSR history in their local communities. About 48% of respondents believed that junior mining companies that continue helping people deserve to be supported. About 90% of respondents were willing to tell others about good junior mining companies that provide assistance to their local communities.

Table 4.1.15: Commitment to buy from companies with a good CSR history (n=439)

Variable of study	Number (Percentage)
Level of commitment of respondents to buy from junior mining companies with a good CSR track record	Good: 0 (0.00%)
	Above average: 0 (0.00%)
	Average: 97 (22.10%)
	Below average: 201 (45.79%)
	Poor: 141 (32.12%)

Perception that junior mining companies that continue helping people deserve to be supported	Good: 0 (0.00%) Above average: 0 (0.00%) Average: 209 (47.61%) Below average: 108 (24.60%) Poor: 122 (27.79%)
Level of commitment to tell others about junior mining companies that provide assistance to local communities	Good: 155 (35.31%) Above average: 191 (43.51%) Average: 51 (11.62%) Below average: 17 (3.87%) Poor: 25 (5.69%)

Figure 4.1.20 shows a bar chart for the extent to which respondents were prepared to tell others about good junior mining companies in their local communities. From the results, Good(35.31%), above average: 191 (43.51%), average: 51 (11.62%), below average: 17 (3.87%) and poor: 25 (5.69%) it can be noted that there is a significant association between the level of commitment to tell others about junior mining companies that help local communities.

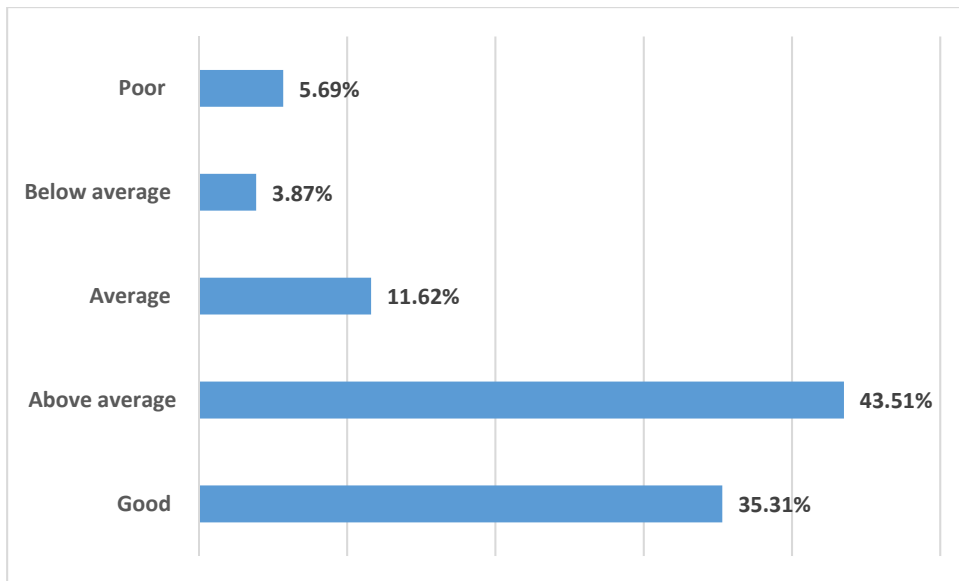


Figure 4.1.20: Commitment to tell others about good mining companies

4.2: RESULTS FROM CROSSTAB ANALYSIS

In this section of the thesis, results obtained from bivariate analysis (Denis, 2020) will be presented. These are results obtained from the analysis of pairs of categorical variables. One of the pairs of variables is the dependent variable of study (Y). The dependent variable of study denotes the level of adherence to corporate social responsibility (CSR) guidelines in South African junior mines. The dependent variable of study (Y) has only 2 possible values (Adequate, Inadequate). An assessment was made on the extent to which each one of the 439 participants of research adhered to corporate social responsibility (CSR) guidelines and regulations in the course of conducting day-to-day operations in their junior mining companies by using a composite index developed. The degree of adherence to CSR guidelines in each junior mining company was assessed by using a composite index developed by Amor-Esteban, Galindo-Villardón and García-Sánchez (2020: 1914-1936). Thus, the degree of adherence to

CSR guidelines in each junior mining company was measured or quantified by the standards of Amor-Esteban, Galindo-Villardón and García-Sánchez (2020: 1914-1936).

4.2.1 Possible values of the dependent variable of study (Y)

Y: Level of adherence to CSR guidelines for South African junior mining companies

The two possible values of the dependent variable of study (Y) are shown below:

$$Y = \begin{cases} 1 & \text{if adequate} \\ 2 & \text{if inadequate} \end{cases}$$

The dependent variable of study (Y) measures or quantifies the degree of adherence of each one of the 439 participants of study to CSR guidelines by the standards of Amor-Esteban, Galindo-Villardón and García-Sánchez (2020: 1914-1936). Y=1 if the degree of adherence to CSR guidelines is adequate. Y=2 if the degree of adherence to CSR guidelines is inadequate.

4.2.2 Ensuring content validity

Ensuring content validity enables researchers to measure or quantify variables that are supposed to be measured. In this study, it was necessary to ensure content validity for the composite index defined by Amor-Esteban, Galindo-Villardón and García-Sánchez (2020: 1914-1936) for measuring the degree of adherence to CSR guidelines and principles in mining companies. This task was accomplished by conducting a pilot study at each one of the 6 junior mining companies before the actual study was conducted. As part of the pilot study, a simple random sample of size n=30 was selected from the 6 junior mining companies (5 participants

from each one of the 6 junior mining companies). The pilot study was helpful for testing the suitability of the questionnaire of study. As part of the pilot study, a few minor changes were made to the questionnaire of study. This process is commonly referred to as content validity (Beck, 2020:1-37). Ensuring content validity is essential for measuring variables of study that need to be measured or quantified as part of the survey.

4.2.3 Ensuring reliability and internal consistency

The second and equally important task is ensuring reliability and internal consistency in the tools used for the measurement of variables. This task was done by calculating Cronbach Alpha coefficients (Pallant, 2020) for all variables of study. Variables of study for which Cronbach Alpha coefficients had magnitudes of 0.75 or more were selected for data analysis. Variables of study for which Cronbach Alpha coefficients had magnitudes less than 0.75 were discarded from data analysis. According to Pallant (2020), variables of study for which Cronbach Alpha coefficients were equal to 0.75 or more are reliable and consistent enough to be used in data analysis.

In the survey conducted as part of the study, data was collected from 439 respondents on 46 variables of study that are known to affect the degree of adherence of junior mining companies to CSR guidelines. Thus, data analysis was done based on data collected from 439 participants of study on 46 independent variables of study and variable Y (the dependent variable of study).

4.2.4 List of variables of study

Appendix A shows the questionnaire of study. The independent variables of study are socioeconomic and management-related variables that are known to influence the level of adherence to corporate social responsibility (CSR) guidelines and principles in mining companies in all parts of the world. Examples of these variables of study are shown below:

1. Level of adherence to basic guidelines of CSR
2. Gender of respondent
3. Recognition for being a good company in the local community
4. Conducting mining operations in a socially responsible manner
5. Caring about the environment and nature resources
6. Caring about the welfare of local people
7. Treating local people as the principal stakeholder
8. Providing local people with basic health care services
9. Providing local people with basic educational services
10. Providing local people with community development programmes
11. Providing local people with poverty eradication programmes
12. Creating employment opportunities to local people
13. Not seeking cheap publicity
14. Keeping promises made to local people
15. Consulting local people about social programmes to invest in
16. Consulting local people on issues that affect the community
17. Having a good reputation in terms of rolling out community development programme
18. Following the best interest of the community in which business is conducted
19. Giving back to the community

20. Sincerity about contributing to society
22. Commitment to sustainable causes in the community
23. Supporting good causes
24. Transparency in all activities
25. The promotion of good deeds in the local community
26. Donating money for worthy causes
27. Uplifting people in the local community economically
28. Adding value to community-based development activities
29. Not interested in making profit only
30. Assisting people who are vulnerable in the local community
31. Protecting the environment and preserving natural resources
32. Promoting responsible and sustainable mining operations
33. Having a track-record of honesty in the eyes of local communities

Crosstab associations were generated by using the Pearson chi-square test of association (Denis, 2020). Table 4.3.1 shows variables that were significantly associated with adherence to CSR guidelines and principles in junior mining companies.

Table 4.3.1: Factors significantly associated with adherence to CSR guidelines (n=439)

List of 9 variables significantly associated with adherence with CSR guidelines and principles in junior mining companies	Observed chi-square value	P-value
Ability to produce better products by adhering to CSR guidelines and principles	32.7701	0.001
Track record of helping out local communities	17.8277	0.001

Telling others about companies that support local people	15.4196	0.001
Recognition for being a good company in the local community	15.1228	0.004
Buying only from companies that support local people	12.3499	0.002
Not seeking cheap publicity	11.1778	0.025
The promotion of good deeds in local communities	10.8687	0.012
Conducting mining operations in a socially responsible manner	10.7904	0.029
Not buying from companies associated with irresponsible mining activities	9.1242	0.010

Table 4.3.1 shows a list of 9 socioeconomic factors that are significantly associated with adherence to CSR guidelines and principles in junior mining companies.

1. Ability to produce better products by adhering to CSR guidelines and principles
2. Track record of helping out local communities
3. Telling others about companies that support local people
4. Recognition for being a good company in the local community
5. Buying only from companies that support local people
6. Not seeking cheap publicity
7. The promotion of good deeds in local communities
8. Conducting mining operations in a socially responsible manner
9. Not buying from companies associated with irresponsible mining activities

In Table 4.3.1 above, each one of the 9 factors is significant at the 0.05 level as all 9 probability values (P-values) are less than 0.05. In each one of the 9 bivariate associations, the expected cell frequencies were greater than 5 in magnitude. As such, it was confirmed that the 9 variables identified in Table 4.3.1 were in fact highly influential predictors of adherence to CSR guidelines in the 6 junior mining companies selected for the study (Denis, 2020).

4.3: RESULTS FROM ORDERED LOGIT REGRESSION ANALYSIS

Y: Level of adherence to CSR guidelines for South African junior mining companies

The two possible values of the dependent variable of study (Y) are shown below:

$$Y = \begin{cases} 1 & \text{if adequate} \\ 2 & \text{if inadequate} \end{cases}$$

The dependent variable of study (Y) measures or quantifies the perception held by the 488 participants of research about the adequacy of health care services that are provided to the population living and working in the North-West Province. Y=1 if the quality of health service delivery is adequate. Y=2 if the quality of health service delivery is inadequate.

The dependent variable of study (Y) is a measure of the extent to which each one of the 439 participants of study adheres sufficiently to CSR guidelines by the standards of Amor-Esteban, Galindo-Villardón and Garcia-Sanchez (2020: 1914-1936). Y=1 if the degree of adherence to CSR guidelines is adequate. Y=2 if the degree of adherence to CSR guidelines is inadequate. Since variable Y can only have 2 possible values, it is a dichotomous variable of study.

Influential predictors of adherence to CSR guidelines and principles were identified by estimating odds ratios from ordered logit analysis (Hosmer Jr, Lemeshow & Sturdivant, 2013). In this particular study, the odds ratios are used as an econometric measure of effect. Influential predictor variables have odds ratios that differ from the number 1 significantly (for example 2.45). They also have probability values (P-values) that are less than 0.05. Significant predictors of adherence to CSR guidelines and principles have 95% confidence intervals of odds ratios that do not contain the number 1.

Ordered logit regression analysis is based on multivariate analysis. As such, it is more credible and robust than bivariate methods such as Pearson's chi-squared two-way tests of associations (Hosmer Jr, Lemeshow&Sturdivant, 2013).

Hosmer Jr, Lemeshow and Sturdivant (2013) have provided a simple guideline for identifying influential predictor variables in ordered logit regression analysis. Significant predictors are identified by 3 simple indicators. The first indicator is that the odds ratio differs from the number 1 significantly (example: 2.57). The second indicator is that they have a probability value (P-value) which is smaller than 0.05 (example: P=0.0125). The third indicator is that the 95% confidence interval of the true odds ratio does not contain the number 1. Influential odds ratios obtained from ordered logit analysis are shown in Table 4.4.1 below.

Table 4.4.1: Estimates obtained from ordered logit regression analysis (n=439)

Variable of study	Odds Ratio	P-value	95% confidence interval of odds ratio
Ability to produce better products by adhering to CSR guidelines and principles	6.21	0.000	(4.27, 9.02)
Track record of helping out local communities	5.99	0.000	(4.01, 8.78)
Telling others about companies that support local people	4.66	0.000	(2.39, 7.51)

Table 4.4.1 shows 3 influential predictors of adherence to CSR guidelines and principles in junior mining companies. Thus, it can be concluded that the level of adherence to CSR guidelines and principles in the 6 junior mining companies that were selected for the study is significantly influenced by the following 3 predictor variables:

1. Ability to produce better products by adhering to CSR guidelines and principles
2. Track record of helping out local communities
3. Telling others about companies that support local people

4.3.1 Interpretation of 3 influential odds ratios

The odds ratio of the variable “Ability to produce better products by adhering to CSR guidelines and principles” is equal to 6.18. This indicates that a junior mining company which has the capacity for producing better products by adhering to CSR guidelines and

principles is 6.18 times more compliant with CSR guidelines in comparison with another junior mining company that lacks the capacity for producing better products by adhering to CSR guidelines and principles.

The odds ratio of the variable “Track record of helping out local communities” is equal to 5.99. This indicates that a junior mining company which has a track record of helping out local communities is 5.99 times more compliant with CSR guidelines in comparison with another junior mining company that has no track record of helping out local communities.

The odds ratio of the variable “Telling others about companies that support local people” is equal to 4.66. This indicates that a junior mining company which has a track record of supporting local communities is 4.66 times more compliant with CSR guidelines in comparison with another junior mining company that has no track record of supporting local people.

4.3.2 Goodness-of-fit tests for the fitted ordered logit regression model

Hosmer Jr, Lemeshow and Sturdivant (2013) have provided suitable methods of assessing the reliability of estimated results. Such methods are commonly referred to as goodness-of-fit tests.

According to the authors, the following tests are reliable goodness-of-fit tests:

- The likelihood ratio test
- The Hosmer and Lemeshow goodness-of-fit test
- The table of classification

In this study, the P-value obtained from the likelihood ratio test was equal to 0.0000. This P-value is smaller than 0.05. This finding shows that results estimated from ordered logit regression analysis are quite reliable.

4.3.3 The Hosmer and Lemeshow goodness-of-fit test

A probability value (P-value) of 0.1072 was obtained from the Hosmer and Lemeshow goodness-of-fit test. This value of 0.1072 is larger in magnitude than the level of significance of test (0.05). It follows that the estimated ordered logit regression model is trustworthy or adequate.

```
. lfit
```

```
Logistic model for granted, goodness-of-fit test
```

```
      number of observations =      439
number of covariate patterns =      126
      Pearson chi2(72) =      357.08
          Prob > chi2 =      0.1072
```

The classification table for CSR from ordered logit regression analysis

. lstat

Logistic model for CSR

		----- True -----		
Classified		D	~D	Total
-----+-----+-----				
+		132	69	201
-		87	151	238
-----+-----+-----				
Total		219	220	439

Classified + if predicted $\Pr(D) \geq .5$

True D defined as granted $\neq 0$

Sensitivity		$\Pr(+ D)$	75.36%
Specificity		$\Pr(- \sim D)$	85.47%
Positive predictive value		$\Pr(D +)$	82.16%
Negative predictive value		$\Pr(\sim D -)$	80.59%

False + rate for true ~D		$\Pr(+ \sim D)$	15.69%
False - rate for true D		$\Pr(- D)$	23.79%
False + rate for classified +		$\Pr(\sim D +)$	17.71%
False - rate for classified -		$\Pr(D -)$	19.25%

Correctly classified			82.88%

The percentage of correct classification is 82.88%. This figure exceeds 75% significantly. It can be concluded that the fitted model can accurately classify 82.88% of all cases accurately. It follows that the fitted ordered logit model is highly trustworthy. This means that it can be used for making conclusions and inferences based on results estimated from data analysis.

4.4: RESULTS FROM STRUCTURAL EQUATIONS MODELLING

In this study, data analysis was carried out in 3 sequential steps. First, univariate methods of data analysis were used for generating frequency tables and summary statistics by taking one variable at a time. Secondly, bivariate analysis was done by taking pairs of categorical variables. The purpose of performing bivariate analysis was to perform data reduction or screening. Bivariate analysis enabled the researcher to reduce the number of predictor variables from 46 to 9. Thirdly, multivariate analysis was performed by using ordered logit regression analysis.

The use of ordered logit regression analysis was helpful for confirming that adherence to CSR guidelines was influenced by 3 predictor variables. Fourthly, confirmatory factor analysis (CFA) was performed to corroborate findings obtained from ordered logit regression analysis. The large sample size of study (n=439) meant that the use of confirmatory factor analysis (CFA) was justified. Confirmatory factor analysis (CFA) is useful for finding out whether or not there is a relationship between observed variables and their underlying latent constructs (Keith&Reynolds, 2018). This procedure showed that the 3 influential predictor variables identified by using ordered logit regression analysis were highly influential and accounted for adherence to CSR guidelines and principles. Finally, Structural Equations Modelling (SEM)

was used in order to obtain regression estimates for these 3 influential predictor variables (Kline, 2015).

Structural equations modeling (SEM) has clear advantages over traditional methods of data analysis such as multivariate regression analysis. The first advantage is that SEM enables the researcher to use a whole range of goodness-of-fit tests that allow the measurement of bias and measurement-related inaccuracies. The second major benefit of SEM is that it enables the researcher to estimate variables that are not directly observed or measured (latent variables) by using values obtained from variables that are directly observed as part of data collection. The third key advantage of SEM is that it allows the researcher to propose a suitable fit or model to the data collected as part of the study and find out how well the proposed model fits the data collected as part of the study. In cases where the model fits the data well, it is possible to forecast future possible values, identify potential future trends, predict and make statistical inference based on results obtained from the study. These advantages make SEM quite preferable to traditional methods of multivariate regression analysis.

Structural Equations Modelling (SEM) is highly valuable for detecting potential confounding or effect modifying variables of study in econometric studies. Thus, estimates obtained from SEM analysis are highly credible as long as all goodness-of-fit tests confirm the reliability of estimated results.

Based on results reported in the relevant literature by CSR researchers such as Kneas (2020:268-278), Osei-Kojo and Andrews (2020:1051-1071), Amoah and Eweje (2020:339-363) and Katz (2020:1351-1353), it was assumed that the level of adherence to CSR guidelines

and principles in junior mining companies is significantly influenced by 3 variables. These 3 variables are the following:

1. Ability to produce better products by adhering to CSR guidelines and principles
2. Track record of helping out local communities
3. The promotion of awareness about good deeds

Exploratory and confirmatory factor analysis (Mueller and Hancock, 2019) were used for determining the number of groups and the number of variables in each of the various groups required for measuring the strengths of associations among pairs of variables by using correlation coefficients as a measure of strength. The hypothesised model was constructed based on results obtained from ordered logit regression analysis. This exercise has led to the identification of 3 predictor variables. These 3 predictor variables were the ability to produce better products by adhering to CSR guidelines and principles, a track-record of helping out local communities, and telling others about companies that support local people.

Confirmatory factor analysis was performed by developing a hypothesis of about 3 factors that are known to affect adherence to CSR guidelines and principles in junior mining companies. These 3 predictor variables were the ability to produce better products by adhering to CSR guidelines and principles, a track-record of helping out local communities, and the promotion of awareness about good deeds. Constraints were imposed on the hypothesised model. If the constraints imposed on the model are inconsistent with the data collected as part of the study, then the hypothesised model is rejected. The degree to which a predictor variable is useful in explaining variability in viability is assessed by examining the magnitude of factor loadings.

Influential predictor variables are characterised by factor loadings that are close to -1 or +1. Predictor variables for which factor loading are close to 0 are not influential predictors of viability.

The theoretical reliability of the initial model was assessed by using standard diagnostic procedures. The magnitude of the observed chi-square statistic was used for assessing the degree of reliability of the fitted model. Large values of the observed chi-square statistic indicate that the fitted model is reliable. The Adjusted Goodness of Fit Index (AGFI) statistic was used for assessing the degree to which the fitted model was a true estimate of the hypothesised model. Values of AGFI that are greater than or equal to 0.95 indicate that the fitted model is theoretically reliable. The Tucker Lewis Index (TLI) was used for comparing the degree of similarity between the chi-squared value of the hypothesised model and the chi-squared value of the null model. Values of TLI vary from 0 to 1. Reliable fitted models are characterised by TLI values of 0.95 or greater.

The comparative Fit Index (CFI) was used for assessing the degree of similarity between the data collected from the 439 participants of study and the hypothesised model. Values of CFI vary from 0 to 1. Theoretically reliable fitted models are characterised by CFI values of 0.95 or greater. The Standardized Root Mean Square Error of Approximation (SRMSEA) value of the fitted model was used for assessing the degree of precision in estimating regression coefficients. Theoretically reliable fitted models are characterised by SRMSEA values of 0.05 or less. The Coefficient of Determination (CD) was used for assessing the percentage of overall variation explained by the fitted model. Values of CD greater than or equal to 0.75 indicate that

the fitted model explains a fairly good percentage of variability in the level of adherence to CSR guidelines and principles in junior mining companies.

Maximum Likelihood Estimators (MLE) were used for estimating regression coefficients. An MLE estimator uses an Observed Information Matrix (OIM) for quantifying the magnitude of error arising from the estimation of regression coefficients. OIM values of 0.05 or less indicate that the fitted model is theoretically reliable. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were used for assessing the discrepancy between fitted and true models (Aho, Derryberry and Peterson, 2014). Low values of the AIC and BIC statistics indicate that the fitted model is theoretically reliable. The following estimates were obtained for the initial conceptual model. Table 4.5.1 shows estimates obtained from principal components analysis in which the percentage of variance explained by each one of the 3 predictor variables was estimated.

Table 4.5.1: Percentage of variance explained by key predictor variables (n=439)

Factors that affect the level of adherence to CSR guidelines and principles	Number of factors retained	Percentage of variance explained
Ability to produce better products by adhering to CSR guidelines and principles	3	82.36%
Track record of helping out local communities	3	80.09%
The promotion of awareness about good deeds	3	78.88%

Table 4.5.2 shows regression estimates that were obtained from structural equations modelling for the initial conceptual model.

Table 4.5.2: Structural equations estimates for initial conceptual model (n=439)

Predictor variable	Coefficient	Z-Statistic	P-value	OIM Std. Error
Ability to produce better products by adhering to CSR guidelines and principles	3.29	6.24	0.0000	0.0161
Track record of helping out local communities	2.91	5.79	0.0003	0.0268
The promotion of awareness about good deeds	0.32	0.69	0.1152	0.7061
Constant	2.58	4.59	0.0031	1.4213

Table 4.5.3 shows goodness-of-fit statistics for regression estimates that were obtained from structural equations modelling for the initial conceptual model. The table shows that the estimated model does not fit the data well enough. This is because the P-value for the likelihood ratio test is large, the observed chi-square value is small, and the values of AIC, BIC, CFI, TLI and SRMSEA are all large. Furthermore, the value of CD (a measure of the percentage of variation explained by the fitted model) is significantly smaller than 75%. It

follows that the conceptual model needs to be amended with a view to obtain more reliable results.

Table 4.5.3: Diagnostic measures for initial conceptual model (n=439)

Diagnostic test used for assessment	Estimates obtained from data analysis	Interpretation of results
P-value from the likelihood ratio test used for comparing conceptual model with saturated model	P = 0.2408; Observed chi-square value = 0.2455 (P-value is larger than 0.05; the observed chi-square value is small)	The conceptual model differs significantly from the saturated model at the 5% level of significance
P-value from the likelihood ratio test used for comparing baseline model with saturated model	P = 0.2119; Observed chi-square value = 0.2374 (P-value is larger than 0.05; the observed chi-square value is small)	The baseline model differs significantly from the saturated model at the 5% level of significance
AIC	111.327 (Large)	The fitted model differs from the true model
BIC	109.027 (Large)	The fitted model differs from the true model
CFI	0.39 (Small)	The fitted model is not theoretically reliable
TLI	0.38 (Small)	The fitted model is not theoretically reliable
AGFI	0.71 (Small)	Values of AGFI that are smaller than 0.95 indicate

		that the fitted model is not theoretically reliable.
SRMSEA	0.5149 (SRMSEA value is larger than 0.05)	The error of estimation of the fitted model is large
CD	0.5611 = 56.11% (The percentage of explained variation is equal to 56.11%)	The fitted model is poor in explaining variability in the viability of businesses

The diagnostic measures obtained for the initial conceptual model in Table 4.5.3 indicate that the conceptual model does not fit the data well. This is because the P-value for the likelihood ratio test is large, the observed chi-square value is small, and the values of AIC, BIC, CFI, TLI and SRMSEA are all large. The value of CD is significantly smaller than 75%. The value of AGFI is significantly smaller than 0.95.

Regression coefficients, P-values and standard error estimates were obtained for the initial conceptual model as shown in Table 4.5.3 above. Diagnostic measures used for the procedure in Table 4.5.3 indicated that the initial conceptual model did not fit the data well. As such, the initial conceptual model had to be amended by replacing the variable “the promotion of awareness about good deeds” by the variable “telling others about companies that support local people”.

This amendment is consistent with findings reported by Kneas (2020:268-278), Osei-Kojo and Andrews (2020:1051-1071), Amoah and Eweje (2020:339-363) and Katz (2020:1351-1353). Subsequently, new estimates were obtained for the amended conceptual model as shown in Table 4.5.4 below. Residual terms did not vary in the process of estimating regression coefficients for the amended conceptual model.

Diagnostic measures obtained for the amended conceptual model (Table 4.5.4) confirmed that the amended conceptual model was a better fit to the data in the study in comparison with the initial conceptual model. In particular, both the CFI and TLI were equal to 0.98 = 98%, thereby showing that 98% of the covariation in the data could be reproduced by the hypothesised model used in the study. The value of the AGFI statistic for the amended conceptual model is equal to 0.97 (a figure which is larger than 0.95).

Table 4.5.4 shows estimates obtained from Structural Equations Modelling (SEM) for the amended conceptual model.

Table 4.5.4: Structural equations estimates for amended conceptual model (n=439)

Predictor variable	Coefficient	Z-Statistic	P-value	OIM Std. Error
Ability to produce better products by adhering to CSR guidelines and principles	3.33	6.46	0.0000	0.0108
Track record of helping out local communities	2.91	5.94	0.0000	0.0114
Telling others about companies that support local people	2.62	4.93	0.0000	0.0259
Constant	2.53	4.61	0.0027	1.1884

Table 4.5.5 shows goodness-of-fit measures for the amended conceptual model. It can be seen from the table that the amended conceptual model fits the data relatively better in comparison with the initial conceptual model.

Table 4.5.5: Diagnostic measures for amended conceptual model (n=439)

Diagnostic test used for assessment	Estimates obtained from data analysis	Interpretation of results
P-value from the likelihood ratio test used for comparing conceptual model with saturated model	P = 0.000; Observed chi-square value = 289.208 (P-value is smaller than 0.05; the observed chi-square value is large)	The conceptual model differs significantly from the saturated model at the 5% level of significance
P-value from the likelihood ratio test used for comparing baseline model with saturated model	P = 0.000; Observed chi-square value = 52.012 (P-value is smaller than 0.05; the observed chi-square value is large)	The baseline model differs significantly from the saturated model at the 5% level of significance
AIC	32.596 (Small)	The fitted model is fairly similar to the true model
BIC	33.884 (Small)	The fitted model is fairly similar to the true model
CFI	0.98 (Large)	The fitted model is theoretically reliable
TLI	0.98 (Large)	The fitted model is theoretically reliable
AGFI	0.97 (Large)	Values of AGFI that are greater than or equal to 0.95 indicate that the fitted model is theoretically reliable.
SRMSEA	0.0108 (SRMSEA value is smaller than 0.05)	The error of estimation of the fitted model is small

CD	0.7849 = 78.49% (The percentage of explained variation is equal to 78.49%)	The fitted model is good in explaining variability in the viability of businesses
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Based on results estimated from structural equations modelling, the following three null hypotheses were accepted at the 0.05 level of significance.

H1: The level of adherence to CSR guidelines and principles (Y) is significantly influenced by the ability to produce better products by adhering to CSR guidelines and principles

H2: The level of adherence to CSR guidelines and principles (Y) is significantly influenced by past track record of helping out local communities

H3: The level of adherence to CSR guidelines and principles (Y) is significantly influenced by telling others about companies that support local people

These findings are consistent with findings reported in the literature about factors that affect the level of adherence to CSR guidelines and principles in junior mining companies operating in developing nations by Pons, Vintro, Rius and Vilaplana (2021:1-13).

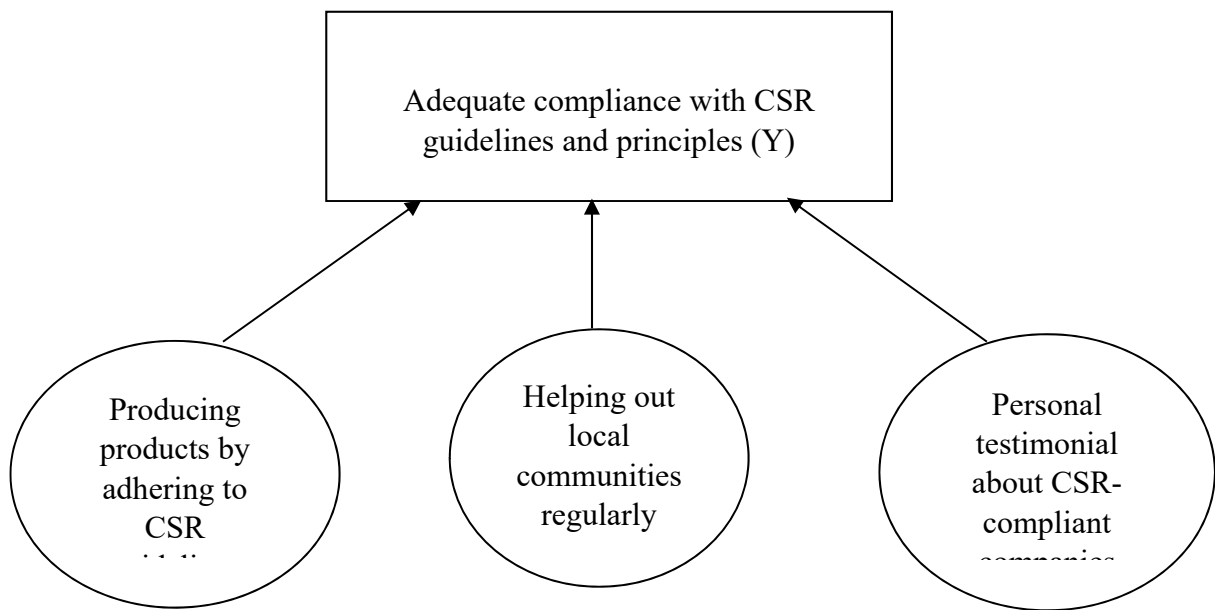


Figure 4.5.1: Conceptual framework based on structural equations modelling

In structural equations modelling, linear regression coefficients are estimated. The linear regression coefficients are related to odds ratios estimated from logit analysis as follows:

$$\text{Odds Ratio} = \exp(\hat{\beta})$$

At the 5% level of significance, significant predictor variables are characterised by regression coefficients that differ from 0 significantly, P-values that are smaller than 0.05, and 95% confidence intervals that do not contain 0. Table 4.5.6 shows regression coefficients estimated from structural equations modelling. It can be seen from the table that all 3 predictor variables were significant at the 5% level of significance. The adequacy and reliability of the fitted structural equations model was assessed by using standard diagnostic measures and was found to be quite reliable.

Table 4.5.6: Regression coefficients from structural equations modelling (n=439)

Predictors of compliance with CSR guidelines and principles	$\hat{\beta}$	P-value	95% C. I.
Ability to produce better products by adhering to CSR guidelines and principles	1.83	0.000	(1.64, 2.02)
Track record of helping out local communities	1.79	0.000	(1.59, 1.98)
Telling others about companies that support local people	1.54	0.000	(1.35, 1.73)

4.6 Conclusion

The research had the following specific objectives; to assess and evaluate the extent to which CSR principles and guidelines are adhered by the six junior mining companies of South Africa using the quantitative methods. Then develop a framework that can predict adequate compliance with these CSR guidelines and principles for junior mining companies of South Africa.

The main roles of quantitative component were to describe the phenomena observed during the research, assess and evaluate the extent to which CSR principles and guidelines are adhered to in 6 South African junior mining companies; and find out the key determinant factors to

adherence of CSR guidelines and principles by junior mining companies of South Africa. This was successfully achieved by collecting data using a 5-point Likert questionnaire from the 439 respondents who fulfil criteria of inclusion into the study, these were owners, managers, employees of junior mining companies and community stakeholders. The sample size (n=439) was large enough (Levy and Lemeshow, 2013) to use robust parametric statistical methods of data analysis such as Structural Equations Modelling (SEM), factor analysis and the Pearson chi-square test of association (Byrne, 2013). Thus, data analysis was performed using STATA based on data collected from 439 participants of study on 46 independent variables of study.

Univariate methods of data analysis were used for generating frequency tables and summary statistics by taking one variable at a time using Stata. Bivariate analysis was done by taking pairs of categorical variables. Bivariate analysis enabled the researcher to reduce the number of predictor variables from 46 to 9. Commands from Stata were used for multivariate analysis. The multivariate was executed using ordered logit regression analysis to be confirming that adherence to CSR guidelines was influenced by 3 predictor variables. Stata's logistics regression was employed to model dichotomous (0 or 1) outcomes. Confirmatory factor analysis (CFA) was performed to corroborate findings obtained from ordered logit regression analysis. Confirmatory factor analysis (CFA) is useful for finding out whether there is a relationship between observed variables and their underlying latent constructs (Keith & Reynolds, 2018). This procedure showed that the 3 influential predictor variables identified by using ordered logit regression analysis were highly influential and accounted for adherence to CSR guidelines and principles. Subsequently, Structural Equations Modelling (SEM) was used to obtain regression estimates for these 3 influential predictor variables (Kline, 2015). The crosstab associations were generated by using the Pearson chi-square test of association (Denis, 2020). Structural Equations Modelling (SEM) is highly valuable for detecting potential

confounding or effect modifying variables of study in econometric studies. Thus, estimates obtained from SEM analysis are highly credible as long as all goodness-of-fit tests confirm the reliability of estimated results. Based on results reported in the relevant literature by CSR researchers such as Kneas (2020:268-278), Osei-Kojo and Andrews (2020:1051-1071), Amoah and Eweje (2020:339-363) and Katz (2020:1351-1353), it was assumed that the level of adherence to CSR guidelines and principles in junior mining companies is significantly influenced by 3 variables. These 3 variables are the following, ability to produce better products by adhering to CSR guidelines and principles, track record of helping out local communities and the promotion of awareness about good deeds.

A hypothesised model was constructed based on results obtained from ordered logit regression analysis. This exercise has led to the identification of 3 predictor variables. These 3 predictor variables were the ability to produce better products by adhering to CSR guidelines and principles, a track-record of helping out local communities, and telling others about companies that support local people. Constraints were imposed on the hypothesised model. The theoretical reliability of the initial model was assessed by using standard diagnostic procedures. The Tucker Lewis Index (TLI) was used for comparing the degree of similarity between the chi-squared value of the hypothesised model and the chi-squared value of the null model. The comparative Fit Index (CFI) was later used for assessing the degree of similarity between the data collected from the 439 participants of study and the hypothesised model.

The qualitative approach arrived at the conclusion that the level of adherence to CSR guidelines and principles in the 6 junior mining companies that were selected for the study is significantly influenced by the following 3 predictor variables:

1. Ability to produce better products by adhering to CSR guidelines and principles
2. Track record of helping local communities
3. Telling others about companies that support local people

The qualitative approach was highly valuable in modelling and constructing a suitable framework of study to junior mines for adherence to CSR guidelines and principles.

CHAPTER FIVE: RESULTS FROM QUALITATIVE DATA ANALYSIS

Qualitative methods of data collection and analysis are vital for assessing and evaluating subjective variables of study. As part of the qualitative (Ritchie, Lewis, Nicholls & Ormston, 2013: 89) aspect of study, data was collected from 12 key respondents these were senior mine managers, employees and key community stakeholders. One-hour-long indepth individual interviews were conducted with each of the 12 respondents by using a digital tape recorder then later transcribed, coded and tallied. Thematic analysis was applied for ensuring trustworthiness (Braun, Clarke & Hayfield, 2022: 424-445). The 12 people selected for taking part in indepth interviews were officials working in junior mining companies on issues related to CSR and business ethics. These people worked closely with community members and employees of junior mines. This process of selection was based on purposive sampling. The 12 interviewees were responsible for carrying out functional duties that are relevant to CSR guidelines, regulations and principles or environmental, health-related or sanitation including occupational health and safety, and liaison with members of local communities in which mining activities are carried out.

Qualitative analysis was based on 1-hour-long individual indepth interviews conducted with 12 officials working in the 6 junior mining companies that took part in the study. These 12 officials were responsible for all CSR related activities and functions in their junior mining companies. This process constituted purposive sampling. Saturation was achieved after the 12 individuals were interviewed. Interviews were transcribed, tallied and coded manually. After that was done, two themes were created based on codes and categories. The key methods of qualitative data analysis were thematic and text analysis (Braun, Clarke & Hayfield, 2022: 424-445).

Qualitative methods of data collection and analysis (Braun, Clarke and Hayfield, 2022:424-445) were used in the study for analysing results of individual interviews conducted with 12 officials working in the 6 junior mining companies that took part in the study. First, one-hour-long interviews were conducted with 12 officials working in the 6 junior mines. Secondly, these interviews were transcribed and quality-assured by allowing the 12 participants to read their transcribed versions of their interviews. Thirdly, tallying, coding and categorisations were done on the transcribed versions of interviews. Two themes were created out of codes and categories.

Qualitative methods of data collection and analysis are useful in cases where participants need to share their unique experiences and perspectives with an audience. A state of saturation was reached after interviewing the 12 participants of study. Qualitative data was highly useful in the study as no quantitative methods could be used for explaining subjective phenomena. According to Warburton (2020), triangulation is highly valuable for ensuring the level of trustworthiness of results obtained from qualitative research. In-depth interviews were conducted by using a list of interview questions.

One-hour-long individual interviews was conducted with each of the 12 respondents by using a tape recorder then later transcribed, coded and tallied. The oral in-depth interview questionnaire format was designed logically to explore various barriers to the successful implementation of corporate social responsibility principles by junior mining. By using codes and categories, 2 themes were identified. Triangulation was used for ensuring trustworthiness. Saturation was achieved after interviewing the 12 participants (Braun, Clarke & Hayfield, 2022). The key methods of qualitative analysis were thematic analysis and text analysis. The

use of triangulation as a method of ensuring trustworthiness entailed a critical analysis of the literature, subjectmatter opinion and results obtained from the analysis of quantitative data sets.

A pre-interview briefing of the respondents was outlined; the brief description about the purpose of the study, what participation entailed in terms of rules, activities and duration, a statement indicating that participation was voluntary and may be terminated at any time without having to explain why. An assurance was also made that responses obtained from respondents would be kept in confidence, and that analysis and reports would be made strictly anonymous. During the execution of the in-depth structured interviews the following processes and procedures of an inter-view schedule were strictly observed. The principal researcher introduced the topic to the 12 selected respondents individually. The respondent made opening statements regarding their experience with the CSR topic. The researcher conducted interviews by using the list of interview questions. Each interview was tape-recorded and transcribed.

The interview questionnaire format was designed logically to explore various barriers to the successful implementation of corporate social responsibility principles by junior mining. During qualitative analysis sub-themes were identified within each of these main themes. The results were discussed under the main themes (sub-sections) qualitatively and strengthened, where applicable, with primary quantitative and secondary data analysis.

In this section of the respondents were asked several questions relating to Corporate Social Responsibility (CSR) principles and guidelines in the junior mining sector. For example, the first question tested the respondent's general knowledge on general knowledge of CSR the question was posed in the manner: *“What is your understanding of Corporate Social Responsibility in your own words?”*

This question is valuable for assessing the level of awareness and understanding about CSR guidelines and principles among officials who are responsible to work on CSR related issues in the 6 junior mining companies. The study is exploratory and descriptive in nature. Quantitative and qualitative methods of data collection and analyses were used in the study. The interviews were recorded then later transcribed verbatim, then qualitative data coding was employed by creating and assigning codes to categorize interview transcripts extracts. Coding reduced vast data into small “units” of data. Deductive coding was used, implying that not every piece of text was coded rather only the relevant or interesting issue about the research questions was coded (Braun, Clarke & Hayfield, 2022).

While working through the transcripts, codes were generated and modified this was executed manually by hand, working through hardcopies of transcripts with pen and highlighter. This saved a lot of resources and time as the researcher did not code every single transcript line to do line-by-line coding which is an inductive analysis approach. Thematic analysis was performed later using Braun & Clark's six phase step guide (Braun, Clarke & Hayfield, 2022). The authors suggest that a clear guidance is needed on the creation of themes out of codes. The authors have pointed out that themes need to be created out of codes and categories. In this particular study, 2 themes were created out of codes.

Thematic analysis is the process of identifying patterns or themes within qualitative data (Braun, Clarke & Hayfield, 2022). Thematic analysis permits a lot of flexibility in interpreting the qualitative data, allows the researcher to approach large data sets more easily by sorting them into broad themes as it is not tied to a particular epistemological or theoretical perspective.

The tallies and codes identified from the interview transcripts clearly articulated the 2 emerging themes. This showed that data was extracted from interviews to deduce a narrative. The main aim of study was to explore factors that undermine compliance with CSR guidelines and principles in the 6 junior mining companies. The following two themes were created out of codes and categories as part of qualitative data analysis:

Theme 1 was evidence of the successful implementation of basic CSR principles and guidelines in the 6 junior mining companies.

Theme 2 was obstacles to the successful implementation of basic CSR principles and guidelines in the 6 junior mining companies

5.1: In-depth Interview Question #1

What is your understanding of Corporate Social Responsibility (CSR)?

The most important concept of the research is Corporate Social Responsibility for the principal stakeholder being the community. The interview respondents were probed on their general understanding of Corporate Social Responsibility. This answer is very important in determining the extent to which management of junior mining and community leaders understand the concept of CSR and what perceptions both parties hold with regards to CSR of junior mining companies. The understanding of the CSR concept made it easier for the

researcher to have assurance on the reliability of the answers through the interview. For companies to implement successful corporate social responsibility they must know what it means and what its dimensions are. Equally for the community to expect corporate social responsibility disbursement projects by the junior mining communities that must have at least general knowledge on this concept.

All the 12 respondents had mixed views, but all the views converged into the commonly accepted definitions of CSR which has a common purpose for company owners, stakeholders and the environment. For companies, the overall aim is to achieve a positive impact on society while maximizing the creation of shared value for the owners of the business, its employees, shareholders and stakeholder (Hall, 2011: 193-214; Geethamani, 2011: 373; Cronje, Reyneke & Chenga, 2017: 1-8; Crowther & Sefi, 2010: 12-14). Whereas communities perceive themselves as stakeholders in the mines around their communities. Communities understand the duties of the junior mining companies as to produce and distribute wealth to their shareholders and stakeholders. The wealth derived from the mining companies' bottomlines is distributed by providing financial resources to stakeholders in the form of wages, the procurement of materials from suppliers, a return on capital and paying taxes (Rahman, 2011: 166-176).

There is no unique definition for CSR; rather different definitions during different segments of time represent different dimensions of CSR (Rahman, 2011: 166). According to Rahman (2011: 173-174), CSR has 10 major dimensions. These are Obligation to the society, Stakeholder involvement, Improving the quality of life, Economic development, Ethical business practice, Law abiding, Voluntariness, Human rights, Protection of the environment, Transparency and accountability. However, when analysing the data, in this section of the

interview, the most prevalent dimension of CSR was society in other words the local *community*.

The feedback given was:

“Giving back to the community that surrounds our mining operations” (Manager 1).

“Philanthropic programs we as junior mining companies do in the community” (Manager/owner).

“Voluntary donations given to the needy in the surrounding community” (Employee 1).

“Compliance with the Mining Charter requirements and subsequently including the local community it be social labour plan, EIA, community development etc.” (Community leader 1).

“Increasing job opportunities and economic lifeline for our community” (Community leader 1).

The key sub-theme is the community, In the South African Junior mining context companies and communities see junior miners as the principal stakeholder. However previous studies found that even major mining companies are lacking with regards to prioritising the needs of this the principal stakeholders (Gark, 2017). It was evident on the characteristics of the mining companies’ mission statements that the focus was financial objective in communicating their distinctive competencies, whereas the mission statements of the mining companies was significantly low in futuring message of societal benefits for the community. This revelation suggested that mining companies in South Africa having a vested direction for financial objectives and benefits to the society is non-existent, hence the notion that CSR if performed to meet the minimum requirements but rather not central to the main business strategy.

Many CSR strategies are misaligned to the core business strategy and this hinders many opportunities for companies to benefit the society. Many authors further expound that, when a mining company is not sensitive to its stakeholders particularly its host community and does not expedite disbursement (strategic implement) of CSR investments then surely rejection (in the form of protest action plus demonstrations) of the company's presence will arise that may lead to inability to perform its mission, exploration and mining activities. Most mining companies in South Africa have generally failed to co-ordinate and align their actions with those of the government development policy frameworks such as the National Development Plan (NDP). In the case of CSR educational intervention projects, most beneficiaries do not know the purpose of these projects. Implementation of projects at schools and the mine's host community had not necessarily been thought through and had been poorly implemented. South African junior mines continue to be underdeveloped, misunderstood, and stuck with environmental and social problems. The key reasons that explain the sectors under development include inadequate institutional framework on matters of a company's CSR stage evaluation and CSR strategic implementation. Gethamani (2011: 372) points out that a company's implementation of CSR goes beyond compliance and engages in "actions that appear to further some social good, beyond the interests of the firm and that which is required by law". Many junior mining companies of South Africa do not have a strategic approach towards the implementations of their CSR objectives but rather they practice unplanned charitable deeds.

The problem of unemployment is a significant problem in South Africa. The mining sector is expected to create employment opportunities for the unemployed. Bond (2022:121) has shown that the problem of unemployment needs to be alleviated by growing the national economy. According to the author, it is possible to grow the national economy at a much faster rate if

tangible socioeconomic incentives are provided to international investors to bring in foreign direct investment. The author has shown that the creation of an enabling working environment and easing cumbersome bureaucracy is highly helpful for easing the approval of operating licenses.

According to Statistics South Africa (2021), the South African mining industry employed 514,859 individuals in the year 2019. The report shows that the mining workforce increased by 3,737 individuals between 2015 and 2019. This increase in the number of employed people was due to an increase in the number of employees working through subcontractors and labour brokers. The number of capital employees, individuals working on projects that fall outside the day to day running of the mines also increased over this period. However, there was a remarkable decline in the number of workers employed directly by mines. Mine employees decreased by 22,622 individuals. The fact was that there was a rising head count in mining sector yet a decline in permanent employees. This cases can only antagonize the relations between the mining and labour union. This finding supports the unions perceptions that the mining companies are neglecting their social responsibilities and critical stakeholders in distributing the spoils of the mining industry by offloading their obligations towards fair and decent workmens remuneration and compensation into the hands of labour brokers. South Africa mining and manufacturing industries are known to have a very hostile relationship with labour unions.

5.2 In-depth Interview Question #2

How do members of the community perceive your mining activities?

This section of the questionnaire covered the questions relating to general corporate social responsibility perceptions of the community *a.k.a* principal stakeholders of junior mining companies, employees and community members which included their perceptions on the companies approach towards CSR; views on CSR programs, junior mining companies conduct, company image and reputation.

The purpose of the question “*How do members of the community perceive your mining activities?*” was purely formulated to gain insight on perceptions and attitudes of all stakeholders towards the junior mining companies in South Africa and the possible reasons for widespread negative views resulting in a better understanding of such perceptions. The dominating sentiments were;

The most prevalent sub-theme that was distinguished that of *work opportunities*.

“This mining companies in general are seen as a source of well-paying jobs” (Community leader 1).

“We expect the mine to get some other non-specialist services from our community trust like what is happening in the Platinum mines of the Royal Bafokeng in the North-West” (Community leader 1).

“The community claims it has not derived any economic benefit since the setup of our operations. Community members demand royalties’ schools, roads, water and other infrastructure “(Manager 1).

“I started working here as a casual worker, I proved myself and was sponsored all-expenses paid for a management degree course at one of the top universities in Pretoria.” (employee2).

The junior miners should be able to train, employ and develop indigenous people from the community with the objective to make them part of the management teams. This is the best strategy to infuse into management structures key decision makers who have genuine social attachment and understanding of the surrounding community.

Another key sub-theme that was identified qualitatively with the use of coding during the interviews was that of *pollution and environmental destructions*.

“In some cases we as junior miners are blamed for pollution that is infested with dirt that may cause health issues for some of the residents.”(Manager 4).

“Before the mine arrived, we never had a single case of TB but the local clinic has diagnosed a couple of cases”. (Community leader 2).

“We had 2 farms that were sold over to the mine at way above market prices apparently because there was a high calorific value coal seam that was protruding there” (Community leader 2).

“Every day at 4pm there is a blasting at the mine then you see black-grey dust going up in the air” (Resident 1).

Another key sub-theme that was identified qualitatively with the use of coding during the interviews was that of *community development*.

“We have opened up about 5 bore-holes, arranged children school transport & creche and festive holidays hamper vouchers for the community since we set up our operations” (Manager 1).

*“We have invested much in STI & HIV awareness programmes for females in this communities”
(Manager 2).*

*“We give employment preference to the community residents for non-skilled workers
“(Manager 2).*

*“The mine has given our community trust an exclusive food & beverages catering contracts,
sponsored 4 women to pursue a certified culinary training course and now they are busy
building a cafeteria in the mine site” (Resident 1).*

Another key sub-theme that was identified qualitatively with the use of coding during the interviews were that of *social and moral decay*.

*“This mine is a hot spot for Covid’19 outbreak in our area because there is an influx of trucks
coming in and out of this area” (Community Leader 2).*

*“We are worried about our moral standing as a community because since this mine was set up
here there is a beer-hall and lots of late-night entertainment activities “Community Leader1).*

From the interview extract above, residents are worried about moral decline in their communities since the mine has been established. Migrant labors assimilated into thier communities comes along with their diffrent various cultural belief that will inevitably be adopted by the local people.

Junior miners are constantly pre-occupied with finding solutions to the endless challenges they encounter and attaining profit targets for shareholders, in the process junior mining companies miss out one key component critical to their existence, the principal stakeholders. The junior miners need to regularly consult and understand what the communities expect them to deliver. It is important to listen to what community members have to say with regards to mining

operations in general and how they perceive the impact of mining on their lives and on their community then act to change this perception and image. From the interview all the management of junior mining companies acknowledge a negative image from society perspective on matters of *workplace, social and moral decay, community development pollution and environmental distraction*, however the junior mining companies have not yet decisively acted on its image issue by engaging the community and act on changing the negative perception the community harbors.

5.3 In-depth Interview Question # 3

Another probing question on CSR priorities of the junior mining companies was posed as, *How much does your company spend on CSR projects and activities on an annual basis?*

This question was crafted to further probe the junior mining companies' financial interests with regards to how much money the companies dedicate towards CSR courses and the following feedback was recorded from various companies.

“The CSR spend is part of the miscellaneous spend and not officially tracked” (employee 1).

“We do not necessarily track this spend as we do it out of goodwill and whenever the community requests” (Manager 1).

“CSR funds are normally allocated once profit is declared not budget but rather is depended on reasonable community needs” (Manager 2).

Junior mining companies often question how they can afford to be socially responsible due to depressed business trading condition, limited budgets and resources. Small companies like junior mining companies operate a much leaner business model than large corporations, with lower profit margins and fewer employees. At the establishment of a junior mining company CSR costs are deemed non-essential expenditure whereas “core-business” expenses tend to take priority. However, social responsibility is a company image promoting strategy. Over time, there are many benefits to gain from funding CSR activities and eventually, it’s possible to see a return on investment. From the discussions with senior employees of the Junior mining companies is very clear that majority of this companies do not have defined budgets for CSR, these qualifies the narrative that junior mining companies do not endorse CSR as a key enabling strategy for the success of their mining companies. This finding further qualifies the common misconception that CSR is only for large and well-established mining companies in South Africa. Juniors must approach matters of CSR in a strategic perspective, planned, and coherent manner, CSR must be budgeted for in every financial year together with the company’s overall operating and capital spend budgets. Based on a study conducted in the Witbank region of Mpumalanga Province, Worku (2017: 121) has identified key determinants of viability in junior mining companies. The study has found that adherence to the basic principles of CSR, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working relationship between mining communities and owners of junior mines.

Another question focusing on the business leadership challenges affecting the CSR deliverables was lead as follows, *Please discuss the challenges that impact the profitability of your organisation and subsequently affect effective CSR delivery.*

This question was selective to only the most senior managers of mining companies as they are business managers tasked by shareholders to derive the maximum value and profit out of the mining operations for the stakeholders. The business leadership challenges were categorized in two, external and internal challenges

Key sub-themes identified and extracted from the qualitative indepth interview transcripts and summaries were, *hostile community*

“Sabotage in the form of strikes and demonstrations by workers and community members etc.”
(Manager 2).

“The labor unions are very antagonistic especially to junior mining companies” (Manager 3).

“The hostile community entitlement to our business” (Manager).

“We are struggling to recruit skilled manpower; community residences do not have the right specialties and skills to be working in our companies” (Manager 2).

Many CSR strategies are misaligned to the core business strategy and this hinders many opportunities for junior mining companies to benefit the community and society. Many authors expressed that, when a mining company is not sensitive to its stakeholders particularly its host community, it does not expedite coordinated disbursement of corporate social responsibility investments then surely rejection in the form of strike action plus demonstrations of the company's presence will arise. The consequences of a disgruntled community will lead to inability to perform its mission, exploration and mining activities in that community, Ansu-Mensah, P., Marfo, E.O., Awuah, L.S. et al (2021).

Another sub-theme identified pertaining to challenges that affects CSR delivery was *funding challenges*.

“Funding from local banks is complicated, banks are no longer keen to finance coal mining as they adjust to align with climate change risk” (Manager 1).

“Mining operations are a risky business or not that long term economically sustainable” (Manager 2).

“Strict compliance and bureaucratic standards from the authorities (DMR) as any minor findings they stop your operations right away” (Manager 2).

It can be noted that the junior mining industry is struggling to attract investments and skilled professionals into their mining industry. Also, junior mining companies do not have major mining companies as their mentors to aid them navigate the same challenges the majors have endured. Junior mining companies can fully implement successful corporate social responsibility once they are profitable and are generating enough income to dedicate a reasonable budget to CSR objectives. Identification of profitability challenges and finding solutions to these issues will be a key enabler for junior miners to deliver on its CSR objectives.

Another sub-theme identified as an external factor was *Competition with market dominating major mining companies (oligopolies)*.

“Transportation of finished products to the market is a real challenge, the national rail transportation service provider performance is very unreliable to have a smooth flow of our minerals to the export markets. The key bottleneck is the rail line from RSA’s coal fields to Richardsbay port for export, there is large scale of vandalism of the rail network making the export markets inaccessible”, (Manager 1).

The South African economy like any other developing nation is highly transport intensive implying the prices of goods are highly sensitive to freight cost shift. Hyper (Maleejane 2017).

According to Ncube 2020 on his study on challenges faced by Junior coal mining companies of South Africa. Ncube found out that junior miners who were transporting goods 80% of the junior coal miners we are facing challenges of damaged roads, 15% believed road transport is expensive, yet it transports 30 tons of coal per truck, 5% were complaining about truck break downs. The other problem mentioned was that the railway lines are far away from their mines and the port so there is a need to hire trucks between the mine and the railway station and between the railway stand and the seaport. Maleejane in his dissertation report further expounds, key export points such as export harbors are still far from the plants with geographical gap of over 1 608kilometers to the export ports. The state-owned rail network and ports operator, Transnet Freight Rail (TFR) and Transnet Port Terminals (TPT) is not helping the situation. TFR's poor performance is summarized as lack of wagons; old malfunctioning locomotives; trains and increased theft of tarpaulins, cables and signals.

“There is fierce competition for supply chain resources with the dominating major companies especially in the coal industry, whom we can regard as oligopolies are a very serious threat to the life-span of us junior companies. Some of these companies have evergreen supply agreements with strategic service providers, for instance, you know there is only one company in Northern Cape that has first rights over any junior mining company to rail iron ore over everyone” (Manager 2).

“Our biggest problem is RBCT port allocation legacy contracts, I mean priorities is given to the top four coal miners in the country and us as junior miners we will have to rent port spaces at very exorbitant prices” (Manager 2).

South Africa is a very critical iron ore supplier to the global market after the Australian and Brazilian mines as it feeds the Eurasian markets with up to 69 million tons of fines and lump iron ore stocks. Wikipedia acknowledges the key enabler to these supplies in South Africa as the Orex export rail line, an 861 kilometer long heavy-haul railway line from the center of South Africa Sishen area to the port of Saldanha. The National Geographic recognizes this rail network as the world record for longest, heaviest, largest numbers of wagons in a train.

In 1876 the Iron and Steel Corporation of South Africa (ISCOR) was granted permission to start exporting iron ore, this saw the then government regime support in the development of an 861 kilometers rail line from Anglo America's Kumba iron ore Sishen mine to the port of Saldanha on the west coast of RSA to facilitate exports, Maleejane 2017. This move increased production from Sishen mine and eventually Beeshoek was enrolled to export iron ore over this line, with over 75% exported to customers in Europe, China, Japan and South Korea. All iron ore miners including over a dozen junior iron ore producer in the Northern Cape Province export their ore through this rail corridor. However, AngloAmerican's Sishen iron ore is the preferred beneficiary of this rail infrastructure as at inception the rail line was designed for its exclusivity with its investments during the ISCOR era. Even mega iron ore producers like Beeshoek see their exports allocations restricted as preference remains Sishen. Juniors are not spared; some are compelled to sell their transport to Sishen mine at discounts to book space for their offtake on this export channel. All the other iron ore suppliers cannot compete for volumes exports against Sishen as this mining giant gets first preference over this key export line and Sishen iron ore mine has made it apparent that it believes consolidation of south African iron ore hub in the Northern Cape into one operating entity is the best solution, the Competition Tribunal minutes of 14th July 2003.

Post the global hard lock down period, the first wave Covid-19 pandemic, China's economic activity emerged stronger in the last quarter of 2020 with a government stimulus package in support of manufacturing and real estate industry which had a direct impact on steel production. At the time, the iron ore market boomed competition amongst miners was cutthroat, the iron ore prices reached the all-time high \$233/ton, an interesting phenomenon unfolded in South Africa for the producers in South Africa the oligopolistic traits profoundly manifested, the S&P Platts report of August 2021. The junior iron ore miners could not capture the high commodity price euphoria as the export rail corridor prioritized was reinforced by mega miners for their interests and the junior iron ore miners were forced to sell the iron ore at a discounted rate or sell to the majors who intern exports.

“Power supply interruption is the biggest risk to every company in this industry, electricity cost from Eskom is very high, with their unpredictable load shedding schedules, to make matters worse when applying for IPPC license has lots of bureaucracies” (employee 2).

South Africa remains the top-ranking country in the world in terms of energy cost. Therefore, it is highly recommended the junior mining companies engage in energy efficient projects with the objective of saving on energy spend as already energy cost in RSA is a very expensive utility (Maleejane 2017). Junior miners should evolve away from the traditional continuous operations, the nonstop 24-hour operations to daylight hours to maximize on solar technology. Power innovation is the talk of days, one underground miner says,

“We have already increased underground water dam storage capacity to eliminate pumping activities at night as water pumping is one of our most electricity intensive activities and looking into shifting maintenance as well”.

Recently it is normal to apply for a ministerial deviation for mining businesses to generate its own electricity to avoid power supply interruptions for Eskom, the nation's only power supplier.

A critical theme also extracted from the in-depth interviews was that of *regulation and corporate governance*. The feedback from the management of junior mining company was.

“We recruit well experienced employees from well-established multinational mining companies but we struggle to translate the knowledge and experience for the success of our company as the governance challenges of junior mining companies are quite unique (Manager 1).

“Meeting social responsibility demands from the community, DMR or the Mining Charter” (Manager 1).

“Many safety, health environment and transformation bureaucracy from the DMR or the Mining Charter. We have random unannounced inspections from the DMR inspection officers at any given time, should there be a finding, the consequences can be quite disruptive to our operations as the DMR can suspend your license” (Manager 1).

Due to their small-scale operations, junior mining companies resemble small companies with organisational structures that are not compatible with traditional corporate governance principles such as the major mining companies. At start-up, the juniors have simple structures and procedures dominated by the owner-managers who make all decisions. As a small mining entity keeps growing, it becomes difficult for a single entrepreneur to keep track of all activities; therefore, governance and other administrative responsibilities are delegated to agents who are not founding members. Further, as junior mining companies keep growing, the need for more independent advice becomes apparent.

During the in-depth interviews with the various junior mining companies' serious governance challenges were reported as;

“Regulatory challenges are real for a junior mining company for example, a Compliance department of a major mining company will have up to several skilled subject-matter specialists making the staff of the structure. Whereas with a junior company you may have a operations manger or engineers tasked to run operations also being responsible for compliance activities of the company creating oversight in this functionality”. (Manager 2).

CSR principles enable companies to adhere to business ethics, good leadership and good corporate governance principles. Junior mining company should evolve their corporate governance as their companies grow and become complex (Kanjere, 2017).

Good corporate governance systems enable companies to conduct business without polluting and harming the environment and local communities living in the vicinity of junior mines. As a coping strategy to matters of governance, expert non-executive directors should be recruited.

5.4 In-depth Interview Question #4

The representatives of the junior mining companies were futher asked to, *Discuss your company's accessibility to local lenders for funding your mining operations.*

Under this key interview question the most prevalent theme was *lack of investment funding* from the banking sector

“Global investment, particularly in the coal industry is in a downward tragectory. Lenders see our operations as very high risk. Also, the coal industry is perceived as a danger to environment

and climate especially with the globe moving towards green and renewable energy” (Manager 1).

“As a junior mining company, we are seen as a single-basket company not well diversified with concentrated risk implying a very weak balance sheet for lenders to fully support our borrowing needs” (Employee 2).

“Local lenders have very strict borrowing conditions. Some lenders always want equity in our business, which is a predatory practice if you think about it because you are giving away part of your business.” (Manager 2).

“local banks are divesting from coal operations, they say coal is a risky business to fund because shift to green energy or the renewed global carbon footprint” (Manager 3).

“If you are a fund manager in RSA, why would you invest in junior mining given the challenges associated with regulatory uncertainty, labour challenges and ageing infrastructure, among others, when you can invest in sectors that face significantly less regulation “,(Manager 3).

The junior mining sector competes directly with multinational major mining or other industries companies that are more attractive to investors. Furthermore, junior miners who are intent on speedily developing their projects compete head-on for financial assistance with peers whose projects remain undeveloped for up to 10 years. “It is definitely difficult to convince investors that your project is worthy of financial injection above others. Without more junior mines coming online, only mines already producing cash flow are given any support.

The perception of South Africa’s mining sector as a sunset industry means that international investors are reluctant to make investments in local junior mining ventures. According to the Chamber of Mines of South Africa, financial institutions such as banks and the Industrial

Development Corporation (IDC) are risk-averse “when it comes to making venture capital available for the development of small-scale projects”. “This is largely because the government does not offer any tax incentives to investors in prospecting companies hence the investors carry all the risk.

“Raising capital for the exploration and construction phases of a project is a huge challenge. To mitigate this challenge, government together with financial institutions such as the Public Investment Corporation (PIC) and IDC need to develop an appropriate funding model for junior mining companies of South Africa particularly in the coal sector.

One managing director of a junior mining company with coal off take agreements with Eskom, cited that

“Eskom the state-owned main electricity generating company’s financial woes weigh heavy on junior miner’s”.

One coal miner asserts that the inability of junior mining companies not to access funding in the face of green energy with “anti-coal” sentiments is directly due to Eskom’s financial issues. He says Eskom accounts for the bulk of coal supplied by South Africa’s juniors, he further expounds that all financial institutions attached a lot more risk to Eskom coal contracts than they did a few years ago. He provided the following explanation:

“In prior years when you went to a funder with an Eskom coal suppliers’ agreement contract, it was considered a bankable case” he said.” Nowadays lenders are not prepared to do that anymore”.

5.5: Summary of codes and themes of the study

Table 5.5.1: Summary of codes and themes

Questionnaire Statement	Participants Responses from Transcripts. (First order Codes).	Initial Coding Framework. (Second order codes)	Aggregated Theme
How would you define Corporate Social Responsibility (CSR) in your own words?	<p><i>“Giving back to the community that surrounds our mining operations”.</i></p> <p><i>“Philanthropic programs we do in the community”.</i></p> <p><i>“Voluntary donations we give to the needy in the surrounding community”.</i></p> <p><i>“Compliance with the Mining Charter requirements”.</i></p> <p><i>“Acts of good will towards the community”.</i></p> <p><i>“Community outreach programs”.</i></p> <p><i>“Increasing job opportunities and economic lifeline for our community”.</i></p>	<p>Community</p> <p>Society</p> <p>Local Pople</p> <p>Job opportunities for people</p> <p>The Mining Charter</p> <p>Giving-Back to community</p>	Community
How do members of the community perceive your mining activities?	<p><i>“These mining companies in general are seen as a source of well-paying jobs”.</i></p> <p><i>“We expect the mine to get some other non-specialist services from our community trust like what is happening in the Platinum mines of the Royal Bafokeng in the North-West” .</i></p> <p><i>“The community claims it has not derived any economic benefit since the setup of our operations. Commodity members demand royalties’ schools,</i></p>	<p>Source of Work Opportunities</p> <p>Community Development</p> <p>Pollution and Environmental Destruction</p> <p>Social and Moral Decay</p> <p>Uncooperative</p> <p>Negative</p> <p>Untrustworthy</p> <p>Conflict</p>	Negative perception

	<p><i>roads, water and other infrastructure “.</i></p> <p><i>“I started working here as a casual worker, I proved myself and was sponsored all-expenses paid for a management degree course at one of the top universities in Pretoria.”).</i></p> <p><i>“In some cases we as junior miners are blamed for pollution that is infested with dirt that may cause health issues for some of the residents.” .</i></p> <p><i>“Before the mine arrived, we never had a single case of TB but the local clinic has diagnosed a couple of cases”.</i></p> <p><i>“We had 2 farms that were sold over to the mine at way above market prices apparently because there was a high calorific value coal seam that was protruding there”.</i></p> <p><i>“Every day at 4pm there is a “big-bang” at the mine then you see black-grey dust going up in the air” .</i></p> <p><i>“We have opened up about 5 bore-holes, arranged children school transport & creche and festive holidays hamper vouchers for the community since we set up our operations” .</i></p> <p><i>“We have invested much in STI & HIV awareness programs for females in this communities”..</i></p> <p><i>“We give employment preference to the</i></p>		
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	<p><i>community residents for non-skilled workers “..</i></p> <p><i>“The mine has given our community trust an exclusive food & beverages catering contracts, sponsored 4 women to pursue a certified culinary training course and now they are busy building a cafeteria in the mine site” .</i></p> <p><i>“This mine is a hot spot for Covid’19 outbreak in our area because there is an influx of trucks coming in and out of this area”).</i></p> <p><i>“We are worried about our moral standing as a community because since this mine was set up here there is a beer-hall and lots of late-night entertainment activities “Community Leader1).</i></p>		
How much budget does your company spend on CSR projects and activities on an annual basis?	<p><i>“The CSR spend is part of the miscellaneous spend and not actively tracked”</i></p> <p><i>“We do not necessarily track this spend as we do it out of goodwill”</i></p> <p><i>“CSR funds are normally allocated once profit is declared not budget but rather is depended on reasonable community needs”</i></p>	<p>Miscellaneous Spend</p> <p>Not Tracked</p> <p>Derived from Profits</p>	CSR expenditure is non-essential
<p>Please discuss the challenges that affects to the profitability of your organisation.</p> <p>External Challenges</p>	<p><i>“Sabotage in the form of strikes and demonstrations by workers and community members.”</i></p> <p><i>“Funding from local banks is complicated”</i></p> <p><i>“Mining operations are a risky or not that long term economically sustainable”</i></p>	<p>Hostile Community</p> <p>Lack of Funding</p> <p>Militant Labor Unions</p> <p>Staff Retention</p> <p>Regulation & Compliance</p> <p>Product Transportation.</p>	Various business management & leadership challenges

<p>Internal Challenges</p>	<p><i>“The labor unions are very antagonistic especially to junior mining companies.”</i></p> <p><i>“We are struggling to retain well experienced skilled stuff as they are sourced by big and well-established mining companies”</i></p> <p><i>“Strict compliance and bureaucratic standards from the authorities (DMR) as any minor findings they stop your operations right away”</i></p> <p><i>“Transportation of finished products to the market is very poor, the national rail transportation service provider performance is very much unreliable to have a smooth flow of coal out of South Africa to the export markets. The key bottleneck is the rail line from RSA; s coal fields to Richardsbay port for export, there is large scale of vandalism of the rail network main markets inaccessible”</i></p> <p><i>“There is fierce competition for supply chain resources with the well-established mining houses the especially in the coal industry, whom we can regard as oligopolies are a very serious risk t the survival for us junior companies. Some of these companies have evergreen supply agreement with strategic service providers (for instance, you know there is only one company in northern cape that has first rights over any junior mining company to rail iron ore over everyone. You see our</i></p>	<p>Competition with major mining companies (Oligopolies)</p> <p>Electricity</p>	
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	<p><i>biggest problem is RBCT port allocation legacy contracts, I mean priorities is given to the top four coal miners in the country and us as junior miners we will have to rent port spaces at very exorbitant prices</i></p> <p><i>-Power supply interruption the biggest risk to every company in this industry, electricity cost from Eskom is very high, with their unpredictable load shedding schedules, to make matters worse when applying for IPPC license has lots of bureaucracies. To produce your own power, one has to have facilities to produce power, now it is not easy to sell excess power to the national grid, it is very expensive</i></p> <p><i>The second one will be the hostile community entitlement to our business, industry Cartels</i></p> <p><i>-We are struggling with skilled manpower, people do not have the right specialties and skills to be working in our companies, yet they demand we employ, this takes away our human resources planning out of the window.</i></p> <p><i>“We source well experienced employees from well-established multinational mining houses but we struggle to translate the knowledge and experience for the success of our company as the challenges of junior mining</i></p>		
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	<p><i>companies are quite unique.</i></p> <p><i>“Regulatory challenges are real for a junior mining company for example a Compliance department of a major mining company will have up to 30 skilled specialists making the structure whereas with a junior company you may have a few engineers tasked to run operations also being responsible for compliance activities of the company “</i></p> <p><i>“Many safety, health environment and transformation, bureaucracy from the DMR, we have random inspections on the DMR’s on their requirements at any given time, should they have a finding the consequences are quite disruptive to our operations as they can suspend your license”</i></p>		
<p>Discuss your company’s accessibility to local lenders for funding your mining operations?</p>	<p><i>“Global investments in particularly in the coal industry is in decline lenders see our operations as very high risk and at times affected by international factors beyond our control. Also, the coal industry is perceived as a danger to environment and climate especially with the globe moving towards green and renewable energy”</i></p> <p><i>“As a junior mining company, we are seen as a single-basket company not well diversified with concentrated risk and a very weak balance sheet for lenders to fully</i></p>	<p>Declining Global Investments</p> <p>Green Energy Policy</p> <p>High Risk Businesses</p> <p>Stringent Borrowing Conditions</p>	<p>Lack of Funding</p>

	<p><i>support our borrowing needs”</i></p> <p><i>“Local lenders have very strict borrowing conditions. Some lenders always want equity in our business, which is a bad practice if you think about it.”</i></p> <p><i>“Local banks are divesting from coal operations, they say coal is a risky business to fund, because of this so-called global carbon footprint”</i></p>		
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5.6 Conclusion

The qualitative component of the study was exploratory and of descriptive design. This aspect of the study involved 12 key officials composed of senior managers, managing directors, board members, board chairmen and key community stakeholders. The in-depth interviews were transcribed, then qualitative data coding was applied by creating and assigning codes to categorize interview transcripts extracts. Coding reduced vast data into small “units” of data rather only the relevant or interesting issue about the research questions was coded. During qualitative analysis sub-themes were identified within each of these main themes. The result was later discussed and then condensed into codes under then main themes.

All 12 respondents were asked to explain what their understanding of corporate social responsibility (CSR) was. When analysing this very important question of the study, most respondent’s definition of CSR pointed out to the community being the most important

beneficiary of CSR was the *community*. The key sub-theme was the community substantiating the already anticipated fact that in the South African Junior mining context, communities are seen as the principal stakeholder. However, it was evident on the characteristics of the mining companies' mission statements on the analysis of secondary data materials, that the junior mining companies were highly focused on financial objectives and in communicating their distinctive competencies, whereas they were significantly low in societal benefits to the community. This suggests that mining companies in South Africa having a distinctive direction for financial objectives and benefits to the society are not priority.

Another important question probed the junior miners on matters of perceptions by all the stakeholders, *How do members of the community perceive your mining activities?* .The purpose of the question was purely designed to gain in-depth insight with regards to perceptions of towards the junior mining companies in South Africa and the possible reasons for widespread negative views resulting in a better understanding and management of such perceptions. In this section, the emerging themes from the data was the junior mining companies' acknowledgement of a negative perception by stakeholders on matters of workplace, social and moral decay, community development pollution and environmental distraction.

Another probity in this section investigated the juniors financial spends and budget towards causes of CSR. The question was asked to the respondents in this manner, *“How much does your company spend on CSR projects and activities on an annual basis?”* It was discovered from the senior employees of the junior mining companies that their designated budgets for CSR activities.

The respondents were also asked about the business leadership challenges that affect profitability of the junior mining companies and subsequently the adequate delivery of CSR. The question was relayed as, “*Please discuss the challenges that affects to the profitability of your organisation and subsequently affects effective CSR delivery.*” Based on the findings, the challenges were categorized into two-fold, external and internal challenges. It was noted that the external challenges revolved around lack of funding, technical skills and hostile community. While the external, competition for limited infrastructure with major established companies, disruptive power supply and bureaucratic compliance requirements.

CHAPTER SIX: THE INTERGRATION OF QUANTITATIVE AND QUALITATIVE RESULTS

6.1 Introduction

Beh and Lombardo (2021) point out that results obtained from quantitative and qualitative data analyses must be integrated in order to draw up a feasible and realistic plan of action based on results obtained from the study. In this particular study, such an integration was done. The process enabled the researcher to construct an appropriate framework of study that could be used by junior mining companies for enhancing their level of compliance with CSR guidelines and regulations.

The key benefit of integrating results obtained from quantitative and qualitative methods of data collection and analysis is that it becomes easy to provide reliable and verifiable answers to research questions. Integration of results obtained from quantitative and qualitative methods of data collection and analysis also makes it much easier to test research hypotheses. Quantitative methods of research are suitable for performing the analysis of objective or measurable variables of study. Qualitative methods of research are suitable for performing the analysis of subjective variables of study. Combining these two methods enables researchers to have a complete picture about factors that affect the level of compliance to CSR guidelines and principles in the 6 junior mining companies.

The study conducted by Charles and Le Billon (2021:467-476) have shown that remedial actions that are recommended about compliance with CSR guidelines and principles must be relevant, objective, realistic and feasible enough to the core functions of all stakeholders. The

task of achieving this goal is greatly simplified by integrating results obtained from quantitative and qualitative aspects of data collection and analyses.

Buddu and Scheepers (2022) have shown that enhancing the level of compliance with CSR guidelines in South African mining companies requires the ability to work closely with all stakeholders as well as the ability to present empirical evidence that supports every one of the recommendations made to them.

The use of mixed methods of research (quantitative and qualitative methods of data collection and analysis) requires the ability to critically examine each major finding of data analysis, and integrate similar findings together. Doing so is a key aspect of drawing up a feasible plan of action for intervention. Integration at the study design stage may be applied through three basic mixed method designs exploratory sequential, explanatory sequential, and convergent and through four advanced frameworks multistage, intervention, case study, and participatory. Integration at the methods level may be through four approaches. In connecting, one database links to the other through sampling. With building, one database informs the data collection approach of the other. Integration at the interpretation and reporting level occurs through narrative, data transformation, and joint display. The integration of quantitative and qualitative strengthens the value of mixed methods research (Beh & Lombardo, 2021).

Table 6.1.1 shows the key elements of integrating results of data analysis obtained from the analysis of quantitative and qualitative methods.

Table 6.1.1: Levels of integration on mixed methods research

Design of study	Approach to be used for integrating results of data analyses
Exploratory or descriptive study design	By providing narrative analysis; By transforming data; By providing joint displays of key findings of study; By connecting, building, merging and embedding findings of data analysis; By explaining quantitative results with a qualitative approach; By building from qualitative results to a quantitative component such as the questionnaire of study; and By merging quantitative and qualitative results, or embedding one set of results in another set of results.
Convergent study design	By providing a narrative review to enable the integration of all key findings of data analysis is helpful for ensuring a clear understanding of discrepancies noted in the evidence gathered from the analysis of data sets.
Sequential study design	By transforming data sets in two sequential steps. Step 1 entails converting qualitative data into quantitative data, or vice versa. Step 2 entails integrating the transformed data with non-transformed data.

Source: Beh and Lombardo (2021)

In this research case the integration was performed in two-fold, interpretation of results by comparing theme-by-theme and continuous approach. Integration of qualitative and quantitative data at the interpretation and reporting level occurs through three approaches: (1) integrating through narrative; (2) integrating through data transformation; and (3) integrating through joint displays. When integrating through narrative, researchers describe the qualitative and quantitative findings in a single or series of reports. When integrating through narrative, researchers describe the qualitative and quantitative findings in a single or series of reports. There are three approaches to integration through narrative in research reports. The weaving

approach involves writing both qualitative and quantitative findings together on a theme-by-theme or concept-by-concept basis (Beh & Lombardo, 2021).

By integrating results obtained from quantitative and qualitative methods of data analyses, it was possible to draw up a single, consolidated plan of action that is suitable for enhancing the current level of compliance with CSR guidelines and regulations in the 6 junior mining companies. Summarily in this research study qualitative and quantitative data collection processes occurred in parallel and analysis for integration began after the data collection was completed. Thereafter the two forms of data, robust statistical analysis findings and qualitative aggregated thematic codes findings that were processed separately were later reported separately but then merged by dwelling on similarities and validation of quantitative with qualitative.

The main purposes of integrating the methods in the studies in exploring CSR challenges were complementary (Beh & Lombardo, 2021). The utility of integrating parallel mixed method data collection approach lies in validating one form of data with the other form, to compare the data analysis output in order to address various types of research questions. In this study, the same individuals, junior mine owners, employees, and community members, provide both qualitative and quantitative data so that the data can be more easily compared. This chapter deals with collaborating both the qualitative and quantitative findings to jointly strengthen fulfil the research question and objectives, being;

- 1) Assess and evaluate the extent to which Corporate Social Responsibility (CSR) principles and guidelines are adhered to in 6 South African junior mining companies.

- 2) Finding out the key determinant factors to adherence of CSR guidelines and principles by junior mining companies of South Africa?
- 3) Finding out the barriers to the successful implementation of corporate social responsibility by the junior mining companies.
- 4) Subsequently the tangible output of the research was to formulate a conceptual framework that can predict compliance with CSR guidelines and principles by junior mining companies of South Africa.

The results employed both the qualitative and quantitative method, data from 439 quantitative and 12 qualitative respondents was analysed. These are owners, employees of junior mining companies and community stakeholders. The 439, quantitative sample size was large enough (Levy and Lemeshow, 2013) to use robust parametric statistical methods of data analysis such as ordered logit regression analysis (Hosmer Jr, Lemeshow and Sturdivant, 2013), Structural Equations Modelling (Mueller & Hancock, 2018). Qualitative data was designed to get more data about themes, phenomena and business challenges that point to the findings of the earlier phase the quantitative data collected. While the qualitative data was extracted from the 12 respondents to extract prevailing themes by the 8 respondents' saturation was reached, repetition of business challenges that hinders the successful implementation of junior mining companies. The two sets of information were collected and analysed independently. The integrative strategy of the two data collection methodologies sought to bring robustness to the quantitative results findings by showing similarities and linkages to the qualitative results findings.

The independent variables of study are socioeconomic and business management-related variables that are known to influence the level of adherence to corporate social responsibility (CSR) guidelines and principles in mining companies in all parts of the world. Initially, univariate methods of data analysis were used for generating frequency tables and summary statistics by assessing one variable at a time. Secondly, a bivariate analysis was performed to reduce the number of predictor variables from 46 to 9. Thirdly, a multivariate analysis was performed by using ordered logit regression analysis to confirm that adherence to CSR guidelines was influenced by 3 predictor variables. Fourthly, a confirmatory factor analysis (CFA) was performed to corroborate findings obtained from ordered logit regression analysis. The large sample size of study (n=439) meant that the use of confirmatory factor analysis (CFA) was justified. Confirmatory factor analysis (CFA) is useful for finding out whether there is a relationship between observed variables and their underlying latent constructs (Keith & Reynolds, 2018). This procedure showed that the 3 influential predictor variables identified by using ordered logit regression analysis were highly influential and accounted for adherence to CSR guidelines and principles. Finally, Structural Equations Modelling (SEM) was used to obtain regression estimates for these 3 influential predictor variables (Kline, 2015).

Based on results estimated from structural equations modelling, the following three null hypotheses were accepted at the 0.05 level of significance which is a major finding in the research and fulfilled the research question. The level of adherence to CSR guidelines and principles are significantly influenced by the ability to produce better products by adhering to CSR guidelines and principles. The level of adherence to CSR guidelines and principles are significantly influenced by past track record of helping out local communities. The level of adherence to CSR guidelines and principles is significantly influenced by telling others about companies that support local people. These findings are consistent with findings reported in

the literature about factors that affect the level of in developing nations by Pons, Vintro, Rius and Vilaplana (2021:1-13).

The major findings of the quantitative data collection strategy are that the level of adherence to CSR guidelines and principles is significantly influenced by producing better products, past track record of helping out local communities and telling others about companies that support local people. Compliance to CSR guidelines and principles is linked to another major finding on the qualitative results, aggregated theme, perceived image of junior mining companies. From the qualitative results analysis it was observed that South African junior mining companies should monitor and track CSR strategies, act decisively on its images by engaging the community and act on changing the negative perception the community harbors about junior mining companies. These measures would enhance engagement of stakeholders, particularly at community level, where CSR project results are experienced much more. Worku (2017: 121) has identified key determinants of viability in junior mining companies. The study has found that adherence to the basic principles of CSR, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working relationship between mining communities and junior mines.

6.2 Conclusion about the aims and objectives of research

It can be concluded that the aims and objectives of study research questions is founded on the similarities of the findings of the empirical results derived from structural equation modelling and the thematic analysis of the in-depth interview results.that limit the effective implementation of CSR strategies in South African junior mining companies and found highly influential predictors of adherence to CSR guidelines in the 6 junior mining companies selected

for the study. On the basis of the data presented and interpreted in the three previous chapters, and the research experience gained during the conduct of the research, this chapter is concerned with giving a summary of findings, conclusions and recommendations of the study. The study set out its objective to find out impediments to successful implementation of CSR and the development of develop a framework that can predict adequate compliance with these CSR guidelines and principles for junior mining companies of South Africa.

The main research objective was to assess and evaluate the extent to which CSR principles and guidelines are adhered to by the six junior mining companies. To achieve this goal, a combination of quantitative and qualitative methods of data collection and analyses were used. One of the specific aims of research was to develop a framework that could be used for predicting the likelihood of adequate compliance with CSR guidelines and principles in South African junior mining companies. The study also aimed to qualitatively explore the following key research question: “What are the key determinant business leadership challenges that affects adherence of CSR guidelines and principles by junior mining companies of South Africa?”.

Results obtained from quantitative data analyses showed that the level of adherence to CSR guidelines and principles in the junior mining companies is significantly influenced by the following 3 predictor variables: Ability to produce better products by adhering to CSR guidelines and principles, track record of helping local communities and telling others about companies that support local people that sufficient adherence to CSR principles. The study has found that adherence to the basic principles of CSR, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working

relationship between mining communities and owners of junior mines and to live and work in the local community in perfect harmony. Also, corporate social responsibility principles and guidelines must be accompanied by effective communication to bear fruit, effective communication is a significant aspect of promoting CSR in mining communities. While the qualitative findings further strengthen the three influencer findings by aggregating the important themes from the study. The major findings regarding CSR definitions and characteristics concludes that the community is a key principal stakeholder and beneficiary of the junior mining companies' CSR strategies. Other findings have revealed that the major business leadership challenges that affects the profitability of the junior mining companies and subsequently the disbursement of CSR projects are business interruption due to community strikes, inconstant electricity supply, competition for infrastructure with major mining companies, lack of dedicated CSR departments with company structures and the lack of policy enforcement to address governance and compliance.

The main research problem is the need to empirically assesses and evaluate the degree to which junior mining companies comply sufficiently with CSR guidelines and principles in the course of conducting routine mining operations. This research was conducted for multiple reasons although the primary reason lies in assessment of the level of adherence to CSR and developing a CSR predictor framework for junior mining companies operating in the various regions of South Africa. The South African junior mining industry is a relatively new industry that experiences a myriad of business leadership challenges. These problems are especially rife among new entrants into the junior mining sector. South African junior mining companies experience threat from local communities that expect them to create job opportunities. Local communities are often impatient to wait long for the creation of jobs, livelihoods and income. They expect junior mines to create jobs and livelihoods at a rapid pace. Failure to meet such

an expectation often results in frustration and negative perception among members of host communities in which junior mining companies operate.

The study conducted in Ghana by Ansu-Mensah, Marfo, Awuah and Amoako (2021) has shown that sufficient compliance with CSR guidelines and principles is highly valuable for forging and maintaining mutually beneficial long-term relationships and trust with local communities. The basis for such a relationship is respect for the environment, respect for the basic principles of good corporate governance, respect for accountability, respect for transparency and satisfactory compliance with business ethics principles. The authors have shown that the ability to comply with CSR guidelines is a measure of commitment towards local communities in which mining activities are carried out.

Bond (2022:121-128) has shown that sufficient compliance with CSR guidelines is highly helpful for winning the trust of local communities. Compliance with CSR guidelines leads to mutual trust, collaboration and the ability to mobilise resources that are required for community based development programmes. Failure to comply with CSR guidelines leads to frustration among local communities. Junior mining companies must understand that their key stakeholders are host communities in which mining activities are carried out.

Hilson and Hu (2022:94) have shown that meeting the basic developmental needs of rural communities requires long-term commitment from junior mining companies. In many parts of the world, mining companies have been able to maintain good working relationships and trust with local communities by following the basic principles of honesty, business ethics, transparency and good leadership. Host communities expect to be informed about development

and operational plans. Promises and pledges made to local communities need to be kept in order to establish and maintain good understanding and trust. The basis for doing this is sufficient compliance with CSR guidelines and principles.

Over the past three decades (since the early 1990s), South African junior mining companies have been conducting mining operations with license obtained from the South African Department of Mineral Resources and Energy (DMRE). Environmental assessment is made on a regular basis by way of inspecting junior mining operations. Accidents have been reported in various South African junior and informal mines due to failure to comply with CSR guidelines and principles. The remedial action is to spread awareness about the need to comply with CSR guidelines and principles in junior mining companies and the host communities in which junior mining companies operate.

The study conducted by Kolling, Ribeiro and De Medeiros (2022:171-185) has shown that the cosmetics industry has benefited significantly by way of complying with CSR guidelines. The industry has benefited by way of promoting awareness about CSR and community based development programmes. Sustainable development cannot be achieved in local communities without ensuring satisfactory compliance with CSR guidelines. CSR enables the junior miner to work with local communities as their principal stakeholder. Over the years, in the South Africa major mining industry CSR has always been a key sustainability enabler for good business image and a tool for harmonious coexistence between the mining companies and host communities. The research was conducted in order to contribute to existing body of knowledge on CSR, add new knowledge to the new concept of junior mining in the context of South Africa junior mines and bring about knowledge solutions business leadership.

The study used qualitative and quantitative methods independently then later integrated the results and highlight the similarities used for the integration of both methods in order to answer all the research questions, this approach was appropriate as it yielded the following research findings; thus, it can be concluded that the level of adherence to CSR guidelines and principles in the 6 junior mining companies that were selected for the study is significantly influenced by the following 3 predictor variables: Ability to produce better products by adhering to CSR guidelines and principles, track record of helping local communities, telling others about companies that support local people.

8.3 Implications for policy, practical implementation and theory

The study's findings provided important theoretical and practical implications as follows:

South Africa has one of the best legislature frameworks in the world when it come to mining however implementation in many fronts remains a challenge thereby hindering the development for mineral exploration a space in which many junior mining companies participate. Government Authorities must enforce the already available CSR elements in government policy, other elements such as BBBEE and the mining charter are already in existence and the lacking catalyst is monitoring and enforcing policy for mining to benefit all the stakeholders through the value chain.

The mining legislation vehicle in South Africa, The DMR in South Africa is a government authority is mandated to issue mineral exploration rights and licenses all mining companies. Mining licenses are attached to the Mining Charter which is mainly a mining specific BBBEE

policy. The BBBEE policy is tailored to redress historically disadvantaged South Africans in the areas corporate of shareholding, management, employment equity, skills development and preferential procurement. However, the mining charter does not put enough emphasis on CSR-related principles. The operational objectives of junior mining companies often promote adherence to BBBEE related transactions and fail to add value to the mining value chain in mining communities. Such an objective is helpful for minimising the current high level of dissatisfaction seen in mining communities. In simpler terms their lack of policy enforcement to address governance and compliance pertaining to issues.

Government authorities working for the DMRE are policymakers who are required to enforce the law by using legislation. Their task will be greatly simplified if the basic principles and guidelines of CSR can be promoted in all junior mining companies. CSR guidelines are also highly helpful for ensuring capacity building and development opportunities for poorly skilled and poorly resourced local communities. Policies that are based on BBBEE and the mining charter are implemented much better by way of promoting awareness and compliance based on CSR, good corporate governance and business ethics. This shows that CSR guidelines are highly helpful for protecting the developmental rights of poorly developed communities. Junior mining companies play a key role in the mining and mineral processing value chain.

Practical implications

Junior mining companies of South Africa should monitor and track CSR adherence and compliance, act decisively on their images by engaging the community and act on changing the negative perception the community harbors about junior mining companies. These measures would enhance engagement of stakeholders, particularly at community level, where

CSR programs results are experienced much more, inherently this becomes implications for policy and practice. The study has found that adherence to the basic principles of CSR, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working relationship between mining communities and junior mines. Again, mining companies should work to establish strategic partnerships with multinational major mining companies in the form of mentorship programs in order to fast track experiences on issues of governance and access to supply chain infrastructures.

The information on the study has led to the identification of 3 predictor variables. These 3 predictor variables were the ability to produce better products by adhering to CSR guidelines and principles, a track-record of helping local communities, and telling others about companies that support local people. The findings are the level of adherence to CSR guidelines and principles is significantly influenced by the ability to produce better products by adhering to CSR guidelines and principles. The level of adherence to CSR guidelines and principles is significantly influenced by past track record of helping local communities. The level of adherence to CSR guidelines and principles is significantly influenced by telling others about companies that support local people. These findings are consistent with findings reported in the literature about factors that affect the level of adherence to CSR guidelines and principles in junior mining companies operating in developing nations by Pons, Vintro, Rius and Vilaplana (2021:1-13).

6.4 Model of adherence to corporate social responsibility guidelines and principles

Based on results estimated from structural equations modelling, the following findings were confirmed that were derived from the development of a conceptual model of adherence to CSR guidelines and principles as illustrated in Figure 7.1. The study conducted by Maleejane (2022:4206-4222) has shown that it is highly beneficial to promote awareness about the benefits of complying with CSR guidelines in mining communities. The level of adherence to CSR guidelines and principles is significantly influenced by the ability to produce better products by adhering to CSR guidelines and principles. Companies that sincerely adhere to social responsibility seriously often attract a positive consumer attention. Social responsibility can help society see junior company as a positive force in the community and in the process enhance their reputational image. Improved company reputation is strongly correlated to increased company sales. Thus, while the primary CSR objective of a company was not designed to drive business results, it will likely end up being the case. Across the globe it is well known that the top-rated valuable brand reputations are built in part on those companies' socially responsibility engagement.

The study has found that the level of adherence to CSR guidelines and principles is significantly influenced by past track record of helping local communities. In any mining company, there is nothing as important as the brand image of the company. A good company name in the form of reputational image comes about the company's track record of past conduct. Without prior record of conduct junior mining companies will always find it difficult to gain trust of their host communities and without trust co-existence of the junior mining companies, indigenous residents of the community and the natural environment may not live-in harmony. Mining in its nature is a very destructive in its nature as it involves excavation of the natural earth to have

access to the minerals of interest, therefore this business activity is always perceived with lots of mistrust about its overall impact to the ecology and indigenous tribes. Junior mining companies must work exceptionally very hard to protect and preserve their reputation by adhering to CSR guidelines and principles to protect people and the natural environment.

The study has found that the level of adherence to CSR guidelines and principles is significantly influenced by telling others about companies that support local people. The level of adherence to CSR guidelines and principles is significantly influenced by telling others about companies that support local people. This is a form of word-of-mouth marketing that stands out because it's the highest-level trust by all forms of stakeholders, be it employees, customers or the junior mining community members. It includes any goodwill actions done by the junior mining companies that encourage stakeholders to share their experiences with junior mining brand and recommend others. Essentially impressed stakeholders are doing marketing for the junior mining at no cost.

The results have shown that the level of compliance with CSR guidelines and principles in the 6 junior mining companies that were selected for the study is significantly influenced by 3 predictor variables. These factors were the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds. Similar results were obtained from personal interviews. These results indicate that junior mining companies that support local people are duly acknowledged in their host communities for adhering sufficiently to CSR guidelines and principles. These findings are consistent with findings reported in the literature about factors

that affect the level of adherence to CSR guidelines and principles in junior mining companies operating in developing nations by Pons, Vintro, Rius and Vilaplana (2021:1-13).

6.5 Framework of study

Results obtained from data analysis were used for constructing a predictive framework of study. The framework of study is essential for ensuring satisfactory compliance with corporate social responsibility guidelines and principles in South African junior mining companies. The framework of study is a result of empirical data analyses by use of quantitative and qualitative methods. Robust parametric statistical methods of data analysis such as the Pearson chi-square test of association, ordered logit regression analysis, confirmatory factor analysis, and Structural Equations Modelling (SEM) were used for performing univariate, bivariate and multivariate data analysis based on data collected from 439 employees working in 6 junior mining companies. The level of perception held by respondents was measured by using a 5-point ordinal or Likert scale. Qualitative data was gathered from 12 officials working in the 6 junior mining companies by conducting 1-hour-long individual indepth interviews. Qualitative data analysis was performed by using tallying, coding, thematic and text analysis. Triangulation was used for ascertaining trustworthiness in qualitative data analysis. Goodness-of-fit tests were used to assess and evaluate the level of reliability of all fitted regression models. For example, the fitted ordered logit regression model can accurately classify 82.88% of all cases accurately. Also, results obtained from factor analysis and structural equations modelling are highly reliable. The results have identified 3 influential predictors of satisfactory compliance with CSR guidelines and principles in junior mining companies (the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds).

The study has found that 52% of respondents were satisfied with the extent to which junior mining companies adhered to CSR guidelines and principles in the course of conducting routine mining operations. The study has found that the level of compliance with CSR guidelines and principles in the 6 junior mining companies was significantly influenced by 3 predictor variables. These factors were the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds. Similar results were obtained from personal interviews.

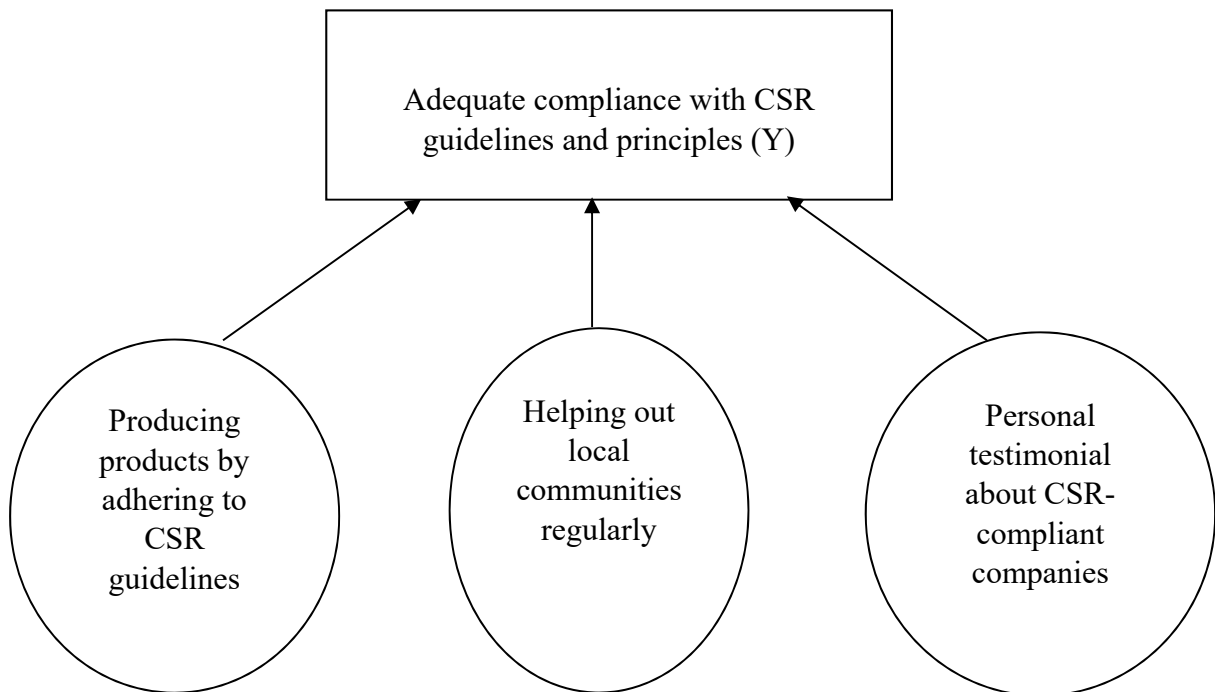


Figure 8.5.1: Framework for enhancing compliance with CSR in South African junior mining companies

Source: Adapted from Maleejane (2022: 4206-4222)

The framework of study is helpful for identifying junior mining companies that are capable of complying with CSR guidelines and principles in the course of routine mining activities. The framework is also highly helpful for assessing and evaluating obstacles to sufficient compliance with CSR guidelines and principles.

6.6 Recommendations

Results obtained from the study have shown that 52% of the 439 employees working in the six junior mining companies were respondents who were satisfied with the extent to which junior mining companies adhered to CSR guidelines and principles in the course of conducting routine mining operations. Adherence to CSR guidelines and principles was significantly influenced by 3 predictor variables. These factors were the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds. Similar results were obtained from personal interviews. Based on these findings of study, the following recommendations are made to the six junior mining companies that have taken part in the study so that the current level of compliance with CSR guidelines and principles could be enhanced.

What are the key determinant factors to adherence of CSR guidelines and principles by junior mining companies of South Africa?"

Other major findings from the qualitative aspects of the research study have made the following findings:

What is your understanding of Corporate Social Responsibility (CSR) of junior mining companies?"

There are various definitions of CSR used by development economists and planners. However, the basic and most important principle of CSR in respect of South African junior mining companies is that mining activities must be conducted in a manner that does not cause harm to vulnerable people, animals, natural habitat, members of local communities and the general environment. The recommendations made in this study are all very highly helpful for ensuring sustainable development, economic growth and the creation of jobs for the unemployed. The key stakeholder of mining companies are local communities. The community, as the principal stakeholder, deserves to benefit from mining activities carried out by junior mining companies. The creation of jobs and wealth must be achieved without causing harm to the general environment and local communities.

“What are the perceptions of junior mining companies in the context of CSR?”

“What are the challenges that affects CSR implementations by junior mining companies?”

“What are the business challenges that affects the profitability of junior mining companies and subsequently affects effective CSR strategy?”

Recommendations on business disruption due to community strikes

Junior mining companies should strive to establish and maintain a long-lasting and harmonious relationship with their host communities in order to ensure sustainable mining productions and peaceful existence that is free from strife. Adherence to basic CSR guidelines, good corporate governance and good leadership is a key requirement for establishing a long-lasting and mutually beneficial working relationship between mining communities and owners of junior mines and to live and work in the local community in perfect harmony.

Recommendations on CSR department within company structures

Many junior mining companies in South Africa do not have CSR department and this is a key barrier to effective implementation of CSR strategies. Junior mining companies of South Africa should undertake its CSR initiatives through registered trusts. Also, CSR should manifest as a CSR department in junior mining companies as is “tangible. For effective execution of a junior mining company, CSR objectives are that the CSR committee of the board needs to be established and this body should be tasked with formulation, implement and monitor the CSR policy and objectives of a company. The CSR committee must at least consist of executive directors and independent directors. It is strongly recommended that junior mining companies should also appoint a role of a Corporate Responsibility Officer (CRO) and it should be the responsibility of the CSR office to elevate strategic CSR topics and priorities for discussion at the company’s highest levels.

Recommendations on fierce competition for rail and port infrastructure with major mining companies

Many junior mining companies are very much dependent on the rail transport network to realize their export bulk mineral commodities sales quotas. However, the acute decline of the national rail network hinders the optimal profitability that junior mining companies can realize. The rail network is a SOE operated monopoly which have operationally inefficient, underutilised assets, which are unable to keep up with the junior miner’s output above the already existing major miners train slots. It is therefore highly recommended that this sector be privatized to attract new synergies and revived logistics strategies to bring about new investments and unlock mineral commodity capacity from the mines to the export harbours.

Recommendation on disruptive power supply

Junior mining companies should invest much in energy reliance to increase efficiency and minimize business operations downtime. Much reliance on a monopolistic SOE national power generator is very disruptive to the junior mining companies. Juniors should invest in alternative sources of energy for their operations.

This research, exploring the business leadership challenges that affects successful implementation of corporate social responsibility, shows that an understanding of socially responsibility is sometimes lacking; many junior mine operators have limited understanding of enablers of CSR. From the perspective of CSR in relation to sustainable junior mining, the main recommendation is to act on changing the negative perception the community harbors about junior mining companies

6.7 Limitations of study

Due to lack of resources, a cross-sectional, exploratory study design was followed for conducting the study. Ideally, such a study should be conducted based on a 5-year-long study design which is longitudinal in nature. A longitudinal study design would have allowed the researcher to collect data from the 439 participants of study repeatedly, say quarterly over the 5-year-long period of study. A longitudinal study design enables researchers to estimate hazard ratios, rather than odds ratios and regression coefficients. Hazard ratios are theoretically more reliable in comparison with odds ratios or regression coefficients. Hazard ratios can be estimated from the Cox Proportional Hazards Model if a longitudinal study design could be used over a period of 5 years. This limitation of study should be addressed by other adequately resourced researchers in future.

Data collection was carried out under restrictions arising from the outbreak and spread of the Covid-19 virus. Due to such restrictions, routine mining activities were reduced slightly. This limitation has meant that the researcher was unable to collect data at the peak of mining activities in the six junior mining companies. This limitation of study could be addressed in future by other researchers.

6.8 Call for further research

Adequately resourced researchers should consider conducting a 5-year-long study that is based on a longitudinal study design with a view to estimate theoretically more reliable estimates in the form of hazard ratios from the Cox Proportional Hazards Model. Such researchers would be able to collect monthly or quarterly data from the 6 junior mining companies.

Data collection was carried out under restrictions arising from the outbreak and spread of the Covid-19 virus. Due to such restrictions, routine mining activities were reduced slightly. This limitation has meant that the researcher was unable to collect data at the peak of mining activities. This limitation could be addressed in future by other researchers.

Conclusion

The directors of junior mining companies are, of course, motivated to make profits for shareholders by running very lean operations and maximise revenue. It is noted that lean operations can be achieved primarily by a limited workforce and cost cutting for “non -

essential” expenditure and unfortunately Corporate Social Responsibility is perceived as non-core. This has left many junior mining companies as ‘greedy’ and “profiteering” and benefiting from the mineral resources whereas their host communities are living in poverty. Junior mining also companies lack strategic partnerships. The Junior mining companies interviewed do not take mentorship from the well-established mining companies either being in South Africa or internationally, there is no strategic partnerships and collaborations with a view to assist on access to markets and being a responsible social citizen. Junior mining companies do not have good image amongst its immediate society they operate this includes host community, sustenance famers, contractors, and the junior miners’ employees. This perception is not good for the image of the South African junior mining companies, and this makes junior mining companies and enemy of the community who cares only about the resources found in the community but with disregard towards communities’ social being, health, safety and the environment within which they operate.

It is prudent that junior mining start to embrace the communities in which they operate within and elevate them from “minority shareholders” to principal stakeholders. Regular consultations between junior mining companies and the community should be promoted. Junior mining communities must be very clear and transparent with regards to what CSR projects they need to rollout with the community, and they must educate their communities about their business vision and mission (Muntingh, 2011). It can be concluded that the key influential predictors of adherence to CSR guidelines and principles in junior mining is the ability to produce better products by adhering to CSR guidelines and principles, track record of helping local communities and telling others about companies that support local people. However, many managers of junior mining companies see CSR activities as additional bureaucracy and costly, only increasing operation costs required for continued profitability and sustainability (Besada

& Martin, 2015: 263-282). Most mining companies in South Africa have generally failed to co-ordinate and align their actions with those of the government development policy frameworks such as the National Development Plan (NDP). In the case of CSR educational intervention projects, most beneficiaries do not know enough about the purpose of such projects due to lack of awareness.

Mutual understanding between junior mining companies and communities is made possible through embracing CSR principles and guidelines. Sinwell (2015: 2012) has shown that conflicts between trade unions and mine companies can be resolved amicably by using CSR principles and good leadership. The author has shown that CSR policies are valuable for fostering mutual understanding, collaboration, fruitful wage negotiations, the provision of skills development training opportunities and improved working conditions.

The framework of study is suitable for ensuring satisfactory adherence to CSR in South African junior mines. The framework entails the promotion of awareness campaigns in South African junior mines, the promotion of education on occupational health and safety, environmental, ecological, sanitation, hygiene and primary health care education to communities living in and around junior mines. The framework also entails the provision of tangible economic benefits and rewards to mine owners, mine operators and members of the community who actively protect the general environment, vulnerable ecosystems and natural habitat. The framework is analogous to the framework constructed by Frederiksen (2019: 162-170) based on CSR principles and guidelines. The framework entails the provision of awareness education, the provision of incentives and a strict enforcement of municipal bylaws and legislation on mining operations. The framework is suitable to the needs of people living in and around junior mines in South Africa.

Saenz (2019: 690) points out that three steps must be followed in order to adhere sufficiently to CSR principles in junior mines. These 3 steps are the construction of a CSR plan of action, the creation of a communication channel, and the creation of an appropriate CSR strategy that is suitable for meeting the basic survival and operational needs of all stakeholders of the mining community sufficiently enough.

Hughes (2019: 884) has argued that sufficient adherence to CSR principles entails the ability and commitment to live and work in the local community in perfect harmony. To do so, it is necessary to develop a plan that explains what kind of relationship will be established with members of the host community, what services are to be provided to members of the community, and how operational and logistical issues such as safety and security, transportation, access to water, access to electricity, access to primary health care, sanitation, waste collection and disposal, access to skills based and artisan mentorship programs are to be provided to employees working in junior mines. The plan should also explain how differences in opinion and conflicts are going to be resolved amicably.

The conclusions of this research study are based on the findings obtained from data analyses. The research study conclusions should adequately address to the research questions and detail the implications of the findings further supported by recommendations. According to Beh and Lombardo (2021), recommendations must be based on findings of studies. All specific aims and objectives of research have been adequately met. Three influential factors that affect compliance with CSR guidelines and regulations have been identified. These factors were the ability to produce better products by adhering to CSR guidelines and principles, a track record of helping out local communities, and the promotion of awareness about good deeds. Similar results were obtained from personal interviews.

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APPENDIX A: QUESTIONNAIRE OF STUDY FOR QUANTITATIVE ASPECT OF STUDY

Title of study: FACTORS THAT AFFECT ADHERENCE TO CORPORATE SOCIAL RESPONSIBILITY GUIDELINES AND PRINCIPLES IN SOUTH AFRICAN JUNIOR MINING COMPANIES

This questionnaire will not take more than 60 minutes of your time to complete

Student: Mr. Toby L. Maleejane Student Number: 64075486 Cell: 083 304 0719

Supervisor: Professor Zeleke Worku Tel: (012) 382 3050 Cell: 082 870 2758

E-Mail: workuz@tut.ac.za

GENERAL QUESTIONNAIRE INFORMATION	
SECTION A	
Fieldworker Information(Interviewer)	
Names and Surname	L.T Maleejane
	Unisa Student
Date	
Signature	
SECTION B	
Respondent Information	
(Employee,Relative of employee, Community member associated)	
Initials	
Surname	
Contact No or email	
Female/Male	
Province	
Town/Village	
Please Tick	

SECTION C		
To be completed by employees,relatives and community members of the junior mining company		
<i>Please tick Yes or No only</i>	YES	NO
<i>Do you work at this junior mining Company or its Subsidiaries?</i>		
If No above, are you related or a dependent to anyone employed at these junior mining company?		
Do you reside in the close proximity or a community around the junior mining company operations?		
Do you know the concept of Corporate Social Responsibility (CSR)?		

SECTION D
In all of the questions to follow in Section D, you should draw(x) over one number next to each statement
If you agree strongly with the statement ,mark number five (5)
If you agree strongly with the statement ,mark number four (4)
If you feel neutral about the statement ,mark number three (3)
If you disagree mark number two (2)
If you strongly disagree mark number one(1)

Please indicate how much you agree or disagree with the following statements about the junior mining company.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Your Junior Mining Company operating in my community is a good company.	1	2	3	4	5
The company conducts its company in a socially responsible manner.	1	2	3	4	5
Cares about the environment and nature resources.	1	2	3	4	5
Your Junior Mining Company cares about local people.	1	2	3	4	5
The junior mining company sees you as its principal stakeholder.	1	2	3	4	5
Your junior Mining Company helps the community towards health care programs.	1	2	3	4	5

Your junior mining company helps the community towards educational development programs.	1	2	3	4	5
Your junior mining company helps the community with various community development programs.	1	2	3	4	5
Your junior mining company helps the community with poverty eradication programs.	1	2	3	4	5
The junior mining company seeks to give employment to people in the community.	1	2	3	4	5
The company sponsors causes only to boost its image.	1	2	3	4	5
Does what it promises to do in the community.	1	2	3	4	5
The company consult the communities on social programs to invest in	1	2	3	4	5
The company regularly consult on any issues affecting the community.	1	2	3	4	5
Has a good reputation towards community development programs.	1	2	3	4	5
It has the best interest of the community where it does business.	1	2	3	4	5

Please indicate how much you agree or disagree with the following statements regarding companies approaches towards CSR					
Please indicate how much you agree or disagree with the following statements regarding companies approach towards CSR.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The junior mining company should give back to the community.	1	2	3	4	5
The junior mining company should be compelled to give back to the community.	1	2	3	4	5
Junior mining companies are not sincere about contributing to society, they only do this to "look good" to the authorities.	1	2	3	4	5
The junior mining company is not committed to sustainable causes in the community.	1	2	3	4	5

I am suspicious of companies that frequently support good causes.	1	2	3	4	5
The junior mining company is transparent about its social responsibility programs.	1	2	3	4	5
I am suspicious if companies talk about the good things they do for a community over the media.	1	2	3	4	5
I think companies mean well when they do good deeds for communities.	1	2	3	4	5
I think companies should speak publicly about the money they donate to good causes.	1	2	3	4	5

Please indicate how much you agree or disagree with the following statements regarding companies approach towards CSR.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I trust a company that does good deeds.	1	2	3	4	5
I believe the junior mining company will keep its promise to give back to the community.	1	2	3	4	5
I trust a company that contributes to community upliftment.	1	2	3	4	5
If I buy a product, I want to know that the company behind it is doing well in the community.	1	2	3	4	5
Companies that give back to the community are better than companies that do not.	1	2	3	4	5
The junior mining company support in the community makes me feel positive about its name.	1	2	3	4	5

Companies that do good for the community are also known to have better products for the community.	1	2	3	4	5
I think companies have community development programs to provide value only for themselves.	1	2	3	4	5
I think companies have community development programs only when they are making profits.	1	2	3	4	5
If I support a company that does good deeds, I also feel I am doing a good deed.	1	2	3	4	5
Please indicate how much you agree or disagree with the following statements regarding companies approach towards CSR.					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I will continue to support junior mining company if it does good deeds.	1	2	3	4	5
I would rather buy or use the services from Boipleo when it does good to society if price and quality were the same between the two junior mining companies.	1	2	3	4	5
I would rather buy from a company that has a history of helping communities, even if the product or the service was a bit more expensive.	1	2	3	4	5
A company's history of good deeds determines if I buy its products /services.	1	2	3	4	5
If a company I buy from acts irresponsible (bad deeds), I would like to buy from another company instead.	1	2	3	4	5
I will rather buy from the company now that it supports its community.	1	2	3	4	5
If the junior mining company help the community I would not buy its products.	1	2	3	4	5
I would keep on buying products from the junior mining company because of its history of good deeds.	1	2	3	4	5
Because the junior mining company supports the community, I will more likely tell others about the junior miner's good deeds.	1	2	3	4	5

APPENDIX B: LIST OF ORAL INTERVIEW QUESTIONS FOR QUALITATIVE DATA COLLECTION

Title of study: FACTORS THAT AFFECT ADHERENCE TO CORPORATE SOCIAL RESPONSIBILITY GUIDELINES AND PRINCIPLES IN SOUTH AFRICAN JUNIOR MINING COMPANIES

List of interview questions to be answered by 12 senior mine administrators selected from the 6 junior mining companies.

This questionnaire will not take more than 60 minutes of your time to complete

Student: Mr. Toby L. Maleejane

Cell: 083 304 0719

Student No: 64075486

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Supervisor: Professor Zeleke Worku

Tel: (012) 382 3050

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Email: workuz@tut.ac.za

List of interview questions to be asked as part of qualitative study

Please tick in the most suitable check box or fill in the space provided

Names of Respondent: _____

Designation

Senior Management (Executives & Directors)	Middle Management	Community Member	Other
---	----------------------	---------------------	-------

--	--	--	--

What is your appointed responsibility / job title to your mining company?

How many years has your company been in operation?

Which province in the Republic of South Africa does your company operate from?

What type is your mining enterprise?

Joint Venture	Partnership	Private Company	Sole ownership	Others

What is the main activity of your company?

Full value chain	Mining	Processing	Trading	Other

What is the profitability status of your company?

Profit	Break even	Loss making

How would you define Corporate Social Responsibility (CSR) in your own words?

How much budget does your company spend on CSR projects and activities on an annual basis?

Please discuss the external and internal challenges to the profitability of your organisation.

Discuss your company's accessibility to local lenders for funding your mining operations?

Is your company's viability dependent on your company's ability to secure a loan needed for operation?

Have you obtained government funding or private equity to operate your business at the early stages?

Government	Private Equity

Are there sufficient tax reliefs in the first five years of mining or production?

YES		NO	
-----	--	----	--

Is achieving CSR objectives and targets part of the management team's remuneration-bonus structure?

YES		NO	
-----	--	----	--

Do you have a budget allocated in every financial year towards the CSR initiatives?

YES		NO	
-----	--	----	--

During economic and markets downturn periods do you still invest in CSR activities?

YES		NO	
-----	--	----	--

From your view, do you believe CSR improves the profitability of your company?

YES		NO	
-----	--	----	--

Do you believe compliance CSR has any impact on the image of your company?

YES		NO	
-----	--	----	--

Do you have a CSR department in your company?

YES		NO	
-----	--	----	--

Does your company have a designated Manager of Officer responsible for CSR?

YES		NO	
-----	--	----	--

Does your company have a CSR committee?

YES		NO	
-----	--	----	--

What does your company do to adhere to the basic principles and guidelines of CSR?

How important is CSR to your company?

Very Important	Extremely important	Less priority	Not important

What benefits will adherence to CSR bring to your company or company image in the community?

What limitations will your organisation have if you do not adhere CSR in your organisation?

Do you have a standard operating procedure when it comes to implementing CSR initiatives?

YES		NO	
-----	--	----	--

Do you have a framework that ensures satisfactory adherence to CSR?

YES		NO	
-----	--	----	--

What do members of the community feel about your mining activities?

Do members of your community appreciate your mining activities?

What perceptions do your community members have regarding your companies public image?

Has this perception improved over the past several years?

List and describe CSR initiatives you have implemented in the since you were granted license to produce.

Describe how you go about selecting CSR initiatives or programs to invest in?

How does the Mission and Vision of your company address the needs of principal stakeholders?

Are you able to source the right technical expertise within the community you are operating in?

Are you able to source and source the right technical and leadership skills?

YES		NO	
-----	--	----	--

What level of formal education will you require to consider persons for skilled employment in your organisation?

Do you have a tertiary sponsorship or bursary programs dedicated to persons in the communities surrounding you?

What training programs does your company have in order to give more understanding and awareness of CSR to the employees and the community?

Does your mine take part in health education programs in the community, please outline this program?

In your view, does the company provide enough occupational safety to company workers?

YES		NO	
-----	--	----	--

Who in your company is involved in the formulation of the CSR strategy?

List the stakeholders are involved in the formulations and overseeing of the CSR strategy?

Is the community representatives consulted and engaged on CSR programs formulation?

Have you ever had a protest action against you in the past?

What do you think are the possible cause's community and employee demonstrations against your company?

Do you know what your host community's expectations are when it comes to issues of CSR?

YES		NO	
-----	--	----	--

Are indigenous people from your community part of the management team (technical, middle or top management)?

YES		NO	
-----	--	----	--

Does your mine take part in poverty alleviation programs in the community, please outline this program?

Does your company provide community-based development programs?

Has the DMR suspended your license to operate in past five years?

YES	X	NO	
-----	---	----	--

If “Yes” on above what was the main reason(s) for such

In your view how relevant are the CSR initiatives implemented by your company?

Very relevant	Relevant	Irrelevant	Very irrelevant

Discuss the barriers to implementation of the CSR strategy in your company?

Are there any issues you will like to discuss, if so please do so?

End of interview questions
Thank you for taking part in my study

Appendix C: RESULTS FROM CROSSTAB ANALYSIS

Crosstab analysis

```
. use c:\students\Maleejanel.dta, clear

. for var gender good_company responsible_manner
environment_protection helping_localpeople
stakeholder_principal promoting_health promoting_education
community_development poverty_alleviation employment
boost_image keeping_promises social_programmes
consult_community reputation_good interest_of_community
givingback_tocommunity compelled_togiveback sincere_commitment
sustainable_causes frequently transparent suspicious mean_well
donate_worthycauses trust_basedon_gooddeed keeping_promises
upliftment doingwell givingback_better feel_positive
better_products value_selfonly profits_selfonly
doing_good_deeds continued_support prefer_buyfromjuniorcompany
historyof_helpingcommunities good_deeds irresponsible_nobuy
buy_commsupportonly continue_helping_people continue_buying
tell_others: tab2 csr_adherence X, row col exp chi2
```

```
-> tab2 csr_adherence gender, row col exp chi2
```

```
-> tabulation of csr_adherence by gender
```

```
+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+
```

csr_adherence	gender		Total
	Female	Male	
Adequate	159	265	424
	159.4	264.6	424.0
	37.50	62.50	100.00
	96.36	96.72	96.58
Inadequate	6	9	15
	5.6	9.4	15.0
	40.00	60.00	100.00
	3.64	3.28	3.42
Total	165	274	439
	165.0	274.0	439.0
	37.59	62.41	100.00
	100.00	100.00	100.00

```
Pearson chi2(1) = 0.0386 Pr = 0.844
```

```
-> tabulation of csr_adherence by good_company
```

```
+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+
```

csr_adherence	good_company					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	103	46	176	64	35	424
	103.3	48.3	170.0	67.6	34.8	424.0
	24.29	10.85	41.51	15.09	8.25	100.00
	96.26	92.00	100.00	91.43	97.22	96.58
Inadequate	4	4	0	6	1	15
	3.7	1.7	6.0	2.4	1.2	15.0
	26.67	26.67	0.00	40.00	6.67	100.00
	3.74	8.00	0.00	8.57	2.78	3.42
Total	107	50	176	70	36	439
	107.0	50.0	176.0	70.0	36.0	439.0
	24.37	11.39	40.09	15.95	8.20	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 15.1228 Pr = 0.004

-> tab2 csr_adherenceresponsible_manner, row col exp chi2

-> tabulation of csr_adherence by responsible_manner

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	responsible_manner					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	107	150	88	44	35	424
	111.1	151.6	85.0	42.5	33.8	424.0
	25.24	35.38	20.75	10.38	8.25	100.00
	93.04	95.54	100.00	100.00	100.00	96.58
Inadequate	8	7	0	0	0	15
	3.9	5.4	3.0	1.5	1.2	15.0
	53.33	46.67	0.00	0.00	0.00	100.00
	6.96	4.46	0.00	0.00	0.00	3.42
Total	115	157	88	44	35	439
	115.0	157.0	88.0	44.0	35.0	439.0
	26.20	35.76	20.05	10.02	7.97	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 10.7904 Pr = 0.029

-> tabulation of csr_adherence by environment_protection

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	environment_protection					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	93	128	87	90	26	424
	92.7	132.3	84.0	89.8	25.1	424.0
	21.93	30.19	20.52	21.23	6.13	100.00
	96.88	93.43	100.00	96.77	100.00	96.58
Inadequate	3	9	0	3	0	15
	3.3	4.7	3.0	3.2	0.9	15.0

	20.00	60.00	0.00	20.00	0.00	100.00
	3.13	6.57	0.00	3.23	0.00	3.42
Total	96	137	87	93	26	439
	96.0	137.0	87.0	93.0	26.0	439.0
	21.87	31.21	19.82	21.18	5.92	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 8.1584 Pr = 0.086

-> tabulation of csr_adherence by helping_localpeople

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	helping_localpeople					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	132	78	67	111	36	424
	134.3	78.2	64.7	112.0	34.8	424.0
	31.13	18.40	15.80	26.18	8.49	100.00
	94.96	96.30	100.00	95.69	100.00	96.58
Inadequate	7	3	0	5	0	15
	4.7	2.8	2.3	4.0	1.2	15.0
	46.67	20.00	0.00	33.33	0.00	100.00
	5.04	3.70	0.00	4.31	0.00	3.42
Total	139	81	67	116	36	439
	139.0	81.0	67.0	116.0	36.0	439.0
	31.66	18.45	15.26	26.42	8.20	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.0489 Pr = 0.282

. tab2 csr_adherence stakeholder_principal, row col exp chi2

-> tabulation of csr_adherence by stakeholder_principal

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	stakeholder_principal					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	91	138	64	95	36	424
	94.7	141.0	61.8	91.8	34.8	424.0
	21.46	32.55	15.09	22.41	8.49	100.00
	92.86	94.52	100.00	100.00	100.00	96.58
Inadequate	7	8	0	0	0	15
	3.3	5.0	2.2	3.2	1.2	15.0
	46.67	53.33	0.00	0.00	0.00	100.00
	7.14	5.48	0.00	0.00	0.00	3.42
Total	98	146	64	95	36	439
	98.0	146.0	64.0	95.0	36.0	439.0
	22.32	33.26	14.58	21.64	8.20	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 12.9034 Pr = 0.012

. tab2 csr_adherence promoting_health, row col exp chi2

-> tabulation of csr_adherence by promoting_health

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	promoting_health					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	97	149	73	57	48	424
	96.6	148.7	72.4	59.9	46.4	424.0
	22.88	35.14	17.22	13.44	11.32	100.00
	97.00	96.75	97.33	91.94	100.00	96.58
Inadequate	3	5	2	5	0	15
	3.4	5.3	2.6	2.1	1.6	15.0
	20.00	33.33	13.33	33.33	0.00	100.00
	3.00	3.25	2.67	8.06	0.00	3.42
Total	100	154	75	62	48	439
	100.0	154.0	75.0	62.0	48.0	439.0
	22.78	35.08	17.08	14.12	10.93	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.9504 Pr = 0.203

. tab2 csr_adherencepromoting_education, row col exp chi2

-> tabulation of csr_adherence by promoting_education

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	promoting_education					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	35	98	182	23	84	422
	34.8	99.7	180.0	24.2	83.2	422.0
	8.29	23.22	43.13	5.45	19.91	100.00
	97.22	95.15	97.85	92.00	97.67	96.79
Inadequate	1	5	4	2	2	14
	1.2	3.3	6.0	0.8	2.8	14.0
	7.14	35.71	28.57	14.29	14.29	100.00
	2.78	4.85	2.15	8.00	2.33	3.21
Total	36	103	186	25	86	436
	36.0	103.0	186.0	25.0	86.0	436.0
	8.26	23.62	42.66	5.73	19.72	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 3.6516 Pr = 0.455

. tab2 csr_adherencecommunity_development, row col exp chi2

-> tabulation of csr_adherence by community_development

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

+-----+
csr_adheren |               community_development
ce | Above a..  Average  Below a..  Good  Poor  | Total
+-----+
Adequate |           80      110      145      63      26 | 424
          |          85.0     109.1     142.9     61.8     25.1 | 424.0
          |          18.87    25.94    34.20    14.86     6.13 | 100.00
          |          90.91    97.35    97.97    98.44    100.00 | 96.58
+-----+
Inadequate |           8        3        3        1        0 | 15
          |           3.0      3.9      5.1      2.2      0.9 | 15.0
          |          53.33    20.00    20.00    6.67     0.00 | 100.00
          |           9.09     2.65     2.03     1.56     0.00 | 3.42
+-----+
Total |           88      113      148      64      26 | 439
          |          88.0     113.0     148.0     64.0     26.0 | 439.0
          |          20.05    25.74    33.71    14.58     5.92 | 100.00
          |          100.00   100.00   100.00   100.00   100.00 | 100.00

```

Pearson chi2(4) = 11.2368 Pr = 0.024

```

. tab2 csr_adherencepoverty_alleviation, row col exp chi2
-> tabulation of csr_adherence by poverty_alleviation

```

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

csr_adheren |               poverty_alleviation
ce | Above a..  Average  Below a..  Good  Poor  | Total
+-----+
Adequate |           110      146      65      80      23 | 424
          |          109.1     147.8     62.8     82.1     22.2 | 424.0
          |          25.94    34.43    15.33    18.87     5.42 | 100.00
          |          97.35    95.42   100.00    94.12   100.00 | 96.58
+-----+
Inadequate |           3        7        0        5        0 | 15
          |           3.9      5.2      2.2      2.9      0.8 | 15.0
          |          20.00    46.67     0.00    33.33     0.00 | 100.00
          |           2.65     4.58     0.00     5.88     0.00 | 3.42
+-----+
Total |           113      153      65      85      23 | 439
          |          113.0     153.0     65.0     85.0     23.0 | 439.0
          |          25.74    34.85    14.81    19.36     5.24 | 100.00
          |          100.00   100.00   100.00   100.00   100.00 | 100.00

```

Pearson chi2(4) = 5.4997 Pr = 0.240

```

. tab2 csr_adherence employment, row col exp chi2
-> tabulation of csr_adherence by employment

```

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

csr_adheren |               employment
ce | Above a..  Average  Below a..  Good  Poor  | Total
+-----+
Adequate |           61      86      143      88      46 | 424
          |          61.8     84.0     142.0     91.8     44.4 | 424.0

```

	14.39	20.28	33.73	20.75	10.85	100.00
	95.31	98.85	97.28	92.63	100.00	96.58
Inadequate	3	1	4	7	0	15
	2.2	3.0	5.0	3.2	1.6	15.0
	20.00	6.67	26.67	46.67	0.00	100.00
	4.69	1.15	2.72	7.37	0.00	3.42
Total	64	87	147	95	46	439
	64.0	87.0	147.0	95.0	46.0	439.0
	14.58	19.82	33.49	21.64	10.48	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 8.0065 Pr = 0.091

. tab2 csr_adherenceboost_image, row col exp chi2

-> tabulation of csr_adherence by boost_image

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	boost_image					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	95	114	103	6	106	424
	93.7	118.8	101.4	5.8	104.3	424.0
	22.41	26.89	24.29	1.42	25.00	100.00
	97.94	92.68	98.10	100.00	98.15	96.58
Inadequate	2	9	2	0	2	15
	3.3	4.2	3.6	0.2	3.7	15.0
	13.33	60.00	13.33	0.00	13.33	100.00
	2.06	7.32	1.90	0.00	1.85	3.42
Total	97	123	105	6	108	439
	97.0	123.0	105.0	6.0	108.0	439.0
	22.10	28.02	23.92	1.37	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9506 Pr = 0.093

. tab2 csr_adherencekeeping_promises, row col exp chi2

-> tabulation of csr_adherence by keeping_promises

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	keeping_promises					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	51	186	57	83	47	424
	49.3	184.5	56.0	86.9	47.3	424.0
	12.03	43.87	13.44	19.58	11.08	100.00
	100.00	97.38	98.28	92.22	95.92	96.58
Inadequate	0	5	1	7	2	15
	1.7	6.5	2.0	3.1	1.7	15.0
	0.00	33.33	6.67	46.67	13.33	100.00
	0.00	2.62	1.72	7.78	4.08	3.42

Total	51	191	58	90	49	439
	51.0	191.0	58.0	90.0	49.0	439.0
	11.62	43.51	13.21	20.50	11.16	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9294 Pr = 0.094

. tab2 csr_adherencesocial_programmes, row col exp chi2

-> tabulation of csr_adherence by social_programmes

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	social_programmes					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	91	174	23	78	57	423
	90.8	172.9	22.2	82.1	55.0	423.0
	21.51	41.13	5.44	18.44	13.48	100.00
	96.81	97.21	100.00	91.76	100.00	96.58
Inadequate	3	5	0	7	0	15
	3.2	6.1	0.8	2.9	2.0	15.0
	20.00	33.33	0.00	46.67	0.00	100.00
	3.19	2.79	0.00	8.24	0.00	3.42
Total	94	179	23	85	57	438
	94.0	179.0	23.0	85.0	57.0	438.0
	21.46	40.87	5.25	19.41	13.01	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 9.0157 Pr = 0.061

. tab2 csr_adherenceconsult_community, row col exp chi2

-> tabulation of csr_adherence by consult_community

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	consult_community					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	148	118	36	81	41	424
	148.7	116.9	34.8	84.0	39.6	424.0
	34.91	27.83	8.49	19.10	9.67	100.00
	96.10	97.52	100.00	93.10	100.00	96.58
Inadequate	6	3	0	6	0	15
	5.3	4.1	1.2	3.0	1.4	15.0
	40.00	20.00	0.00	40.00	0.00	100.00
	3.90	2.48	0.00	6.90	0.00	3.42
Total	154	121	36	87	41	439
	154.0	121.0	36.0	87.0	41.0	439.0
	35.08	27.56	8.20	19.82	9.34	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 6.3456 Pr = 0.175


```
. tab2 csr_adherencereputation_good, row col exp chi2
```

```
-> tabulation of csr_adherence by reputation_good
```

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	reputation_good					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	153	108	47	74	42	424
	153.6	108.2	45.4	76.3	40.6	424.0
	36.08	25.47	11.08	17.45	9.91	100.00
	96.23	96.43	100.00	93.67	100.00	96.58
Inadequate	6	4	0	5	0	15
	5.4	3.8	1.6	2.7	1.4	15.0
	40.00	26.67	0.00	33.33	0.00	100.00
	3.77	3.57	0.00	6.33	0.00	3.42
Total	159	112	47	79	42	439
	159.0	112.0	47.0	79.0	42.0	439.0
	36.22	25.51	10.71	18.00	9.57	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

```
Pearson chi2(4) = 5.2483 Pr = 0.263
```

```
. tab2 csr_adherenceinterest_of_community, row col exp chi2
```

```
-> tabulation of csr_adherence by interest_of_community
```

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	interest_of_community					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	119	122	65	61	57	424
	120.7	120.7	64.7	62.8	55.1	424.0
	28.07	28.77	15.33	14.39	13.44	100.00
	95.20	97.60	97.01	93.85	100.00	96.58
Inadequate	6	3	2	4	0	15
	4.3	4.3	2.3	2.2	1.9	15.0
	40.00	20.00	13.33	26.67	0.00	100.00
	4.80	2.40	2.99	6.15	0.00	3.42
Total	125	125	67	65	57	439
	125.0	125.0	67.0	65.0	57.0	439.0
	28.47	28.47	15.26	14.81	12.98	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

```
Pearson chi2(4) = 4.6461 Pr = 0.326
```

```
. tab2 csr_adherencegivingback_tocommunity, row col exp chi2
```

```
-> tabulation of csr_adherence by givingback_tocommunity
```

```

+-----+
| Key   |
+-----+
|       |
| frequency |
+-----+

```

```

| expected frequency |
| row percentage   |
| column percentage |
+-----+

```

csr_adherence	givingback_tocommunity				Total
	Above a..	Average	Below a..	Poor	
Adequate	1	12	156	255	424
	1.0	11.6	159.4	252.1	424.0
	0.24	2.83	36.79	60.14	100.00
	100.00	100.00	94.55	97.70	96.58
Inadequate	0	0	9	6	15
	0.0	0.4	5.6	8.9	15.0
	0.00	0.00	60.00	40.00	100.00
	0.00	0.00	5.45	2.30	3.42
Total	1	12	165	261	439
	1.0	12.0	165.0	261.0	439.0
	0.23	2.73	37.59	59.45	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 3.5245 Pr = 0.318

. tab2 csr_adherencecompelled_togiveback, row col exp chi2

-> tabulation of csr_adherence by compelled_togiveback

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	compelled_togiveback				Total	
	Above a..	Average	Below a..	Good		Poor
Adequate	9	44	175	41	155	424
	8.7	45.4	172.9	40.6	156.5	424.0
	2.12	10.38	41.27	9.67	36.56	100.00
	100.00	93.62	97.77	97.62	95.68	96.58
Inadequate	0	3	4	1	7	15
	0.3	1.6	6.1	1.4	5.5	15.0
	0.00	20.00	26.67	6.67	46.67	100.00
	0.00	6.38	2.23	2.38	4.32	3.42
Total	9	47	179	42	162	439
	9.0	47.0	179.0	42.0	162.0	439.0
	2.05	10.71	40.77	9.57	36.90	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.8673 Pr = 0.580

-> tabulation of csr_adherence by sincere_commitment

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	sincere_commitment			Total	
	Above a..	Average	Below a..		Poor
Adequate	27	209	108	80	424

	27.0	211.5	105.3	80.2	424.0
	6.37	49.29	25.47	18.87	100.00
	96.43	95.43	99.08	96.39	96.58
Inadequate	1	10	1	3	15
	1.0	7.5	3.7	2.8	15.0
	6.67	66.67	6.67	20.00	100.00
	3.57	4.57	0.92	3.61	3.42
Total	28	219	109	83	439
	28.0	219.0	109.0	83.0	439.0
	6.38	49.89	24.83	18.91	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 2.9519 Pr = 0.399

-> tab2 csr_adherencesustainable_causes, row col exp chi2

-> tabulation of csr_adherence by sustainable_causes

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	sustainable_causes				Total
	Above a..	Average	Below a..	Poor	
Adequate	62	153	175	34	424
	59.9	154.5	174.8	34.8	424.0
	14.62	36.08	41.27	8.02	100.00
	100.00	95.63	96.69	94.44	96.58
Inadequate	0	7	6	2	15
	2.1	5.5	6.2	1.2	15.0
	0.00	46.67	40.00	13.33	100.00
	0.00	4.38	3.31	5.56	3.42
Total	62	160	181	36	439
	62.0	160.0	181.0	36.0	439.0
	14.12	36.45	41.23	8.20	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 3.1432 Pr = 0.370

-> tab2 csr_adherence frequently, row col exp chi2

-> tabulation of csr_adherence by frequently

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	frequently				Total	
	Above a..	Average	Below a..	Good		
Adequate	104	115	128	45	32	424
	104.3	112.0	133.3	43.5	30.9	424.0
	24.53	27.12	30.19	10.61	7.55	100.00
	96.30	99.14	92.75	100.00	100.00	96.58
Inadequate	4	1	10	0	0	15
	3.7	4.0	4.7	1.5	1.1	15.0
	26.67	6.67	66.67	0.00	0.00	100.00
	3.70	0.86	7.25	0.00	0.00	3.42
Total	108	116	138	45	32	439
	108.0	116.0	138.0	45.0	32.0	439.0

	24.60	26.42	31.44	10.25	7.29	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 11.1778 Pr = 0.025

-> tab2 csr_adherence transparent, row col exp chi2

-> tabulation of csr_adherence by transparent

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	transparent					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	80	183	110	15	36	424
	78.2	184.5	112.0	14.5	34.8	424.0
	18.87	43.16	25.94	3.54	8.49	100.00
	98.77	95.81	94.83	100.00	100.00	96.58
Inadequate	1	8	6	0	0	15
	2.8	6.5	4.0	0.5	1.2	15.0
	6.67	53.33	40.00	0.00	0.00	100.00
	1.23	4.19	5.17	0.00	0.00	3.42
Total	81	191	116	15	36	439
	81.0	191.0	116.0	15.0	36.0	439.0
	18.45	43.51	26.42	3.42	8.20	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.4011 Pr = 0.354

-> tab2 csr_adherence suspicious, row col exp chi2

-> tabulation of csr_adherence by suspicious

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	suspicious					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	106	136	70	2	110	424
	105.3	134.3	68.6	1.9	114.0	424.0
	25.00	32.08	16.51	0.47	25.94	100.00
	97.25	97.84	98.59	100.00	93.22	96.58
Inadequate	3	3	1	0	8	15
	3.7	4.7	2.4	0.1	4.0	15.0
	20.00	20.00	6.67	0.00	53.33	100.00
	2.75	2.16	1.41	0.00	6.78	3.42
Total	109	139	71	2	118	439
	109.0	139.0	71.0	2.0	118.0	439.0
	24.83	31.66	16.17	0.46	26.88	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.7951 Pr = 0.215

-> tab2 csr_adherencemean_well, row col exp chi2

-> tabulation of csr_adherence by mean_well

```

+-----+
| Key   |
+-----+

```

```

+-----+
| frequency
| expected frequency
| row percentage
| column percentage
+-----+

```

csr_adherence	mean_well				Total	
	Above a..	Average	Below a..	Good		
Adequate	49	107	133	30	105	424
	49.3	106.2	135.2	29.0	104.3	424.0
	11.56	25.24	31.37	7.08	24.76	100.00
	96.08	97.27	95.00	100.00	97.22	96.58
Inadequate	2	3	7	0	3	15
	1.7	3.8	4.8	1.0	3.7	15.0
	13.33	20.00	46.67	0.00	20.00	100.00
	3.92	2.73	5.00	0.00	2.78	3.42
Total	51	110	140	30	108	439
	51.0	110.0	140.0	30.0	108.0	439.0
	11.62	25.06	31.89	6.83	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.4561 Pr = 0.653

-> tab2 csr_adherencedonate_worthycauses, row col exp chi2

-> tabulation of csr_adherence by donate_worthycauses

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+-----+
| Key
+-----+
| frequency
| expected frequency
| row percentage
| column percentage
+-----+

```

csr_adherence	donate_worthycauses				Total	
	Above a..	Average	Below a..	Good		
Adequate	85	56	131	61	91	424
	84.0	56.0	128.5	64.7	90.8	424.0
	20.05	13.21	30.90	14.39	21.46	100.00
	97.70	96.55	98.50	91.04	96.81	96.58
Inadequate	2	2	2	6	3	15
	3.0	2.0	4.5	2.3	3.2	15.0
	13.33	13.33	13.33	40.00	20.00	100.00
	2.30	3.45	1.50	8.96	3.19	3.42
Total	87	58	133	67	94	439
	87.0	58.0	133.0	67.0	94.0	439.0
	19.82	13.21	30.30	15.26	21.41	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 8.0466 Pr = 0.090

-> tab2 csr_adherencetrust_basedon_gooddeed, row col exp chi2

-> tabulation of csr_adherence by trust_basedon_gooddeed

```

+-----+
| Key
+-----+
| frequency
| expected frequency
| row percentage
| column percentage
+-----+

```

csr_adherence	trust_basedon_gooddeed				Total	
	Above a..	Average	Below a..	Good		
Adequate	1	83	200	30	110	424

	1.0	86.0	199.0	29.0	109.1	424.0
	0.24	19.58	47.17	7.08	25.94	100.00
	100.00	93.26	97.09	100.00	97.35	96.58
Inadequate	0	6	6	0	3	15
	0.0	3.0	7.0	1.0	3.9	15.0
	0.00	40.00	40.00	0.00	20.00	100.00
	0.00	6.74	2.91	0.00	2.65	3.42
Total	1	89	206	30	113	439
	1.0	89.0	206.0	30.0	113.0	439.0
	0.23	20.27	46.92	6.83	25.74	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.4353 Pr = 0.350

. tab2 csr_adherencekeeping_promises, row col exp chi2

-> tabulation of csr_adherence by keeping_promises

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	keeping_promises				Total	
	Above a..	Average	Below a..	Poor		
Adequate	51	186	57	83	47	424
	49.3	184.5	56.0	86.9	47.3	424.0
	12.03	43.87	13.44	19.58	11.08	100.00
	100.00	97.38	98.28	92.22	95.92	96.58
Inadequate	0	5	1	7	2	15
	1.7	6.5	2.0	3.1	1.7	15.0
	0.00	33.33	6.67	46.67	13.33	100.00
	0.00	2.62	1.72	7.78	4.08	3.42
Total	51	191	58	90	49	439
	51.0	191.0	58.0	90.0	49.0	439.0
	11.62	43.51	13.21	20.50	11.16	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9294 Pr = 0.094

-> tab2 csr_adherence upliftment, row col exp chi2

-> tabulation of csr_adherence by upliftment

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	upliftment			Total
	Average	Below a..	Poor	
Adequate	133	164	127	424
	136.2	161.3	126.5	424.0
	31.37	38.68	29.95	100.00
	94.33	98.20	96.95	96.58
Inadequate	8	3	4	15
	4.8	5.7	4.5	15.0
	53.33	20.00	26.67	100.00
	5.67	1.80	3.05	3.42
Total	141	167	131	439

141.0	167.0	131.0	439.0
32.12	38.04	29.84	100.00
100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.5575 Pr = 0.169

-> tab2 csr_adherencedoingwell, row col exp chi2

-> tabulation of csr_adherence by doingwell

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+-----+
| Key   |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	doingwell					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	46	102	154	53	69	424
	44.4	104.3	154.5	52.2	68.6	424.0
	10.85	24.06	36.32	12.50	16.27	100.00
	100.00	94.44	96.25	98.15	97.18	96.58
Inadequate	0	6	6	1	2	15
	1.6	3.7	5.5	1.8	2.4	15.0
	0.00	40.00	40.00	6.67	13.33	100.00
	0.00	5.56	3.75	1.85	2.82	3.42
Total	46	108	160	54	71	439
	46.0	108.0	160.0	54.0	71.0	439.0
	10.48	24.60	36.45	12.30	16.17	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 3.6563 Pr = 0.455

-> tab2 csr_adherencegivingback_better, row col exp chi2

-> tabulation of csr_adherence by givingback_better

```

+-----+
| Key   |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	givingback_better					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	44	85	162	26	107	424
	46.4	86.0	162.3	25.1	104.3	424.0
	10.38	20.05	38.21	6.13	25.24	100.00
	91.67	95.51	96.43	100.00	99.07	96.58
Inadequate	4	4	6	0	1	15
	1.6	3.0	5.7	0.9	3.7	15.0
	26.67	26.67	40.00	0.00	6.67	100.00
	8.33	4.49	3.57	0.00	0.93	3.42
Total	48	89	168	26	108	439
	48.0	89.0	168.0	26.0	108.0	439.0
	10.93	20.27	38.27	5.92	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 6.7914 Pr = 0.147

-> tab2 csr_adherencefeel_positive, row col exp chi2

-> tabulation of csr_adherence by feel_positive

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+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	feel_positive					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	67	62	171	7	117	424
	68.6	60.8	172.9	6.8	114.9	424.0
	15.80	14.62	40.33	1.65	27.59	100.00
	94.37	98.41	95.53	100.00	98.32	96.58
Inadequate	4	1	8	0	2	15
	2.4	2.2	6.1	0.2	4.1	15.0
	26.67	6.67	53.33	0.00	13.33	100.00
	5.63	1.59	4.47	0.00	1.68	3.42
Total	71	63	179	7	119	439
	71.0	63.0	179.0	7.0	119.0	439.0
	16.17	14.35	40.77	1.59	27.11	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 3.6318 Pr = 0.458

-> tab2 csr_adherencebetter_products, row col exp chi2

-> tabulation of csr_adherence by better_products

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	better_products					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	74	110	139	9	92	424
	72.4	119.8	134.3	8.7	88.9	424.0
	17.45	25.94	32.78	2.12	21.70	100.00
	98.67	88.71	100.00	100.00	100.00	96.58
Inadequate	1	14	0	0	0	15
	2.6	4.2	4.7	0.3	3.1	15.0
	6.67	93.33	0.00	0.00	0.00	100.00
	1.33	11.29	0.00	0.00	0.00	3.42
Total	75	124	139	9	92	439
	75.0	124.0	139.0	9.0	92.0	439.0
	17.08	28.25	31.66	2.05	20.96	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 32.7701 Pr = 0.000

-> tab2 csr_adherencevalue_selfonly, row col exp chi2

-> tabulation of csr_adherence by value_selfonly

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	value_selfonly					Total
	Above a..	Average	Below a..	Good	Poor	

	frequency	expected frequency	row percentage	column percentage		
Adequate	43	77	159	28	117	424
	44.4	74.4	161.3	28.0	115.9	424.0
	10.14	18.16	37.50	6.60	27.59	100.00
	93.48	100.00	95.21	96.55	97.50	96.58
Inadequate	3	0	8	1	3	15
	1.6	2.6	5.7	1.0	4.1	15.0
	20.00	0.00	53.33	6.67	20.00	100.00
	6.52	0.00	4.79	3.45	2.50	3.42
Total	46	77	167	29	120	439
	46.0	77.0	167.0	29.0	120.0	439.0
	10.48	17.54	38.04	6.61	27.33	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.3283 Pr = 0.255

-> tab2 csr_adherenceprofits_selfonly, row col exp chi2

-> tabulation of csr_adherence by profits_selfonly

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+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	profits_selfonly				Total	
	Above a..	Average	Below a..	Good		
Adequate	95	40	142	3	144	424
	92.7	38.6	143.9	2.9	145.8	424.0
	22.41	9.43	33.49	0.71	33.96	100.00
	98.96	100.00	95.30	100.00	95.36	96.58
Inadequate	1	0	7	0	7	15
	3.3	1.4	5.1	0.1	5.2	15.0
	6.67	0.00	46.67	0.00	46.67	100.00
	1.04	0.00	4.70	0.00	4.64	3.42
Total	96	40	149	3	151	439
	96.0	40.0	149.0	3.0	151.0	439.0
	21.87	9.11	33.94	0.68	34.40	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.5832 Pr = 0.333

-> tab2 csr_adherencedoing_good_deeds, row col exp chi2

-> tabulation of csr_adherence by doing_good_deeds

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	doing_good_deeds			Total	
	Above a..	Average	Below a..		
Adequate	25	29	212	158	424
	24.1	29.0	214.4	156.5	424.0
	5.90	6.84	50.00	37.26	100.00
	100.00	96.67	95.50	97.53	96.58
Inadequate	0	1	10	4	15
	0.9	1.0	7.6	5.5	15.0
	0.00	6.67	66.67	26.67	100.00
	0.00	3.33	4.50	2.47	3.42
Total	25	30	222	162	439

	25.0	30.0	222.0	162.0	439.0
	5.69	6.83	50.57	36.90	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 2.1218 Pr = 0.548

-> tab2 csr_adherencecontinued_support, row col exp chi2

-> tabulation of csr_adherence by continued_support

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	continued_support					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	1	47	209	2	165	424
	1.0	48.3	210.6	1.9	162.3	424.0
	0.24	11.08	49.29	0.47	38.92	100.00
	100.00	94.00	95.87	100.00	98.21	96.58
Inadequate	0	3	9	0	3	15
	0.0	1.7	7.4	0.1	5.7	15.0
	0.00	20.00	60.00	0.00	20.00	100.00
	0.00	6.00	4.13	0.00	1.79	3.42
Total	1	50	218	2	168	439
	1.0	50.0	218.0	2.0	168.0	439.0
	0.23	11.39	49.66	0.46	38.27	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.8060 Pr = 0.591

-> tab2 csr_adherenceprefer_buyfromjuniorcompany, row col exp chi2

-> tabulation of csr_adherence by prefer_buyfromjuniorcompany

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+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	prefer_buyfromjuniorcompany					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	15	49	182	25	153	424
	16.4	49.3	184.5	24.1	149.7	424.0
	3.54	11.56	42.92	5.90	36.08	100.00
	88.24	96.08	95.29	100.00	98.71	96.58
Inadequate	2	2	9	0	2	15
	0.6	1.7	6.5	0.9	5.3	15.0
	13.33	13.33	60.00	0.00	13.33	100.00
	11.76	3.92	4.71	0.00	1.29	3.42
Total	17	51	191	25	155	439
	17.0	51.0	191.0	25.0	155.0	439.0
	3.87	11.62	43.51	5.69	35.31	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.6085 Pr = 0.107

-> tab2 csr_adherencehistoryof_helpingcommunities, row col exp chi2

-> tabulation of csr_adherence by historyof_helpingcommunities

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```

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	historyof_helpingcommunities					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	97	19	218	50	40	424
	101.4	20.3	211.5	52.2	38.6	424.0
	22.88	4.48	51.42	11.79	9.43	100.00
	92.38	90.48	99.54	92.59	100.00	96.58
Inadequate	8	2	1	4	0	15
	3.6	0.7	7.5	1.8	1.4	15.0
	53.33	13.33	6.67	26.67	0.00	100.00
	7.62	9.52	0.46	7.41	0.00	3.42
Total	105	21	219	54	40	439
	105.0	21.0	219.0	54.0	40.0	439.0
	23.92	4.78	49.89	12.30	9.11	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 17.8277 Pr = 0.001

-> tab2 csr_adherencegood_deedsaboveaverage, row col exp chi2

-> tabulation of csr_adherence by good_deedsaboveaverage

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	good_deedsaboveaverage				Total
	Above a..	Average	Below a..	Poor	
Adequate	15	118	210	81	424
	16.4	118.8	204.8	84.0	424.0
	3.54	27.83	49.53	19.10	100.00
	88.24	95.93	99.06	93.10	96.58
Inadequate	2	5	2	6	15
	0.6	4.2	7.2	3.0	15.0
	13.33	33.33	13.33	40.00	100.00
	11.76	4.07	0.94	6.90	3.42
Total	17	123	212	87	439
	17.0	123.0	212.0	87.0	439.0
	3.87	28.02	48.29	19.82	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 10.8687 Pr = 0.012

-> tab2 csr_adherenceirresponsible_nobuy, row col exp chi2

-> tabulation of csr_adherence by irresponsible_nobuy

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	irresponsible_nobuy			Total
Average	Below a..	Poor		

Adequate	86	207	131	424
	85.0	212.5	126.5	424.0
	20.28	48.82	30.90	100.00
	97.73	94.09	100.00	96.58
Inadequate	2	13	0	15
	3.0	7.5	4.5	15.0
	13.33	86.67	0.00	100.00
	2.27	5.91	0.00	3.42
Total	88	220	131	439
	88.0	220.0	131.0	439.0
	20.05	50.11	29.84	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 9.1242 Pr = 0.010

-> tab2 csr_adherencebuy_commsupportonly, row col exp chi2

-> tabulation of csr_adherence by buy_commsupportonly

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	buy_commsupportonly			Total
	Average	Below a..	Poor	
Adequate	89	200	135	424
	93.7	194.1	136.2	424.0
	20.99	47.17	31.84	100.00
	91.75	99.50	95.74	96.58
Inadequate	8	1	6	15
	3.3	6.9	4.8	15.0
	53.33	6.67	40.00	100.00
	8.25	0.50	4.26	3.42
Total	97	201	141	439
	97.0	201.0	141.0	439.0
	22.10	45.79	32.12	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 12.3499 Pr = 0.002

-> tab2 csr_adherencecontinue_helping_people, row col exp chi2

-> tabulation of csr_adherence by continue_helping_people

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	continue_helping_people			Total
	Average	Below a..	Poor	
Adequate	203	104	117	424
	201.9	104.3	117.8	424.0
	47.88	24.53	27.59	100.00
	97.13	96.30	95.90	96.58
Inadequate	6	4	5	15
	7.1	3.7	4.2	15.0
	40.00	26.67	33.33	100.00
	2.87	3.70	4.10	3.42

Total	209	108	122	439
	209.0	108.0	122.0	439.0
	47.61	24.60	27.79	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 0.3875 Pr = 0.824

-> tab2 csr_adherenceboost_image, row col exp chi2

-> tabulation of csr_adherence by boost_image

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+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

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csr_adherence	boost_image				Total	
	Average	Below a..	Good	Poor		
Adequate	95	114	103	6	106	424
	93.7	118.8	101.4	5.8	104.3	424.0
	22.41	26.89	24.29	1.42	25.00	100.00
	97.94	92.68	98.10	100.00	98.15	96.58
Inadequate	2	9	2	0	2	15
	3.3	4.2	3.6	0.2	3.7	15.0
	13.33	60.00	13.33	0.00	13.33	100.00
	2.06	7.32	1.90	0.00	1.85	3.42
Total	97	123	105	6	108	439
	97.0	123.0	105.0	6.0	108.0	439.0
	22.10	28.02	23.92	1.37	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9506 Pr = 0.093

-> tab2 csr_adherencekeeping_promises, row col exp chi2

-> tabulation of csr_adherence by keeping_promises

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	keeping_promises				Total	
	Average	Below a..	Good	Poor		
Adequate	51	186	57	83	47	424
	49.3	184.5	56.0	86.9	47.3	424.0
	12.03	43.87	13.44	19.58	11.08	100.00
	100.00	97.38	98.28	92.22	95.92	96.58
Inadequate	0	5	1	7	2	15
	1.7	6.5	2.0	3.1	1.7	15.0
	0.00	33.33	6.67	46.67	13.33	100.00
	0.00	2.62	1.72	7.78	4.08	3.42
Total	51	191	58	90	49	439
	51.0	191.0	58.0	90.0	49.0	439.0
	11.62	43.51	13.21	20.50	11.16	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9294 Pr = 0.094

-> tab2 csr_adherencesocial_programmes, row col exp chi2

-> tabulation of csr_adherence by social_programmes

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

csr_adheren |          social_programmes
ce | Above a..  Average  Below a..   Good    Poor  | Total
+-----+
Adequate |          91    174    23    78    57 | 423
          |          90.8  172.9  22.2   82.1  55.0 | 423.0
          |          21.51  41.13   5.44  18.44  13.48 | 100.00
          |          96.81  97.21  100.00  91.76  100.00 | 96.58
+-----+
Inadequate |          3     5     0     7     0 | 15
           |          3.2    6.1    0.8    2.9    2.0 | 15.0
           |          20.00  33.33   0.00  46.67   0.00 | 100.00
           |          3.19    2.79   0.00    8.24   0.00 | 3.42
+-----+
Total |          94    179    23    85    57 | 438
      |          94.0  179.0  23.0   85.0  57.0 | 438.0
      |          21.46  40.87   5.25  19.41  13.01 | 100.00
      |          100.00  100.00  100.00  100.00  100.00 | 100.00

```

Pearson chi2(4) = 9.0157 Pr = 0.061

-> tab2 csr_adherenceconsult_community, row col exp chi2

-> tabulation of csr_adherence by consult_community

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

csr_adheren |          consult_community
ce | Above a..  Average  Below a..   Good    Poor  | Total
+-----+
Adequate |          148    118    36    81    41 | 424
          |          148.7  116.9  34.8   84.0  39.6 | 424.0
          |          34.91  27.83   8.49  19.10   9.67 | 100.00
          |          96.10  97.52  100.00  93.10  100.00 | 96.58
+-----+
Inadequate |          6     3     0     6     0 | 15
           |          5.3    4.1    1.2    3.0    1.4 | 15.0
           |          40.00  20.00   0.00  40.00   0.00 | 100.00
           |          3.90    2.48   0.00    6.90   0.00 | 3.42
+-----+
Total |          154    121    36    87    41 | 439
      |          154.0  121.0  36.0   87.0  41.0 | 439.0
      |          35.08  27.56   8.20  19.82   9.34 | 100.00
      |          100.00  100.00  100.00  100.00  100.00 | 100.00

```

Pearson chi2(4) = 6.3456 Pr = 0.175

-> tab2 csr_adherencereputation_good, row col exp chi2

-> tabulation of csr_adherence by reputation_good

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

```

csr_adheren |          reputation_good

```

ce	Above a..	Average	Below a..	Good	Poor	Total
Adequate		153	108	47	74	424
		153.6	108.2	45.4	76.3	424.0
		36.08	25.47	11.08	17.45	9.91
		96.23	96.43	100.00	93.67	100.00
Inadequate		6	4	0	5	15
		5.4	3.8	1.6	2.7	15.0
		40.00	26.67	0.00	33.33	0.00
		3.77	3.57	0.00	6.33	0.00
Total		159	112	47	79	424
		159.0	112.0	47.0	79.0	424.0
		36.22	25.51	10.71	18.00	9.57
		100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.2483 Pr = 0.263

-> tab2 csr_adherenceinterest_of_community, row col exp chi2

-> tabulation of csr_adherence by interest_of_community

Key
frequency
expected frequency
row percentage
column percentage

csr_adheren	interest_of_community					Total
ce	Above a..	Average	Below a..	Good	Poor	Total
Adequate		119	122	65	61	424
		120.7	120.7	64.7	62.8	424.0
		28.07	28.77	15.33	14.39	13.44
		95.20	97.60	97.01	93.85	100.00
Inadequate		6	3	2	4	15
		4.3	4.3	2.3	2.2	15.0
		40.00	20.00	13.33	26.67	0.00
		4.80	2.40	2.99	6.15	0.00
Total		125	125	67	65	424
		125.0	125.0	67.0	65.0	424.0
		28.47	28.47	15.26	14.81	12.98
		100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.6461 Pr = 0.326

-> tab2 csr_adherencegivingback_tocommunity, row col exp chi2

-> tabulation of csr_adherence by givingback_tocommunity

Key
frequency
expected frequency
row percentage
column percentage

csr_adheren	givingback_tocommunity				Total	
ce	Above a..	Average	Below a..	Poor	Total	
Adequate		1	12	156	255	424
		1.0	11.6	159.4	252.1	424.0
		0.24	2.83	36.79	60.14	100.00
		100.00	100.00	94.55	97.70	96.58
Inadequate		0	0	9	6	15
		0.0	0.4	5.6	8.9	15.0
		0.00	0.00	60.00	40.00	100.00
		0.00	0.00	5.45	2.30	3.42

Total	1	12	165	261	439
	1.0	12.0	165.0	261.0	439.0
	0.23	2.73	37.59	59.45	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 3.5245 Pr = 0.318

-> tab2 csr_adherencecompelled_togiveback, row col exp chi2

-> tabulation of csr_adherence by compelled_togiveback

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	compelled_togiveback				Total
	Average	Below a..	Good	Poor	
Adequate	9	44	175	41	155
	8.7	45.4	172.9	40.6	156.5
	2.12	10.38	41.27	9.67	36.56
	100.00	93.62	97.77	97.62	95.68
Inadequate	0	3	4	1	7
	0.3	1.6	6.1	1.4	5.5
	0.00	20.00	26.67	6.67	46.67
	0.00	6.38	2.23	2.38	4.32
Total	9	47	179	42	162
	9.0	47.0	179.0	42.0	162.0
	2.05	10.71	40.77	9.57	36.90
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.8673 Pr = 0.580

-> tab2 csr_adherencesincere_commitment, row col exp chi2

-> tabulation of csr_adherence by sincere_commitment

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	sincere_commitment			Total
	Average	Below a..	Poor	
Adequate	27	209	108	80
	27.0	211.5	105.3	80.2
	6.37	49.29	25.47	18.87
	96.43	95.43	99.08	96.39
Inadequate	1	10	1	3
	1.0	7.5	3.7	2.8
	6.67	66.67	6.67	20.00
	3.57	4.57	0.92	3.61
Total	28	219	109	83
	28.0	219.0	109.0	83.0
	6.38	49.89	24.83	18.91
	100.00	100.00	100.00	100.00

Pearson chi2(3) = 2.9519 Pr = 0.399

-> tab2 csr_adherencesustainable_causes, row col exp chi2

-> tabulation of csr_adherence by sustainable_causes

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	sustainable_causes				Total
	Above a..	Average	Below a..	Poor	
Adequate	62	153	175	34	424
	59.9	154.5	174.8	34.8	424.0
	14.62	36.08	41.27	8.02	100.00
	100.00	95.63	96.69	94.44	96.58
Inadequate	0	7	6	2	15
	2.1	5.5	6.2	1.2	15.0
	0.00	46.67	40.00	13.33	100.00
	0.00	4.38	3.31	5.56	3.42
Total	62	160	181	36	439
	62.0	160.0	181.0	36.0	439.0
	14.12	36.45	41.23	8.20	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 3.1432 Pr = 0.370

-> tab2 csr_adherence frequently, row col exp chi2

-> tabulation of csr_adherence by frequently

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	frequently				Total
	Above a..	Average	Below a..	Good	
Adequate	104	115	128	45	424
	104.3	112.0	133.3	43.5	424.0
	24.53	27.12	30.19	10.61	100.00
	96.30	99.14	92.75	100.00	96.58
Inadequate	4	1	10	0	15
	3.7	4.0	4.7	1.5	15.0
	26.67	6.67	66.67	0.00	100.00
	3.70	0.86	7.25	0.00	3.42
Total	108	116	138	45	439
	108.0	116.0	138.0	45.0	439.0
	24.60	26.42	31.44	10.25	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 11.1778 Pr = 0.025

-> tab2 csr_adherence transparent, row col exp chi2

-> tabulation of csr_adherence by transparent

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
+-----+

```

| column percentage |
+-----+

csr_adherence	transparent				Total
	Above a..	Average	Below a..	Good	
Adequate	80	183	110	15	36
	78.2	184.5	112.0	14.5	34.8
	18.87	43.16	25.94	3.54	8.49
	98.77	95.81	94.83	100.00	100.00
Inadequate	1	8	6	0	0
	2.8	6.5	4.0	0.5	1.2
	6.67	53.33	40.00	0.00	0.00
	1.23	4.19	5.17	0.00	0.00
Total	81	191	116	15	36
	81.0	191.0	116.0	15.0	36.0
	18.45	43.51	26.42	3.42	8.20
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.4011 Pr = 0.354

-> tab2 csr_adherence suspicious, row col exp chi2

-> tabulation of csr_adherence by suspicious

```
+-----+
| Key
+-----+
| frequency
| expected frequency
| row percentage
| column percentage
+-----+
```

csr_adherence	suspicious				Total
	Above a..	Average	Below a..	Good	
Adequate	106	136	70	2	110
	105.3	134.3	68.6	1.9	114.0
	25.00	32.08	16.51	0.47	25.94
	97.25	97.84	98.59	100.00	93.22
Inadequate	3	3	1	0	8
	3.7	4.7	2.4	0.1	4.0
	20.00	20.00	6.67	0.00	53.33
	2.75	2.16	1.41	0.00	6.78
Total	109	139	71	2	118
	109.0	139.0	71.0	2.0	118.0
	24.83	31.66	16.17	0.46	26.88
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.7951 Pr = 0.215

-> tab2 csr_adherencemean_well, row col exp chi2

-> tabulation of csr_adherence by mean_well

```
+-----+
| Key
+-----+
| frequency
| expected frequency
| row percentage
| column percentage
+-----+
```

csr_adherence	mean_well				Total
	Above a..	Average	Below a..	Good	
Adequate	49	107	133	30	105
	49.3	106.2	135.2	29.0	104.3
	11.56	25.24	31.37	7.08	24.76
	96.08	97.27	95.00	100.00	97.22

Inadequate	2	3	7	0	3	15
	1.7	3.8	4.8	1.0	3.7	15.0
	13.33	20.00	46.67	0.00	20.00	100.00
	3.92	2.73	5.00	0.00	2.78	3.42

Total	51	110	140	30	108	439
	51.0	110.0	140.0	30.0	108.0	439.0
	11.62	25.06	31.89	6.83	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.4561 Pr = 0.653

-> tab2 csr_adherencedonate_worthycauses, row col exp chi2

-> tabulation of csr_adherence by donate_worthycauses

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	donate_worthycauses					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	85	56	131	61	91	424
	84.0	56.0	128.5	64.7	90.8	424.0
	20.05	13.21	30.90	14.39	21.46	100.00
	97.70	96.55	98.50	91.04	96.81	96.58

Inadequate	2	2	2	6	3	15
	3.0	2.0	4.5	2.3	3.2	15.0
	13.33	13.33	13.33	40.00	20.00	100.00
	2.30	3.45	1.50	8.96	3.19	3.42

Total	87	58	133	67	94	439
	87.0	58.0	133.0	67.0	94.0	439.0
	19.82	13.21	30.30	15.26	21.41	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 8.0466 Pr = 0.090

-> tab2 csr_adherencetrust_basedon_gooddeed, row col exp chi2

-> tabulation of csr_adherence by trust_basedon_gooddeed

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	trust_basedon_gooddeed					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	1	83	200	30	110	424
	1.0	86.0	199.0	29.0	109.1	424.0
	0.24	19.58	47.17	7.08	25.94	100.00
	100.00	93.26	97.09	100.00	97.35	96.58

Inadequate	0	6	6	0	3	15
	0.0	3.0	7.0	1.0	3.9	15.0
	0.00	40.00	40.00	0.00	20.00	100.00
	0.00	6.74	2.91	0.00	2.65	3.42

Total	1	89	206	30	113	439
	1.0	89.0	206.0	30.0	113.0	439.0
	0.23	20.27	46.92	6.83	25.74	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.4353 Pr = 0.350

. tab2 csr_adherencekeeping_promises, row col exp chi2

-> tabulation of csr_adherence by keeping_promises

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	keeping_promises					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	51	186	57	83	47	424
	49.3	184.5	56.0	86.9	47.3	424.0
	12.03	43.87	13.44	19.58	11.08	100.00
	100.00	97.38	98.28	92.22	95.92	96.58
Inadequate	0	5	1	7	2	15
	1.7	6.5	2.0	3.1	1.7	15.0
	0.00	33.33	6.67	46.67	13.33	100.00
	0.00	2.62	1.72	7.78	4.08	3.42
Total	51	191	58	90	49	439
	51.0	191.0	58.0	90.0	49.0	439.0
	11.62	43.51	13.21	20.50	11.16	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.9294 Pr = 0.094

-> tab2 csr_adherence upliftment, row col exp chi2

-> tabulation of csr_adherence by upliftment

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	upliftment			Total
	Average	Below a..	Poor	
Adequate	133	164	127	424
	136.2	161.3	126.5	424.0
	31.37	38.68	29.95	100.00
	94.33	98.20	96.95	96.58
Inadequate	8	3	4	15
	4.8	5.7	4.5	15.0
	53.33	20.00	26.67	100.00
	5.67	1.80	3.05	3.42
Total	141	167	131	439
	141.0	167.0	131.0	439.0
	32.12	38.04	29.84	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.5575 Pr = 0.169

-> tab2 csr_adherencedoingwell, row col exp chi2

-> tabulation of csr_adherence by doingwell

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
+-----+

```

```

| row percentage |
| column percentage |
+-----+

```

csr_adherence	doingwell					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	46	102	154	53	69	424
	44.4	104.3	154.5	52.2	68.6	424.0
	10.85	24.06	36.32	12.50	16.27	100.00
	100.00	94.44	96.25	98.15	97.18	96.58
Inadequate	0	6	6	1	2	15
	1.6	3.7	5.5	1.8	2.4	15.0
	0.00	40.00	40.00	6.67	13.33	100.00
	0.00	5.56	3.75	1.85	2.82	3.42
Total	46	108	160	54	71	439
	46.0	108.0	160.0	54.0	71.0	439.0
	10.48	24.60	36.45	12.30	16.17	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 3.6563 Pr = 0.455

-> tab2 csr_adherencegivingback_better, row col exp chi2

-> tabulation of csr_adherence by givingback_better

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	givingback_better					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	44	85	162	26	107	424
	46.4	86.0	162.3	25.1	104.3	424.0
	10.38	20.05	38.21	6.13	25.24	100.00
	91.67	95.51	96.43	100.00	99.07	96.58
Inadequate	4	4	6	0	1	15
	1.6	3.0	5.7	0.9	3.7	15.0
	26.67	26.67	40.00	0.00	6.67	100.00
	8.33	4.49	3.57	0.00	0.93	3.42
Total	48	89	168	26	108	439
	48.0	89.0	168.0	26.0	108.0	439.0
	10.93	20.27	38.27	5.92	24.60	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 6.7914 Pr = 0.147

-> tab2 csr_adherencefeel_positive, row col exp chi2

-> tabulation of csr_adherence by feel_positive

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	feel_positive					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	67	62	171	7	117	424
	68.6	60.8	172.9	6.8	114.9	424.0
	15.80	14.62	40.33	1.65	27.59	100.00
	94.37	98.41	95.53	100.00	98.32	96.58

Inadequate	4	1	8	0	2	15
	2.4	2.2	6.1	0.2	4.1	15.0
	26.67	6.67	53.33	0.00	13.33	100.00
	5.63	1.59	4.47	0.00	1.68	3.42
Total	71	63	179	7	119	439
	71.0	63.0	179.0	7.0	119.0	439.0
	16.17	14.35	40.77	1.59	27.11	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 3.6318 Pr = 0.458

-> tab2 csr_adherencebetter_products, row col exp chi2

-> tabulation of csr_adherence by better_products

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	better_products					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	74	110	139	9	92	424
	72.4	119.8	134.3	8.7	88.9	424.0
	17.45	25.94	32.78	2.12	21.70	100.00
	98.67	88.71	100.00	100.00	100.00	96.58
Inadequate	1	14	0	0	0	15
	2.6	4.2	4.7	0.3	3.1	15.0
	6.67	93.33	0.00	0.00	0.00	100.00
	1.33	11.29	0.00	0.00	0.00	3.42
Total	75	124	139	9	92	439
	75.0	124.0	139.0	9.0	92.0	439.0
	17.08	28.25	31.66	2.05	20.96	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 32.7701 Pr = 0.000

-> tab2 csr_adherencevalue_selfonly, row col exp chi2

-> tabulation of csr_adherence by value_selfonly

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	value_selfonly					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	43	77	159	28	117	424
	44.4	74.4	161.3	28.0	115.9	424.0
	10.14	18.16	37.50	6.60	27.59	100.00
	93.48	100.00	95.21	96.55	97.50	96.58
Inadequate	3	0	8	1	3	15
	1.6	2.6	5.7	1.0	4.1	15.0
	20.00	0.00	53.33	6.67	20.00	100.00
	6.52	0.00	4.79	3.45	2.50	3.42
Total	46	77	167	29	120	439
	46.0	77.0	167.0	29.0	120.0	439.0
	10.48	17.54	38.04	6.61	27.33	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 5.3283 Pr = 0.255

-> tab2 csr_adherenceprofits_selfonly, row col exp chi2

-> tabulation of csr_adherence by profits_selfonly

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+-----+
| Key   |
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|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	profits_selfonly				Total	
	Above a..	Average	Below a..	Good		
Adequate	95	40	142	3	144	424
	92.7	38.6	143.9	2.9	145.8	424.0
	22.41	9.43	33.49	0.71	33.96	100.00
	98.96	100.00	95.30	100.00	95.36	96.58
Inadequate	1	0	7	0	7	15
	3.3	1.4	5.1	0.1	5.2	15.0
	6.67	0.00	46.67	0.00	46.67	100.00
	1.04	0.00	4.70	0.00	4.64	3.42
Total	96	40	149	3	151	439
	96.0	40.0	149.0	3.0	151.0	439.0
	21.87	9.11	33.94	0.68	34.40	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 4.5832 Pr = 0.333

-> tab2 csr_adherencedoing_good_deeds, row col exp chi2

-> tabulation of csr_adherence by doing_good_deeds

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+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	doing_good_deeds			Total	
	Above a..	Average	Below a..		
Adequate	25	29	212	158	424
	24.1	29.0	214.4	156.5	424.0
	5.90	6.84	50.00	37.26	100.00
	100.00	96.67	95.50	97.53	96.58
Inadequate	0	1	10	4	15
	0.9	1.0	7.6	5.5	15.0
	0.00	6.67	66.67	26.67	100.00
	0.00	3.33	4.50	2.47	3.42
Total	25	30	222	162	439
	25.0	30.0	222.0	162.0	439.0
	5.69	6.83	50.57	36.90	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 2.1218 Pr = 0.548

-> tab2 csr_adherencecontinued_support, row col exp chi2

-> tabulation of csr_adherence by continued_support

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
+-----+

```

```

| row percentage |
| column percentage |
+-----+

```

csr_adherence	continued_support					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	1	47	209	2	165	424
	1.0	48.3	210.6	1.9	162.3	424.0
	0.24	11.08	49.29	0.47	38.92	100.00
	100.00	94.00	95.87	100.00	98.21	96.58
Inadequate	0	3	9	0	3	15
	0.0	1.7	7.4	0.1	5.7	15.0
	0.00	20.00	60.00	0.00	20.00	100.00
	0.00	6.00	4.13	0.00	1.79	3.42
Total	1	50	218	2	168	439
	1.0	50.0	218.0	2.0	168.0	439.0
	0.23	11.39	49.66	0.46	38.27	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 2.8060 Pr = 0.591

-> tab2 csr_adherenceprefer_buyfromjuniorcompany, row col exp chi2

-> tabulation of csr_adherence by prefer_buyfromjuniorcompany

```

+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	prefer_buyfromjuniorcompany					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	15	49	182	25	153	424
	16.4	49.3	184.5	24.1	149.7	424.0
	3.54	11.56	42.92	5.90	36.08	100.00
	88.24	96.08	95.29	100.00	98.71	96.58
Inadequate	2	2	9	0	2	15
	0.6	1.7	6.5	0.9	5.3	15.0
	13.33	13.33	60.00	0.00	13.33	100.00
	11.76	3.92	4.71	0.00	1.29	3.42
Total	17	51	191	25	155	439
	17.0	51.0	191.0	25.0	155.0	439.0
	3.87	11.62	43.51	5.69	35.31	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 7.6085 Pr = 0.107

-> tab2 csr_adherencehistoryof_helpingcommunities, row col exp chi2

-> tabulation of csr_adherence by historyof_helpingcommunities

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+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	historyof_helpingcommunities					Total
	Above a..	Average	Below a..	Good	Poor	
Adequate	97	19	218	50	40	424
	101.4	20.3	211.5	52.2	38.6	424.0
	22.88	4.48	51.42	11.79	9.43	100.00
	92.38	90.48	99.54	92.59	100.00	96.58

Inadequate	8	2	1	4	0	15
	3.6	0.7	7.5	1.8	1.4	15.0
	53.33	13.33	6.67	26.67	0.00	100.00
	7.62	9.52	0.46	7.41	0.00	3.42
Total	105	21	219	54	40	439
	105.0	21.0	219.0	54.0	40.0	439.0
	23.92	4.78	49.89	12.30	9.11	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(4) = 17.8277 Pr = 0.001

. tab2 csr_adherencegood_deeds, row col exp chi2

-> tabulation of csr_adherence by good_deeds

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	good_deeds				Total
	Above a..	Average	Below a..	Poor	
Adequate	15	118	210	81	424
	16.4	118.8	204.8	84.0	424.0
	3.54	27.83	49.53	19.10	100.00
	88.24	95.93	99.06	93.10	96.58
Inadequate	2	5	2	6	15
	0.6	4.2	7.2	3.0	15.0
	13.33	33.33	13.33	40.00	100.00
	11.76	4.07	0.94	6.90	3.42
Total	17	123	212	87	439
	17.0	123.0	212.0	87.0	439.0
	3.87	28.02	48.29	19.82	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 10.8687 Pr = 0.012

-> tab2 csr_adherenceirresponsible_nobuy, row col exp chi2

-> tabulation of csr_adherence by irresponsible_nobuy

Key
frequency
expected frequency
row percentage
column percentage

csr_adherence	irresponsible_nobuy			Total
	Average	Below a..	Poor	
Adequate	86	207	131	424
	85.0	212.5	126.5	424.0
	20.28	48.82	30.90	100.00
	97.73	94.09	100.00	96.58
Inadequate	2	13	0	15
	3.0	7.5	4.5	15.0
	13.33	86.67	0.00	100.00
	2.27	5.91	0.00	3.42
Total	88	220	131	439
	88.0	220.0	131.0	439.0
	20.05	50.11	29.84	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 9.1242 Pr = 0.010

-> tab2 csr_adherencebuy_commsupportonly, row col exp chi2

-> tabulation of csr_adherence by buy_commsupportonly

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+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	buy_commsupportonly			Total
	Average	Below a..	Poor	
Adequate	89	200	135	424
	93.7	194.1	136.2	424.0
	20.99	47.17	31.84	100.00
	91.75	99.50	95.74	96.58
Inadequate	8	1	6	15
	3.3	6.9	4.8	15.0
	53.33	6.67	40.00	100.00
	8.25	0.50	4.26	3.42
Total	97	201	141	439
	97.0	201.0	141.0	439.0
	22.10	45.79	32.12	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 12.3499 Pr = 0.002

-> tab2 csr_adherencecontinue_helping_people, row col exp chi2

-> tabulation of csr_adherence by continue_helping_people

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+-----+
| Key |
+-----+
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	continue_helping_people			Total
	Average	Below a..	Poor	
Adequate	203	104	117	424
	201.9	104.3	117.8	424.0
	47.88	24.53	27.59	100.00
	97.13	96.30	95.90	96.58
Inadequate	6	4	5	15
	7.1	3.7	4.2	15.0
	40.00	26.67	33.33	100.00
	2.87	3.70	4.10	3.42
Total	209	108	122	439
	209.0	108.0	122.0	439.0
	47.61	24.60	27.79	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 0.3875 Pr = 0.824

-> tab2 csr_adherencecontinue_buying, row col exp chi2

-> tabulation of csr_adherence by continue_buying

```

+-----+
| Key |
+-----+
| frequency |
+-----+

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```

| expected frequency |
| row percentage    |
| column percentage |
+-----+

```

csr_adherence	continue_buying			Total
	Average	Below a..	Poor	
Adequate	98	157	169	424
	99.5	153.6	171.0	424.0
	23.11	37.03	39.86	100.00
	95.15	98.74	95.48	96.58
Inadequate	5	2	8	15
	3.5	5.4	6.0	15.0
	33.33	13.33	53.33	100.00
	4.85	1.26	4.52	3.42
Total	103	159	177	439
	103.0	159.0	177.0	439.0
	23.46	36.22	40.32	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.5432 Pr = 0.170

-> tab2 csr_adherencetell_others, row col exp chi2

-> tabulation of csr_adherence by tell_others

```

+-----+
| Key   |
+-----+
|       |
| frequency |
| expected frequency |
| row percentage |
| column percentage |
+-----+

```

csr_adherence	tell_others				Total
	Average	Average	Below a..	Poor	
Adequate	2	48	175	199	424
	1.9	52.2	176.7	193.2	424.0
	0.47	11.32	41.27	46.93	100.00
	100.00	88.89	95.63	99.50	96.58
Inadequate	0	6	8	1	15
	0.1	1.8	6.3	6.8	15.0
	0.00	40.00	53.33	6.67	100.00
	0.00	11.11	4.37	0.50	3.42
Total	2	54	183	200	439
	2.0	54.0	183.0	200.0	439.0
	0.46	12.30	41.69	45.56	100.00
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 15.4196 Pr = 0.001