The Sustainability challenge of business in South Africa

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ABSTRACT

Since the 1800's the world has seen rapid population growth and even faster economic growth. Higher living standards are linked to improvements in life expectancy for billions of people. However, these perceived benefits come at a cost, where this progress highlights that humanities production and consumption patterns are exceeding the planets supply limits; and therefore unsustainable. (Nedbank, 2014).

This growing concern around the consumption and production behaviour of humanity is described in the literature as a concern to find equilibrium between the three pillars of sustainability; economic, social and environmental. Satisfying the needs and wants of humanity is a daunting challenge in light of population growth, depletion of irreplaceable resources, climate change, poverty, the lack of energy, water and access to minimum basic services. Long-term sustainability, shared value creation and an urgent response to climate change are emerging as key imperatives to consider when providing for the needs and wants of 7.4 billion people (and at an effective rate).

Over the past two decades, a shift in business strategy has emerged, moving from that of a narrow view focusing on the individual corporate economic mandate of growing profits for shareholders, to a broader view, which encompasses social and environmental shared value creation. This new approach is to create equilibrium between the three pillars of sustainability. Numerous definitions and methodologies have emerged over the past 50 years of how business is supposed to achieve this balance, which in itself has created a divergent and slow response to long term holistic sustainability.

The research therefore sought to identify the response of the largest South African companies to the sustainability challenges of climate change and the warnings for assuring sustainability on the planet; where global warming is slowed down to 2C within the next 15 years, whilst remaining competitive in the market place.

From the review of literature, common key sustainable development (SD) drivers and activities are identified to achieving sustainability. Some of the common social drivers emerging from the literature are; fair and compliant governance, leadership, innovation, corporate culture and its evolution into corporate citizenship and individual behaviour change. Some of the common environmental drivers emerging from the literature are climate change and global warming, biodiversity protection, innovation and renewables, energy, water, and waste.

The concern for business is to overcome the insufficient time remaining to mitigate the impact of population growth and to find the global solutions to create sustainability between people, profit and planet.

The literature highlights perceptions around upfront costs of SD activity, which are argued as having either a positive or negative impact on company profits. The research report therefore investigated if there is a relationship between SD and economic performance and if that relationship is positive or negative.

The research therefore focused on understanding if the largest companies operating in South Africa are succeeding in their attempt to mitigate negative impacts of production and consumption behaviour, to reduce long-term costs, understand risks and improve impact, whilst remaining competitive in the market place.

This research report resulted in identifying a negative relationship between corporate SD activity and Return of Net Assets (RONA). This could be attributed to many factors or combinations of them, which are discussed in the results section of the research. However, it is clear from this research that relying on the scenario of ‘business as usual’ presents undeniable risks.

The most likely explanation for this negative relationship is that more time and research is required to fully measure and understand the impacts of social and environmental change. The true impact of corporate SD change has not yet had enough time to yield a conclusive result and therefore its true value to creating balance between the pillars of sustainability could be underestimated.

Therefore, the main recommendation from this research, even though the results proved a negative relationship between economic performance and SD, is that the academic view that business takes seriously the first mover advantage by adopting sustainable development activities throughout their value chain and to shift their view from narrow to shared-value, is supported. Leaders must embrace sustainability as the most important imperative facing the short and long-term outlook for their business and humanity. If not, the results could be disastrous for current and future generations, ultimately affecting the balance between all three pillars of sustainability and economic profit long-term. Sustainable development should therefore be embraced into the DNA of the business culture, as the main driver of economic performance and not pushed aside as a compliance cost on the short-term bottom line.

In conclusion, shifting the business focus from a narrow view of shareholder profitability to the broader view of shared-value creation is required. Fulfilling this recommendation will help create a viable planet, able to provide the needs and wants of current and future generations.

DECLARATION

I, Diane Kramer, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Diane Beth Kramer

Signed at …Johannesburg…………………………………………………

On the …………………………….. day of ………………………… 20…..

DEDICATION

With true gratitude, I dedicate this book to my Mother, Carol Gay Kramer, and Mother Nature, both of whom have had a profound impact on the direction of my life.

Both have shown their capacity for love and loss, generosity of spirit and an ever-hopeful belief that, together, we can ensure abundance and sustainability.

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I acknowledge my family and friends who have supported me through this process of extreme growth, vulnerability, neediness, and selfishness with the generosity of spirit I hope to emulate one day. Their loyalty and steadfastness provided peace in my storm. It is because of them that I have faith that together we can achieve anything.

I would also like to acknowledge all the people and businesses that are changing their behaviour urgently to mitigate their negative impacts on the planet.

In addition, sincere gratitude to the academic staff of Wits Business School, Jennifer Croll and my supervisor, Anthony Stacey, who have stood beside me; always encouraging me to look deeper and to never give up.

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the research

The purpose of this research is to investigate whether the global drivers and activities of sustainable development (SD) are related to economic profits and long-term survival of corporates (operating in the large cap environment in South Africa), in order to have a better understanding of the sustainability challenges facing future economic performance and why the call to action from the global community to mitigate climate change and create shared value should be answered.

1.2 Context of the research

Globally, evidence is mounting that climate change is a major threat, hunger and malnutrition persist, income remains highly unequal, urbanisation is rapid, energy needs unmet and that financing structures need to be redirected to promote long-term solutions to achieve sustainable development (United Nations, 2015).

A key challenge facing future business economic prosperity is how to achieve profits whilst effecting minimal negative impacts on society and the environment. Business is grappling with this challenge of how to sustainably meet the needs and wants of society with a production and consumption process that overcomes the challenges of climate change, population growth and the depletion of natural resources.

This problem is exacerbated by a heavy focus for business to achieve financial profits for shareholders and relating those profits transparently through compliance in reporting mechanisms. SD reporting in contrast is described as being in sharp contrast to the commitment corporates show to shareholder and investor communications in South Africa. SD activities that relate to the inputs on community engagement, charitable activities, or stakeholders and their feedback opportunities are seldom mentioned in disclosure documents (Sonnenberg & Hamann, 2006).

The King III compliance document emerged as a pre-eminent solution to this problem in its anticipation of the new South African Companies Act and changing trends in international governance. As with King II, and I, the King Committee endeavored in the writing of King III, to be at the forefront of governance internationally. What differentiates King III from its prior versions is the new addition of how the company intends to enhance SD and eradicate or mitigate any possible negative environmental impacts (PriceWaterhouseCoopers, 2010).

To improve disclosure, companies need to ensure that they focus on SD compliance aligned to King III requirements as vigorously as they focus on their disclosure of economic performance. Companies will need to demonstrate that their SD risks are managed holistically whilst ensuring that they have the internal reporting process and structures in place in order to enhance profits (Sonnenberg & Hamann, 2006).

The SD challenges facing business have led to the emergence of many global solutions or mechanisms for measuring impact, in an attempt to co-ordinate social and environmental issues to financial strategy. The aim of these models or solutions is to provide an understanding of how SD is being managed and what the target is for reducing or eliminating the SD risks (AnChiu, Xin, & Moss, 2008; Sonnenberg & Hamann, 2006).

Some of the numerous methods or tools for corporates to measure impact are the various assessments that have emerged as a response to sustainable development challenges. Some of these have been extracted from Spitzer and Martinuzzi (2013), and are listed in Table 1. These descriptions provide an indication of the choices available to leaders when responding to the global call to SD action and where the focus of this concern lies.

Table 1: Frameworks and guidelines for corporate impact assessment

Name	Description
UNDP Company Level CSR Self-Assessment Tool	The main component of the CSR assessment framework is a tailored questionnaire, consisting of 25 questions with mostly yes/no answering options. The questions are grouped under five overall categories: Governance, Environment, Labour, Community Relations, and Business Environment.
CR Reporting	By joint efforts with accountability, improved quality and usefulness of social sustainability reporting is the goal. A clear framework for assessing the needs of reporting organisations and for selecting assurance providers is provided. Stakeholder engagement is most important within the process of reporting.
OHCHR Guide	The guide aims to assist in developing quantitative and qualitative indicators, in compliance with international human rights norms and principles, to measure progress in the implementation of international human rights norms and principles.
G3.1 Sustainability Reporting Guidelines	For each GRI Report, a context index must be included.
Environmental Management Systems (EMS)	A framework that helps a company to achieve its environmental goals through consistent control of its operations. Each company's EMS is tailored to the company's business and goals and a company environmental policy has to be established which serves as a foundation for EMS.

Name	Description
IESIA Integrated Environmental and Social Impact Assessment Guidelines	Approach for project assessment, which covers the whole project cycle. The tool is solely for African Development Bank Projects, not for measuring impact of companies.
SEAT	Guidelines only for use in the mining sector, specifically by Anglo American.
Global Water Tool	The tool compares companies' sites with water, sanitation, population and biodiversity information of a country. Compares how much water is available with the amount of water used/necessary by the company. Consists of two parts: An Excel workbook for site location and water use data entry, which will generate a water inventory; An online mapping system enabling companies to plot their sites with external water datasets and download those locations on a map.
Corporate Sustainability Assessment (SAM)	Annual assessment based on online questionnaire of over 100 questions by an external assessment team. It provides a Company Benchmarking Report (CBR) for assessed companies and offers customised training and sustainability management solutions as well as national sustainability benchmarking. The results serve as the basis for the Dow Jones Sustainability Indexes (DJSI).
COSA Methodology	These guidelines for the farming/agricultural sector (coffee, cocoa...) provide a globally comparable set of indicators to quickly assess the extent of any farm's relative sustainability. The COSA tool is designed to be adapted to the national context with the support of local partners. In each target country, COSA will work to train local actors in using COSA tools. The COSA team will work with at least 15 smallholder producer organisations over a three-year period and will rely heavily on the foundations of in-country technical assistance networks and complementary initiatives.

Source: Spitzer and Martinuzzi (2013)

It is evident from the plethora of emerging solutions to sustainability, that business as usual is not sustainable. Corporations are looking for alternative solutions to their risks and long-term economic survival, whilst also providing them with an opportunity to recognise opportunities derived from innovation in line with their core areas of expertise that address these global sustainability challenges (Mercer, 2014).

Ultimately, the future benefit for companies that prepare for and capitalise on business opportunities posed by climate change; albeit from greenhouse gas (GHG) regulations or direct physical impacts or changes in corporate reputation, will be the increasing value shareholders and financial analysts assign to this value of the business (Cogan, 2006).

Achieving this shareholder value is exacerbated by, and described in the Nedbank (2014) report, as the millions of citizens lacking access to,

- Formal employment opportunities,
- Sufficient food,
- Clean water and sanitation,
- Safe and affordable transportation,
- Suitable housing,
- Modern healthcare,
- Education and financial services

(Nedbank, 2014).

Other common sustainable development challenges or ‘Drivers’ as they are referred to in this research include, according to Logsdon and Wood (2005), among others,

- Resource scarcity and Renewability Creation
- Climate change and Environmental Protection
- Poverty and shared value creation
- The upfront costs attributed to SD activity
- Trade-offs and compliance
- Human Rights and good corporate citizenship
- Social Capital Development and the need to ‘do good’

In general, although it is noticeable that the shift towards more sustainable business practices is evident, confirming whether SD is genuinely at the heart of the business is more difficult and can only be judged by their long-term performance. More and more, investors look to this performance as a barometer of the general health and resilience of an organisation (Mondi plc, 2014).

As a result of this SD focus, the direction that business strategy is changing in order to address the concept of shared value (SV) between ‘People, Planet and Profit’ and the creation of ‘Blue Oceans’ for the business long-term is growing (de Wit & Meyer, 2010; Fisk, 2010).

The concept of SV is described in the literature as not being social responsibility, philanthropy, or even sustainability, but a new way to achieve economic success. Accordingly, it is not on the margin of what companies do, but at the centre that will give rise to the next major transformation of business thinking (Porter & Kramer, 2011).

Another proposition by academics in describing the SD challenge is to create 'blue oceans' of market competitiveness to mitigate trade-offs between values and cost. The most important feature of Blue Ocean Strategy (BOS), as described by de Wit (2010), is that the basic belief that trade-offs exist between value and cost, within conventional strategy, is rejected.

These concerns clearly describe the SD paradigm where business leaders must grapple with the perception that the creation of SV, SD and environmental protection (EP) is achieved at a high cost to the business and shareholder. SV creation is described as being in direct contrast to the aim of business, which is also often described as a narrow view, which is to achieve profits for shareholders at the lowest cost. This blinkered view focuses on the optimisation of short-term financial performance and therefore misses the most important customer needs and ignores the broader influences that determine their long-term success (Porter & Kramer, 2011).

1.3 Problem statement

1.3.1 *Main problem*

The main problem of the research is to understand and identify if sustainable development activity implemented internally and externally by the largest businesses in South Africa is related to positive economic performance.

1.3.2 *Sub-problems*

The first sub-problem is to determine if the relationship between the economic performance of South African (SA) large cap companies and the internal implementation of sustainable development activities that include supply chain, is positive.

The second sub-problem is to determine if the relationship between economic performance of SA large cap companies and the external implementation of sustainable development activities beyond their supply chain, is positive.

1.4 Significance of the research

In recent years, business has been criticised as a major cause of social, environmental, and economic problems. The narrow focus of business to achieve profit for shareholders is widely thought to be at the expense of their communities. Overall, as a result of recent economic turmoil, and the growth of environmental and social awareness, trust in business has fallen to new lows, leading government officials to set policies that undermine competitiveness and sap economic growth (Porter, 2011; Porter & Kramer, 2011).

The research may provide insight to businesses as to whether they are part of the problem or if they are overcoming the SD challenge. By identifying the relationship between the economic performance of capital and the improved performance of social and environmental capital the uptake in the SD call to action, will be significantly aided.

By understanding this relationship as well as the drivers and activities required to achieve sustainability, business leaders may be in a better position to make informed decisions around the trade-offs that exist in the sustainability paradigm.

The empirical research into the relationship between economic, social and environmental performance is without consensus and far from conclusive. Therefore this report may strengthen the argument for business leaders to adopt SD activities as strategic drivers of long-term economic performance rather than as a costly compliance requirement (Balabanis, Phillips, & Lyall, 1998).

This research report may highlight the need for organisations to take the issues of environmental protection and social accounting more seriously, in order to survive in the ever-changing business environment (Nwagbara & Reid, 2013).

Business leaders might also be convinced that by embedding SD activities into the fibre and DNA of the business and pursuing good corporate citizenship (GCC), long-term economic growth is more likely.

The research may provide validation and information to companies who are embracing compliance regulation and to those going ‘above and beyond’ compliance in order to achieve strategic advantage.

This investigation may further demonstrate that in this pursuit of SD, businesses are attempting to capture the essence of TBL reporting by measuring the impact of their activities on the world (Savitz & Weber, 2006).

According to Harris (2007), diffusion in the uptake of the processes is uneven; therefore, the research may create clarity on which key drivers and activities companies are most commonly adopting in order to guide business in choosing the correct processes and activities to address planetary sustainability.

1.5 Delimitations of the research

The scope of the research as it pertains to the title of the research is focused on investigating sustainable development and climate change challenges facing business in South Africa. The scope of work therefore focuses on the SD drivers and activities being reported on by large cap companies working in South Africa and their relationship to economic performance as indicated by RONA.

With this in mind, the following delimitations apply:

- The financial detail of trading activity from large cap company financial reports has not been included in this research.
- The general principles and imperatives for achieving long-term business performance and sustainability were researched and not the actual specific detail of policies and regulations adopted by governments or business to police them.
- Key international policy, governmental regulation and the response from corporations across all sectors of industry were used as a guide and/or

comparison for information in this research process and as an explanation or review of the detail researched.

- This research report did not attempt to investigate the success or validity of various reporting frameworks or the historical development of specific reporting mechanisms such as agency view, corporate social performance view, resource based view, and supply and demand view, as these reporting frameworks are covered in depth in many other research papers.

- The research did not try to research the actual instruments of reporting frameworks and/or social accounting guidelines; which have been developed to facilitate sustainability disclosure, but rather to use them as a guide of accepted criteria to improve social and environmental capital and long term sustainability.

- The research does not look at only one framework for achieving sustainability when identifying the correlation of business activities to SD success, but has taken the key principles from many frameworks, as defined in the literature, to understand the broad challenges and constraints facing businesses in achieving long-term growth and sustainability.

- The research does not focus on only one level or one sector of business but rather looks at a group of companies operating in the large cap sector as a representative sample of population, in order to gain a holistic understanding of the actions needed to meet or overcome the SD challenges facing business in South Africa.

1.6 Definition of terms

Blue Ocean Strategy (BOS)

Rejects the fundamental tenet of conventional strategy: that a trade- off exists between value and cost (de Wit & Meyer, 2010).

Carbon disclosure project (CDP)

The CDP is an organisation based in the United Kingdom, which works with shareholders and corporations to disclose the greenhouse gas emissions of major corporations (Kolk, Levy, & Pinkse, 2008).

Corporate Social Responsibility (CSR)

Corporate social responsibility (CSR, also called corporate conscience, corporate citizenship or responsible business) is a form of corporate self-regulation integrated into a business model.

Corporate Citizenship (CC) Sustainability

The extent to which businesses are socially responsible for meeting legal, ethical and economic responsibilities placed on them by shareholders.

Corporate Moral Agency (CSMA)

Is the result of a symbiosis between ethical intentional actions or inactions of a corporation as an active actor, and its main responsibility is to increase profits (Burlea, 2015).

Good Corporate Citizenship (GCC)

A corporation is defined as having good corporate citizenship when it accepts that the importance of being collectively responsible for its local community and environment is an integral part of their core business.

Greenhouse Gas (GG)

A greenhouse gas (sometimes abbreviated as GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect (De Klein, Pinares-Patino, & Waghorn, 2008).

Global Environmental Change (GEC)

Physical, chemical and biological processes that shape and reshape the earth's environment (Burke, 2004).

Resourced Based View (RBV)

A strategic view to identify and increase those resources that allow a firm to gain and sustain superior rents (Gottschalk, 2005).

Rio Declaration on Environment and Development

At the 1992 Earth Summit in Rio, a declaration was formulated as an international blueprint for sustainable development; A program for action was passed during the United Nations Conference on Environment and Development (UNCED) in 1992 (Du Plessis, n.d.).

Resourced Based View (RBV)

A strategic view to identify and increase those resources that allow a firm to gain and sustain superior rents (Gottschalk, 2005).

Shared value (SV)

Shared value is not defined as social responsibility, philanthropy, or even sustainability, but as a new way to achieve economic success. It is not on the margin of what companies do but at the centre, giving rise to the next major transformation of business thinking (Porter & Kramer, 2011).

Strategic Corporate Social Responsibility (SCSR)

Strategic corporate social responsibility, a sub category of corporate social responsibility (CSR) incorporates both ethical CSR and altruistic CSR by performing activities that are advantageous to the community, as well as providing profit through goodwill (Lantos, 2001).

Strategic Philanthropy (SP)

Strategic philanthropy emerged as a management practice to support social responsibility in organisations (Ferrell, 2000).

Triple Bottom Line (TBL)

The method used to report how the company intends to enhance those positive aspects and eradicate or ameliorate any possible negative impacts on the economic life of the community in which it will operate in the year ahead. King III acknowledges that there is a move away from the single bottom line (that is, profit for shareholders) to a triple bottom line, which embraces the economic, environmental and social aspects of a company's activities (Institute of Directors of South Africa, 2010).

United Nations Framework Convention on Climate Change, 1992 (UNCED)

A framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with impacts that were, by then, inevitable. The convention sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change (Change, 2014).

World Commission on Environment and Development (WCED)

Now known also as the Brundtland Commission whose mission is to unite countries to pursue sustainable development together (Brundtland, 1987).

1.7 Assumptions

1. That the most commonly used sustainable development criteria identified in the literature review and also thereafter used in the research methodology of this research, are representative of the most commonly adopted indicators of sustainable development activity, used in large cap companies working in South Africa.

2. That the SATRIX 40 which measures economic performance of large market capitalisation (large cap) companies working in South Africa, is considered a reputable indicator of large cap economic performance, thus enabling the assumption that the sample group is a good representation of large cap companies' social and environmental activity.

3. That the process of listing a company on the JSE's SATRIX 40 index requires stringent compliance, due process and financial transparency as per governance requirements and King III regulation and therefore we can assume that because a company is listed on the JSE, they are deemed to be economically compliant and no further detailed compliance investigation is necessary in this research (Rae, 2012).

4. That the term `resources', is used in many ways in different disciplines. For purposes of this paper, 'resources' are essential inputs to the production and consumption process.

5. That the research report may have missed and therefore omitted some key drivers and activities when performing the research and therefore the conclusion reached is inaccurate.

6. As the research was performed and analysed by the researcher an assumption should be made that research bias may occur, affecting the reliability and validity of the research.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

'Statesmen are not called upon only to settle easy questions. These often settle themselves. It is where the balance quivers, and the proportions are veiled in mist, that the opportunity for world-saving decisions presents itself' (Churchill, 1948, p. 284).

Climate change or Global Environmental Change (GEC) from physical, chemical and biological processes have been shaping and reshaping the earth's environment since its creation 4.5 billion years ago. (Burke, 2004). However, more recently and often attributed to population explosion, the negative impacts of humanity's production and consumption behaviour have been linked to global environmental change, including climate change, deforestation, and loss of biodiversity, pollution and desertification. Conflicts over resources and massive migration from areas most severely affected by environmental change are often related to water and food shortages, natural disasters and health risks.

One of the fastest growing concerns affecting GEC is population growth and the resulting rate of the urban population explosion. The challenge for humanity is to create a sustainable world that meets the needs and wants of billions of people. Population growth is expanding rapidly. Measuring this growth from the beginning of time to 1810 the population recorded 1 billion. 120 years later, this doubled to 2 billion people (1930). 45 years later (by 1975) population reached 4 billion. 40 years later (from 1980 to date), the number of people in the world has risen from 4.4 billion people to 7.4 billion. (Kinder, 2015).

The review of literature aims to identify the key SD drivers and activities emerging to mitigate these impacts. This begins with a review of SD and its evolving definition toward shared value creation and environmental protection. Thereafter, an examination of the SD drivers and activities being adopted by companies both internally and externally to mitigate climate change and achieve long-term economic, social and environmental growth follows.

2.2 Sustainable Development

The term sustainable development (SD) has become a focus of recent definitions to achieving sustainability. Satisfying the ‘needs and wants’ of people translates to the production and consumption of goods by humanity and is described by Maathai (2010) as a social paradigm where these needs and wants are outstripping the ability of the planet to sustain them.

Gimenez (2012) disagrees with this view, arguing that the world already produces more than 1 ½ times enough food to feed everyone on the planet. That is enough food to feed 10 billion people, the population peak expected by 2050. Therefore, he concludes that hunger is not caused by a scarcity of resources but rather because of poverty, distribution and inequality.

Then there are also scientific claims to the definition of SD where in 1992, 1700 scientists jointly agreed that the global sustainable development situation requires “a great change of stewardship of the earth and the life on it, if a vast human misery is to be avoided and our global home on this planet is not to be irrevocably mutilated” (Rees, 2003, p. 30).

Throughout the literature, varying definitions of SD emerged, all with different approaches to solving the problem. This has created a disconnected approach to finding solutions. All agree that the solution must meet the growing needs and wants of all of humanity in a cost effective manner, but solutions to achieving this whilst ensuring long-term future growth and protection of environmental and social capital is fragmented (Böhringer & Rutherford, 2010; Brundtland et al., 1987a; Lubin & Esty, 2010; Porter & Kramer, 2011).

The need for sustainability became evident in 1968 at a private meeting between an international group of scientists, economists, and people from 53 countries who left the meeting advocating zero growth as a future strategy. The concept of sustainability began in 1969 and has since emerged as a vital component of assessing competitiveness and survival of businesses in the future. According to Meadows (1972), the Club of Rome published ‘The limits to growth’ in 1971, where the gist of this document is that long-term protection of the planet is not possible at the current rate of economic growth.

As a result of this dilemma, the most popular definition of SD emerged in 1983 from the World Commission on Environment and Development (WCED) forum culminating in the 1987 Report ‘Our common future', which is more commonly referred to as the Brundtland Commission Report (Brundtland et al., 1987b).

The areas of focus within this landmark agreement are pictorially depicted in figure 1.

Figure 1: Areas of focus in Our Common Future, 1987

Source: Musikanski (2010, p. Slide 10)

Many countries and governments all over the world have since subscribed to this definition of sustainability, which the report Our Common Future (1987) recognises as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland et al., 1987a; Marimon, Alonso-Almeida, Rodríguez, & Cortez Alejandro, 2012).

SD is also described as fulfilling an imperative that uses all of our resources efficiently, fairly and responsibly so that the needs of all people on whom we have an impact, and the future needs of people who are not yet born, stand the best chance of being met (Robert et al., 2002).

In 1992, 178 nations from all over the world came together to address this challenge in the Rio conference 1992. This was described by the United Nations as a watershed event of collaboration, moving the focus of sustainability to the fore (Rio Declaration, 1992).

20 years later, Rio+20 convened to address the shortcomings of that conference. At this conference, a global accord was struck in the creation of ‘Future Earth’ which provides, according to Mauser et al., (2013), an integrated GEC model of research where society partners to produce the knowledge necessary for societal transformations towards sustainability.

The uptake of SD activity was growing globally. Helping it along was the global economic crisis of 2008, which began on the 14 September, with the collapse of Lehman Brothers. This set off many alarm bells across the world. From the researcher’s perspective, this was possibly a good thing for SD awareness, awakening corporations to a crisis where they had to drastically look internally at their consumption and production process in order to mitigate negative impacts. However, from the economic perspective, Lehman Brothers was a calamity that needed correction. Needless to say, from both views, this event created an opportunity for increased awareness and action to focus business on how we meet the needs and wants of society in a sustainable manner (Lopatta & Kaspereit, 2014).

Compounding the economic crisis of 2008 are high unemployment rates and social inequity that are emerging as two key themes driving the awareness around global sustainability. South Africans are realising the essential need to address the supply and demand of critical natural resources to cope with an ever-growing population who have needs and wants, and that this is becoming an imperative business can no longer ignore.

The "global call to action" to move towards greater collaboration to achieve the most pressing challenges of SD emerged. The Conference of Parties (COP) set out a framework for action aimed at stabilising atmospheric concentrations of greenhouse gases (GHGs) to avoid "dangerous anthropogenic interference with the climate system" (United Nations Framework Convention on Climate Change, 2015).

Recently, in 2015, the world further demonstrated their collaborative commitment by collectively drawing up the Paris Agreement, held at Cop21 in France, signifying the beginnings of a new one-world-view action-plan on achieving sustainability (United Nations Framework Convention on Climate Change, 2015).

This is described by UNFCCC (2015), as an historic agreement reached, bringing all nations into a common cause based on their historic, current and future responsibilities (United Nations Framework Convention on Climate Change, 2015).

The Paris agreement 2015 is the third major agreement to be ratified by the international community. The first was adopted in 1992 in Rio called The United Nations Framework Convention on Climate Change and the second was The Kyoto Protocol in 1997 (Meuneir., 2004; Meunir, Leguet, Soffe, & Bovee, 2004; Telesetsky, 1999).

Paris 2015 demonstrates a strong move toward collaboration and shared value creation between countries to achieve SD. This collaboration is urgently needed to focus previously disconnected activity and strategies. As cited in the UN

Climate Change Newsroom report, and in the words of UN Secretary General Ban Ki-moon, “We have entered a new era of global cooperation on one of the most complex issues ever to confront humanity. For the first time, every country in the world has pledged to curb emissions, strengthen resilience and join in common cause to take on climate action” (Daly, 2007; United Nations Framework Convention on Climate Change, 2015).

For the purposes of this research, this paper adopts the Brundtland definition of Sustainable Development (Logsdon & Wood, 2005) and also accepts that the King III compliance-reporting tool is South Africa’s pre-eminent choice to measure and report on such a definition in South Africa. This approach is accepted as incorporating the TBL approach of people, planet and profit (PriceWaterhouseCoopers, 2010).

2.3 Background to Key Global SD Drivers and Activities

The business response to the risks associated with global warming and climate change is described as being integrated at various levels through new business scenarios (Nhamo & Swart, 2012).

Therefore, in order to define the global business response to climate change, this section reviews the key global internal and external SD drivers and activities adopted by business, to mitigate negative impacts. These include, among others, the urgency of global warming, energy, bio-diversity protection, water use, leadership, high upfront costs and the protection of human rights in respect to organisational culture.

2.4 Internal Corporate SD drivers and activity

2.4.1 *Climate change, global warming and emissions*

As highlighted in the Paris agreement, climate change is at the heart of all the concerns driving corporate sustainability and is indeed one of the biggest threats facing our planet. This collaborative agreement is described as historic, durable and ambitious in its aims for countries to limit their greenhouse emissions to 2C. Harvey (2015).

Another supporter, England (2015), describes Paris 2015 as an aspiration that is laudable and gives humanity a decent chance to avoid dangerous interference with the climate system. The urgency of this crisis was identified by concerns raised around the 15-year target to reduce global warming to 2deg, as being too long, which may result in the opportunity to succeed, rapidly disappearing.

In parallel, Rafey and Sovacool (2011) relate the global energy consumption problem, as facing the same time-goal concern, stating that current energy consumption is set to double by 2040 and triple by 2060.

Generally accepted and emerging as one of the highest contributing factors to Global warming is the emission of greenhouse gasses (GHG). The largest component of these emissions is CO2. For business in developing nations like South Africa, they predict that it is at this international carbon margin where the battle on global warming will be won or lost, either locking in emissions or reorienting growth toward sustainability (Rafey & Sovacool, 2011).

O'Halloran, Fisher, Rab and Vicoria (2008) describe humanity's dependence on CO2 emissions, to be directly related to fossil fuel power generation stations in the electricity they consume or in the petrol or diesel they use to drive their cars. These behaviours indirectly create CO2 emissions to satisfy the production and consumption of peoples' needs and wants (O'Halloran, Fisher, Rab, & Victoria, 2008).

Therefore, the result of the industrial revolution is a planet hungry for energy. Energy to create electricity, transportation, chemicals, cement and steel all created by the burning of fossil fuels and resulting in greenhouse gasses contributing to global warming (Baarschers, 2013).

To overcome these concerns, the global focus is to address the warnings for GHG emissions to 2050, which is visually depicted in Figure 2.

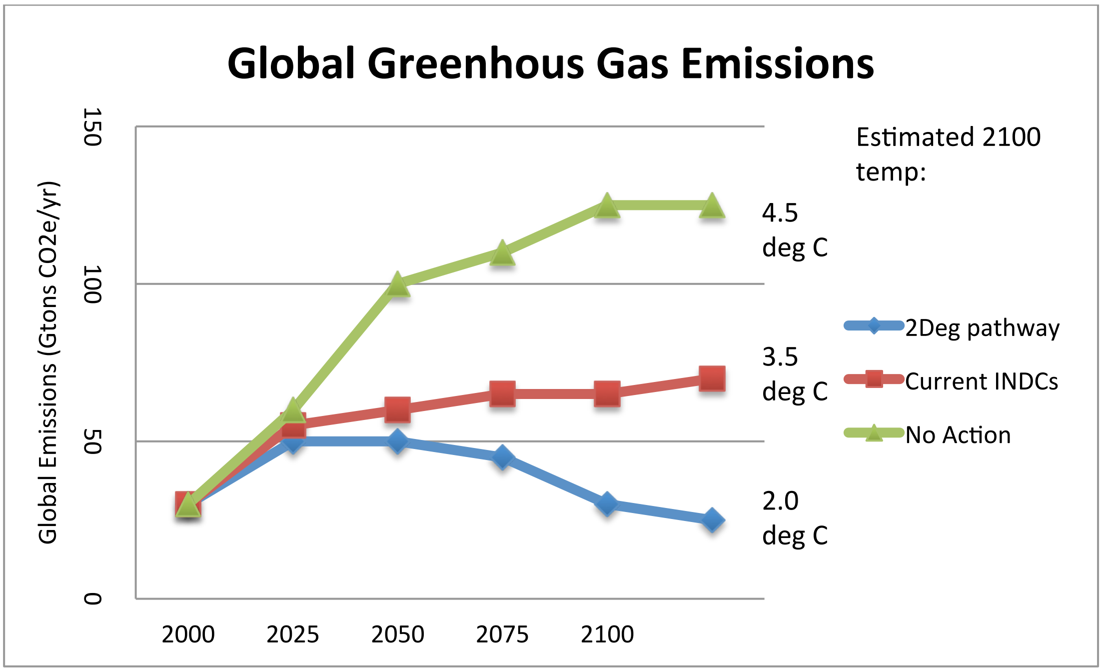

Figure 2: Global Greenhouse Gas Emissions

Source: *OECD Environmental Outlook to 2050 The Consequences of Inaction: The Consequences of Inaction* (2012)

IPCC illustrates in Figure 3 the range of possible changes in surface air temperature for the period to 2100. These visual descriptions were based on three greenhouse gas emissions scenarios.

- B1 depicts more integrated, and more ecologically friendly growth aimed at global environmental sustainability.
- A1B depicts rapid economic development with a balanced emphasis on all energy sources.
- A2 depicts divided world, self-reliant nations, continuously increasing population.

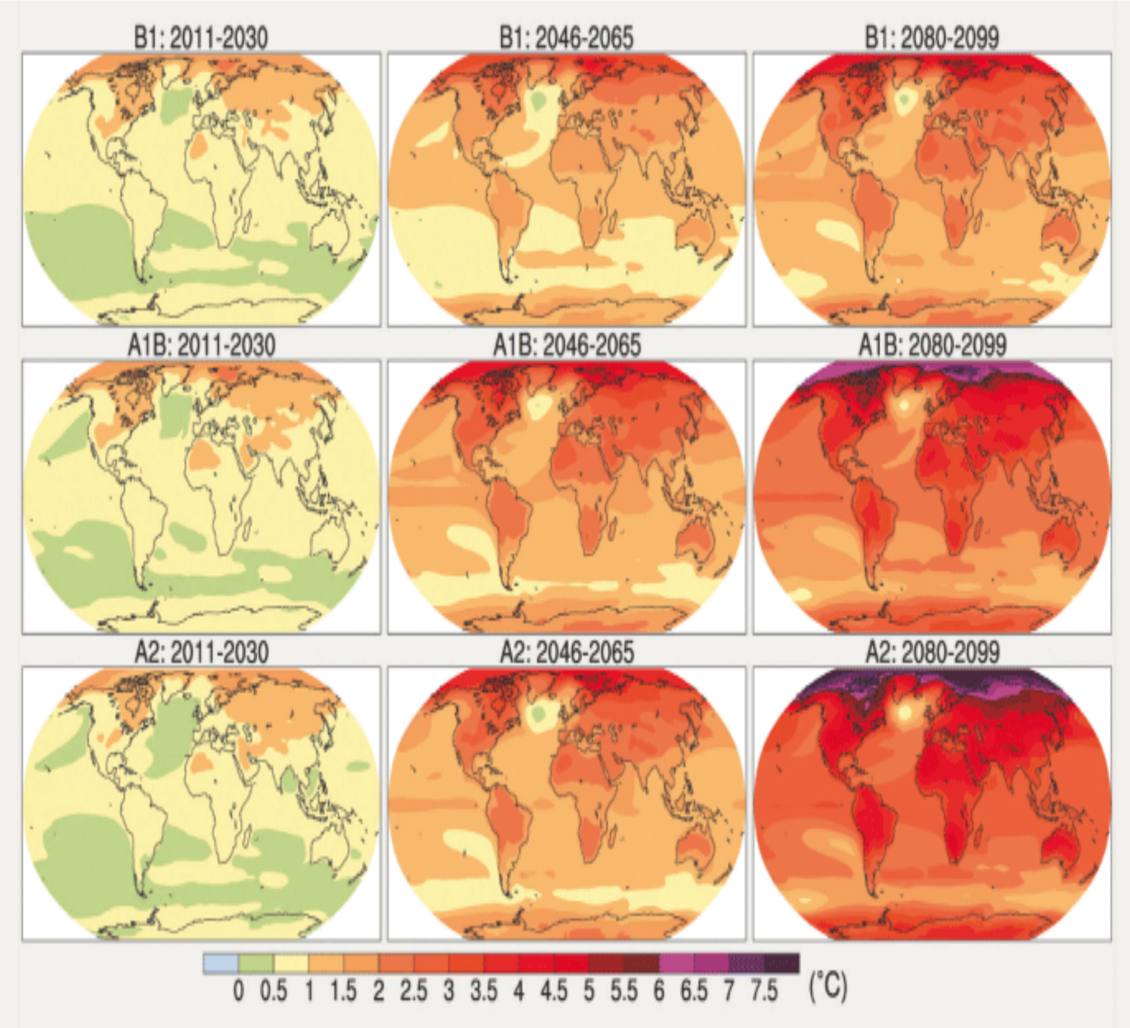

Figure 3: Global climate model - Surface Air temperature comparison

Source: IPCC (2007)

Kolk and Pinkse (2004) explain that until recently, society has either denied or had a reluctant admission of responsibility for climate change. However, recently business is responding through product development or process innovation improvement, as a strategy to create a competitive advantage.

For business to mitigate negative internal impacts of activity in the future, Kolk, et al. (2004) recommend that companies begin with an inventory of their greenhouse gas (GHG) emissions to determine their current situation. Some key activities, found in the literature, being adopted by most companies to mitigate their negative impacts are:

- To provide detailed public accounts of their GHG emissions that include historical baselines, tracking of emissions savings and projections of future trends.
- To ensure that business management and product development plans, are poised to seize new opportunities presented by climate change.
- To set absolute GHG emission reduction targets for facilities and products.
- To participate in GHG trading programs to gain experience and maximise credits.
- To pursue business strategies to reduce GHG emissions, minimise exposure to regulatory and physical risks, and maximise opportunities from changing market forces and emerging controls.
- To initiate environmental programs that includes targets for emission reduction.
- To implement management programs to conserve energy (for example, systems that control heating and reduce electricity use).
- To find substitutions of fossil fuels by carbon-free renewable energy.
- To focus on sustainable product development and service delivery

(Cogan, 2006; Kolk & Pinkse, 2004)

The recent Paris agreement (2015) resulted in an overwhelming agreement to reduce carbon emission to ensure global warming does not exceed 2°C. Early adoption of energy efficiency has become a primary focus of nations as, in many cases, the early adoption of energy efficient activities is an extremely attractive investment that pays for itself over time, whilst improving energy productivity for the economy and reducing costs (McKinsey & Co., 2010).

2.4.2 *Biodiversity protection*

Stressing the urgency of biodiversity protection, the Convention on Biological Diversity concludes that our ecological footprint on the planet, which is unsustainable, is becoming unbearable. Unless we change our consumption patterns and behaviour in general, we will exceed the limits of the earth's capacity (Convention on Biological Diversity, 2010).

This change in consumption patterns is possible if humanity realises it faces a values crisis which requires a shift in their beliefs or an evolution of their social values (Brown, 2005).

From these descriptions, it is evident that humanity has to improve the way it lives, consumes and produces as the world embarks on a process of understanding their impact on the environment.

To achieve this improvement, The Earth summit 1992 - Rio Declaration on Environment and Development proposed three common biodiversity goals to guide the business principles for environmental protection and socio-economic development and these are identified as follows.

1. Agenda 21 which provides an action plan for achieving the guiding principles
2. Forest principles
3. Framework convention on climate change, the first international treaty providing protocols with the goal of reducing the emission of greenhouse gases

(Girardet & Mendonça, 2009; Graham, 2010).

The emerging responses arising from the literature are as a result of people recognising that their current attitude and behaviour will impact and have a greater effect on future generations and the quality of future life than on any generation before (Girardet & Mendonça, 2009).

Therefore, the field of environmental economics was developed to manage natural resources in a highly efficient time path for the economy. The aim of this field of study is to help humanity understand the impacts of their production, consumption and transfer of wealth on the environment (Bishop, 1993).

Environmental economics arose from the need to improve integration and efficiency into economic business, satisfying environmental concerns. This integration includes the potential extinction of species. The depletion of natural resources as indicated by many in the literature, must be compensated by new wealth in the form of lasting capital or sustainability may be unachievable (Jenkins & Yakovleva, 2006).

This concern over depleting resources and species extinction is prolific in the literature, especially in the mining sector, which has a large impact on the environment in which it operates. The backlash of the consumption and production behaviour in this sector has resulted in environmental objections causing mining projects' shutdown or being deferred or cancelled (Hodges, 1995).

Business reputational damage is emerging as a key driver for biodiversity protection. This has created a focus on the effects of negative impacts of business activity on society and the environment and the potential damage it could have to the business. Mining companies are beginning to focus on minimising environmental impact, even though these may be attributed to their primary concern of reducing their negative impacts on operations and improving socioeconomic relations with stakeholders rather than on reducing climate change itself (Hilson, 2000).

In essence, biodiversity goals are conventionally seen to involve trade-offs between benefits to biodiversity and managing business risk. However, stakeholders are increasingly imposing costs (e.g. fines, project delays, lawsuits) on companies for biodiversity impacts therefore incorporating environmental externalities as real costs into the business risk equation. The key drivers and components of environmental business opportunities and risk are described in Table 2.

Table 2: Major drivers of business environmental opportunity and risk (Hanson, Ranganathan, Iceland, & Finisdore, 2012; PriceWaterhouseCoopers, 2010)

Category	**Opportunity**	**Risk**
Operational	Ecosystem services to support operations	Reduced productivity; scarcity and increased cost
Regulatory and legal	Leadership with governments to help shape policies and regulations	Fines and project delays; liability for biodiversity impacts
Reputational	Preferred operator status; improved quotas; staff loyalty	Loss of 'social license to operate': restricted access to land and resources
Market and product	Brand differentiation; increased profit margins; compliance with purchaser policies	Damage to brand; boycotts
Financing	Access to finance	Reduced finance opportunities; reduced credit quality

2.4.3 *Food, Land and Oceans*

The current population statistic is estimated at 7.4 billion people. The production and consumption behaviour of humans is at the heart of the climate change concern. In 2003, it was estimated that two billion people lived primarily on a meat-based diet and four billion on a plant-based diet. Thus they attributed their concern to the shortages of planetary resources to meet the needs and wants of society (Pimentel & Pimentel, 2003).

20% of the world's population is dependent on fish for protein and sustainable marine fisheries production; arable land and renewable fresh water seem to have reached their economic limits. This suggests that continued overfishing in the face of scientific warning is resulting in significant degradation to coastal and marine ecosystems (Daily et al., 1998; Duda & Sherman, 2002).

To achieve sustainability on the planet, the functioning of "the atmosphere, oceans, forests, waterways, biodiversity and biogeochemical cycles" in a balanced and stable way is "a prerequisite for a thriving global society" (Griggs et al., 2013, pp. 305-307).

The global drivers and activities centred on the creation of this balance include promoting the accessibility of food, water and energy while protecting biodiversity and ecosystem services. Some of the activities related to these endeavours are listed in Table 3.

Table 3: Descriptions and Aims of SD biodiversity activities.

Description	Aim
Carbon pricing	Places a value on natural capital and a cost on unsustainable actions.
Compliance to climate change agreements	To prevent the loss of biodiversity and ecosystem services.
Poverty reduction	Creation of local working partnerships with a broad range of stakeholders
Translating international, national and regional nature conservation priorities into realistic local action	To identify • Local conservation priorities for goods and services provision • The key biodiversity resources and priorities for the local area • The achievable targets to meet species, habitat and ecosystem priorities • The effective and long-term delivery mechanisms for local action; • The barriers and take advantage of opportunities
Securing future funding	To mitigate impacts through monitoring, review and refinement

Source: Cil & Jones-Walters (2011); Griggs et al. (2013)

2.4.4 *Water use and protection*

The recent El Ninos of 2008 and 2015, focused business attention on both rising water related costs, disruptions to supply and changing expectations from stakeholders to water related use. The business concern is over the effects of both the direct cost of purchasing water, as well as indirect costs from a range of expenses associated with water (Martin, 2009).

As identified by Martin (2009) and Niemczynowicz (1999), the activities associated with water use and conservation are:

- Water use risk assessment including price of water, availability, quality and loss.
- Water quality and treatment within an organisation's operations
- Treatment of wastewater and mitigation of water pollution required
- Environmental restoration;
- Activities needed to expand available water
- Securing new water allocations
- Water impacts
- Worker absenteeism as a result of employee contraction of water-borne illnesses
- Water for sanitation versus sanitation without water,
- Recycling of wastewater nutrients,
- Wastewater irrigation,
- Urban agriculture,
- Water to feed depleted aquifers,
- Future new system solutions,
- Social equity and transfer of knowledge and new technology

(Martin, 2009; Niemczynowicz, 1999).

As the concern over water use, as a human assault on natural systems that has accelerated over the past decade, so too has the need for a more holistic concept of system management grown. The aim is to maintain and restore the ecological integrity of this natural resource holistically, rather than simply preserving water quantity or quality (Sophocleous, 2000).

2.4.5 *Energy*

Energy use and creation is one of the main drivers of SD awareness. The creation of energy from fossil fuels such as coal, could provide the power needed globally, however, their Co2 impact on global warming requires invention, development and deployment to be on a scale commensurate with, or larger than, the entire present day energy supply from all sources combined (Lewis & Nocera, 2006).

Therefore it is clear that, if we are to live on this planet, making a science of energy efficiency is the only long-term option we have (Girardet & Mendonça, 2009).

The supply of secure, clean and sustainable energy is arguably the most important driver of SD activity and the most urgent scientific and technical challenge facing humanity in the 21st century.

Energy efficiency impacts the production and consumption patterns of business. The focus of most of the SD activity is to address the global call to reduce emission to 2 degrees C to slow global warming and improve future energy outlooks. Omer (2008) highlights six short-term energy target actions and six medium-to-long-term actions on which business should focus.

Six key short-term activities that energy sustainability focuses on:

- Application Driven Fuel Cells and H_2
- Biomass or Bio-Electricity for the production of heat and electricity
- Integration of energy systems for sustainable communities
- Rational Use of energy for cleaner fuels

- Storage of energy and eco-buildings
- Clean gas power generation

Six key medium-to-long-term activities that energy sustainability focuses on are the same as above except that Photovoltaic replaces clean gas power.

Source: Omer (2008).

2.4.6 *Waste*

The desire for business to solve the waste problem of our consumption and production behaviour is indicative of the magnitude of the waste problem itself. It is also clear that there is a consensus that the world is at a crossroads in history. According to Girardet and Mendonça (2009), there is less than a decade to address climate change before reaching a point of no return, therefore no action will be far costlier to the world in the long run than if humanity acts immediately.

One of the first internationally accepted definitions of waste and waste management was captured in the 1975 EU Waste Framework Directive (see Figure 4) and 40 years later (see figure 5). Society is still trying to define these concepts and find solutions to:

- Preventing waste where possible,
- Reusing, recovering and recycling waste to reduce volumes,
- Treating the waste to render it less hazardous or harmful to the environment,
- Disposing of unavoidable waste to landfill as a last resort

(Oelofse & Godfrey, 2008).

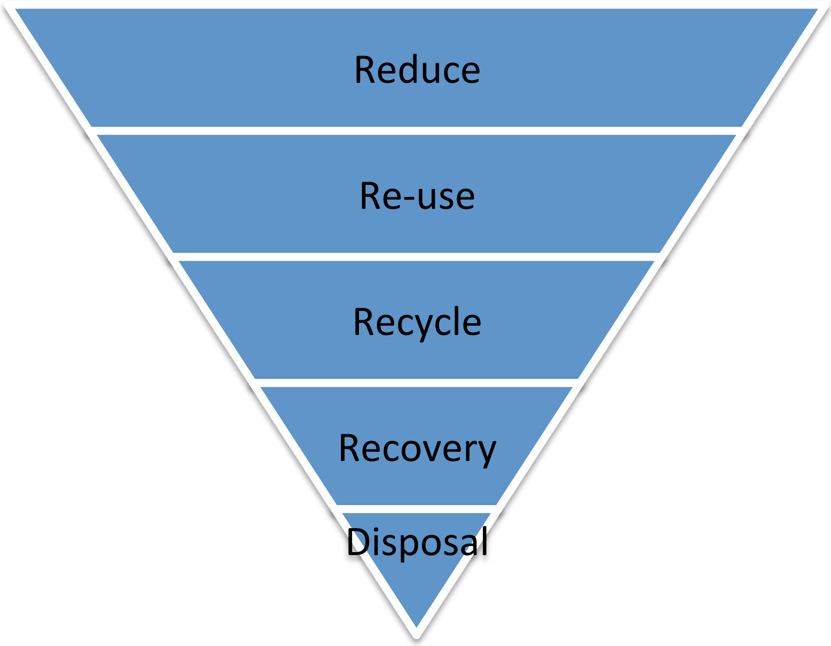

Figure 4: EU waste Framework Directive (Papargyropoulou, Lozano, Steinburger, Wright & Ujange (2014))

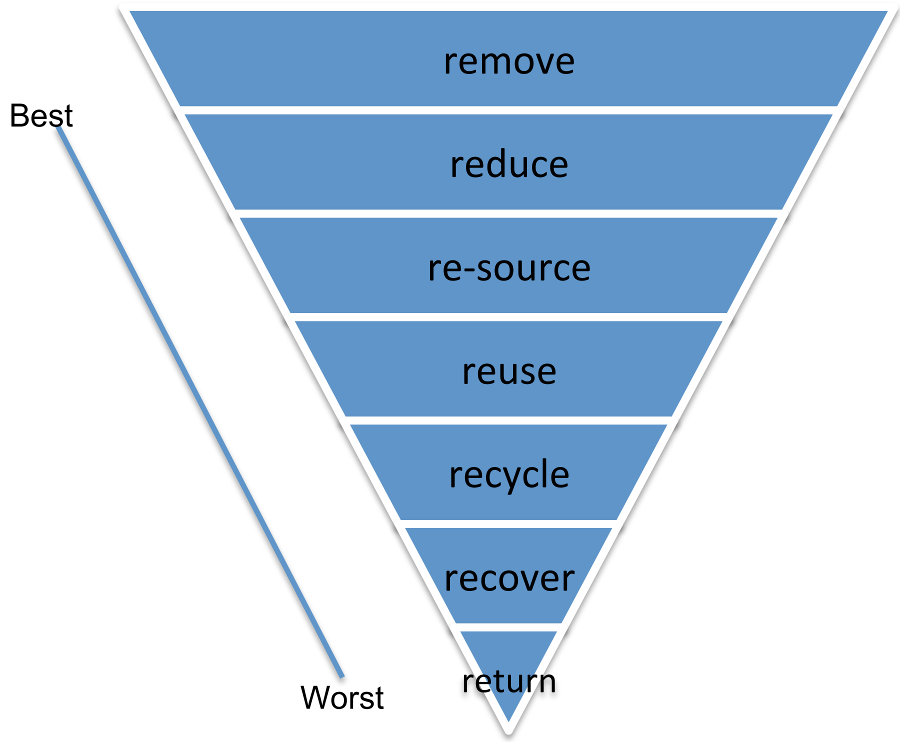

Figure 5: Seven Resource efficiency methods with decreasing cost-effectiveness and increasing environmental impact (Enright & Montenegro, 2013)

Oelofse and Godfrey (2008) describe the downfall of the hierarchy of waste to the numerous definitions that have come from it. In their view, South Africa needs to shift its focus away from viewing waste as a disposable material to see it rather as a renewable and recoverable source. This will enable South Africa to move closer to industrial ecology focused rather on sustainable development and not on only on waste management or the disposal thereof (Oelofse & Godfrey, 2008).

The following key activities that business should be focusing on with regards to their waste management are listed below:

- Recycling
- Remanufacturing or re-use of product
- Measurement of consumption/use of material
- Toxic and hazardous waste
- Design improvements
- Eco-efficiency
- New technology / Renewables

(Beamon, 1999).

2.4.7 *Compliance and trade-offs*

The question of whether environmental protection and sustainable development is possible in the current political economic context is a concern. It seems that they are all inextricably linked to the consumption and production patterns of people. In 1998, the world experienced international environmental crises. Scientists linked these phenomena to increased greenhouse gasses and the destruction of rain forest ecosystems attributing the cause directly to humanity (Carvalho, 2001).

Carvalho (2001,) cites Reid (1995), in proposing a paradigm shift as the minimum requirement for true sustainability to be achieved. This shift needs to establish balance where equitable and stable economic order is created so that sustainability can function.

Civil society has arisen from democratization movements and political pluralism where Governance of cities, throughout the developing world, has been affected. As a result Managing population growth and in particular, urban growth, is becoming one of the most important challenges of the 21st Century. (Cohen, 2006).

As a result of the critical challenges of urbanisation emerging around the world, various groups are attempting to develop compliance frameworks for the economies of the world to assist them in providing guidelines for achieving sustainability. South Africa has responded by adopting principles from the Kyoto Protocol and the United Nations Framework Convention on Climate change (United Nations Framework Convention on Climate Change) in its development of the King III commission (Mqadi & Winkler, 2005).

Improving the integration of social and environmental impacts into day-to-day management decisions is recommended where the measuring and reporting process is linked so that integration into traditional investment models is possible. (Epstein & Buhovac, 2014).

The challenge for business is that to achieve sustainability, the three pillars of sustainable development, with three different and separate strategies for achieving sustainability, must be met. These three pillars are the economic, environmental and social arms of society (Institute of Directors of South Africa, 1979).

Therefore, trade-offs between them are required to ensure that achieving economic sustainability is not at the expense of either social or environmental sustainability. In business, each pillar trades off as it creates value for the business. This is necessary to enable the business to ensure it minimises economic stress within the communities they operate, is able to focus on the well-being of their customers, has the ability to respond to negative impacts and depletion of natural resources and identify the viability of key suppliers (Porter & Kramer, 2011).

One protocol commonly adopted by business in addressing climate change and contributing to the overall creation of SV is the "Greenhouse Gas Protocol". This protocol was designed by a broad collaboration of businesses, NGO's, governments and others at the World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI). This collaboration has grown from a need to create clarity on the risks and opportunities which climate change presents and the need for voluntary international accounting and reporting on greenhouse gas emissions to be encouraged (Sundin & Ranganathan, 2002).

From the literature, it is unclear how to balance these trade-offs. The uncertainty created as a result of these trade-offs are the choices business face when addressing the nature and need of the business at the time. At times shareholders may want the company to place substantial weight on long term issues such as social performance and the environment, whereas at others the short term view on profits may be more important (Epstein & Buhovac, 2014).

Further complicating the trade-off dilemma are the three options of compliance choice. They are the statutory regulation of ‘comply or else’, with legal ramifications for non-compliance, or the second choice of TBL reporting which is rather on an ‘apply or explain’ approach, with no ramifications for non-compliance. Thirdly, ‘self-regulation’ where companies do and report on what they would like (Institute of Directors of South Africa, 2010).

However, the down side of TBL reporting is the ‘one size fits all’ approach. As explained by the Institute of Directors (2010), the scales of business carried out by companies vary to such a large degree, they cannot be logically suited for all.

Voluntary regulation is a more lenient approach than compulsory. The downside is that if compliance is not in the best interest of the company, businesses are not compelled to comply, but merely to explain why they are not complying. They are not penalised for non-compliance. Voluntary disclosure has therefore been described as viewing the market place as the real compliance officer and not the business (Institute of Directors of South Africa, 2010).

The third choice of self-regulation is the reaction to market place pressures and compliance, where businesses prefer to self-regulate, rejecting the idea of standardised reporting and opting instead to report on whatever items they felt were important for their industry (Nhamo & Swart, 2012).

Other reasons that business self-regulate are described by Schaltegger and Burritt (2010) as actions

- To improve their reputation
- To reduce incentives for politicians to pass new regulations and to design themselves optimal cost minimising approaches achieving certain sustainability goals
- For the reason that they seek increased profit

(Schaltegger & Burritt, 2010).

In addition, self-regulation that is driven by moral objectives, in the hope it provides a reduction of potential costs, provides a competitive advantage and increases the company's profit, provides signals to society that the business is going above and beyond that of compliance (Schaltegger & Burritt, 2010).

As climate change and global warming increase, so more companies are finding that government regulations and industry codes of conduct are not the only drivers to address sustainability. As identified by Epstein and Buhovac (2014), TBL is voluntary and noncompliance with TBL regulations can be costly. Regulatory noncompliance creates costs to companies including penalties, fines, legal costs, lost productivity and potential closure of operations. Fear of the related effects to corporate reputation is fast becoming the strongest driver of all for moving above and beyond promulgated regulation.

In essence, good performance on sustainability activities can garner a positive reputation with stakeholders and improve community relations and business performance. Alternatively, as found by Epstein and Buhovac (2014), the consequences of mismanaging sustainability and stakeholder relationships can be significant and costly in terms of reputational damage and potential impacts on the bottom line.

As a result of such opinions filtering into society, the notion of ‘greenwash’ has emerged. Greenwash is one of the factors to have caused SD reporting to be criticised, due to the opinion that social reporting in businesses has very little effect on the actual way businesses are being run (Nhamo & Swart, 2012).

Therefore, the term ‘greenwash' also fits the description given to the narrow-view of value in business strategy resulting in society demanding a SV approach where they overcome the economic divide between those that have and those who do not.(Kakabadse & Korac-Kakabadse, 2001).

To bridge this divide between haves and have-nots, common governance practices should serve as a model for all firms, regardless of the risk-reward ratio that climate change presents to their particular circumstances. These are:

- Collaboration of boards of directors and senior executives to address climate change and other sustainability issues. To adequately prepare and empower to focus on GHG reduction and climate mitigation strategies.
- CEOs to embrace climate change as a near-term priority. True leaders are speaking out on climate policy, risks and opportunities, rather than leaving the issue to their successors.
- Management teams to pursue practical solutions to climate change, rather than waiting for breakthrough technologies. Management teams are working to find cost-effective, near-term ways to reduce GHG emissions, starting with energy conservation and more efficient production processes.

- Companies to start laying the building blocks toward a carbon-neutral economy, with projects focused on carbon sequestration and infrastructure for hydrogen fuels.

Source: (Cogan, 2006)

2.4.8 *Materiality of SD to competitive advantage*

In the past, businesses did not focus on energy efficiency as a cost saving opportunity as oil was relatively cheap, and they focused on growth and capacity by cutting costs and improving efficiency to remain competitive. In addition, tracking energy efficiency was very difficult for business due to the production rates and product mix being difficult to measure (McKinsey & Co., 2010).

The initial global call to SD action in 1992 highlighted the urgent need for businesses and government to give consideration to the effects of their production and consumption process and explain their activities and demonstrate how they perform them.

Sustainability economics is defined as being "aimed towards both justice and efficiency with respect to human–nature relationships over the long-term and inherently uncertain future" (Baumgartner & Quaas, 2010). In the past, corporate reporting and economic efficiency has been aimed around the use and production of resources for financial gain and financial growth. Equity or justice and the inclusion of environmental and social sustainability issues have been separate and unimportant, relative to the viability of a firm or the sustainability of the planet (Sundin & Ranganathan, 2002).

Supporting this past view is the idea that every person in the economy participates and contributes in some way to the total natural, labour, and capital resources (Bishop, 1993; Iwase, Homma, Shioda, & Nakai, 1993). This is also referred to as "initial endowments". Ultimately, this approach leads to inequality where the few are very rich and many are very poor (Bishop, 1993). This view conveys that economic sustainability is therefore in opposition to economic efficiency.

Economic sustainability is centred on the concept of keeping costs as low as possible. According to Michaelowa and Rolfe (2004), these costs are controlled either by low carbon intensity technologies or with a short-term solution of applying a higher discount rate to future emission reduction costs. Although the first may sometimes impose an immediate cost, it is, in the long term, a preferred option as the second option of short-term gain could be at the expense of long-term economic well-being and affect future generations (Michaelowa & Rolfe, 2004).

Much discussion around economic sustainability and competitive advantage has, in the recent past, been consumed by measuring a company's ability to be sustainable through sets of activities to set them apart from their competitors. Some examples of such advocated activities are: total quality management, benchmarking, reengineering, competition, outsourcing, partnering and change management and time-based tools. However, although a short-term operational effectiveness and improvement is achieved, it has not yet translated into a long term, sustaining competitive advantage (Porter, 2002).

Use of these tools and activities is seen extensively in the mining sector's commitment to reporting from 'cradle to grave'; where continuous environmental and socioeconomic improvement, from mineral exploration, through operation, to closure is achieved (Jenkins & Yakovleva, 2006).

The researcher agrees that this commitment will need to address every atom within the organisations' DNA and actively address the challenges that are preventing them from achieving sustainable development. The ultimate intent is to emerge as a competitive entity, contributing to the prosperity of all stakeholders, whilst preserving the planet for future generations.

As a result of the growing concern for the planet, and the increasing importance of sustainability, the UN declared 2005-2014 as the decade of sustainable development. Their aim was to encourage educational institutions at all levels to change attitudes and behaviour through the nurturing of ecologically literate individuals. This is seen as important in the literature as an ecologically literate person has the knowledge, capacity and capability to identify how all pillars of sustainability are related. The response of ecological literate people will demonstrate an attitude of care or stewardship that enables practical competence to act on the basis of their knowledge and feelings (Pasricha, 2010).

South Africa hosted the World Summit on Sustainable development in Johannesburg (WWSD) in 2002. The intention of this summit was to establish the progress of sustainability since the previous Earth summit, which was held in Rio in 1992. The primary achievement of the WSSD was that sustainable development issues were brought to the fore and recognised the contribution which could be made by the mining and related sectors towards achieving sustainable development (Swatuk, 2003).

Azapagic (2004) describes the European Commission (EC) as specifically addressing these issues in the mining and minerals sector by reconciling the need for sustainably more secure and less polluting extractive activities, while maintaining the competitiveness of the industry (Azapagic, 2004).

However, although there has been considerable focus and attention on sustainable development since the Brundtland Report, there has been no consensus on "one" framework, which can be adopted to achieve this sustainability. The reason for this may be, as Hilson and Basu (2003) explain, that as a result of the numerous sustainable development definitions, the resulting activities are difficult to define and implement and remain diversified across industries, sectors, nations, countries and businesses (Hilson & Basu, 2003).

2.4.9 *Leadership*

Another SD pressure comes from the shift many have observed of the business sector grappling with the paradigm of conducting business in a sustainable manner. According to Lubin and Esty (2010), this shift is called the move to an Organizational Learning Culture. This is described as linking organizational learning and sustainability where although the linking is in a preliminary phase, the signs are of increasing convergence. (Lubin & Esty, 2010).

To enable businesses to make this shift to improving the execution curve of organisational learning, the following measures must be considered:

- Having a well-articulated or strongly implicit sustainability vision and mission
- Investing in sustainability education for employees
- Employing at least some of the organisational learning elements proposed (shared vision, personal mastery, team building, mental models and systems thinking)
- Demonstrating leadership that pursues success both for sustainability and the triple bottom line, ideally at all levels within the company including the top, middle and bottom levels
- Measuring the progress towards sustainability in a rigorous and systematic way that is accountable to all stakeholders

(Molnar & Mulvihill, 2003).

The difficulty businesses are finding in making their shift is as a result of the many hats they must wear in the process. According to Carroll (1999), these hats are a legal hat, an ethical hat, and a philanthropic hat. Good corporate citizens are therefore expected to,

- Be profitable whilst fulfilling their economic responsibilities
- Obey the law and fulfil their legal responsibilities
- Engage in ethical behaviour that is responsive to their ethical responsibilities

- Give back through corporate contribution or philanthropy

(Carroll, 1998 ; Carroll, 1999).

According to the author, the plethora of reporting and measurement tools available in society makes choosing the appropriate solution, one that mitigates climate change and averts reputational damage whilst creating shareholder value, a difficult and daunting task for leadership. The leadership paradigm, it seems, is centred on how business leaders mitigate climate change, avert reputational damage and improve company performance according to people, planet and profit.

Their challenge is to create a process where governance, strategy and sustainability are inseparable. A process of integrated governance which establishes the values and ethics that underpin sustainable practices. (Institute of Directors of South Africa, 2010).

Business leaders have an opportunity to benefit from this shift by capitalising on benefits from un-priced social, environmental and economic impacts. In fact, companies are urged not to underestimate the opportunity for competitive advantage by investigating where pressure is more likely to come from and thereby able to ensure an independent assessment of social, economic, and environmental impacts *(Epstein & Buhovac, 2014).*

Good governance is essentially about effective leadership. Leaders need to rise to these challenges if there is to be any chance of effective mitigation of the negative impact from production and consumption. A leader’s role is described as one who defines strategy, provides direction and creates the corporate culture of ethics and values, which drive the behaviour toward these goals (Institute of Directors of South Africa, 2010).

Leaders can also review and change their organisational design or structure over time to signal a commitment to sustainability. As described earlier by England (2015), Paris 2015 focused leaders to a time objective where the time target itself is a concern. Achieving the goals in the time frame requires leaders to find the right mix of soft and hard systems that are dependent on magnitude, degree of uncertainty and time (Epstein & Buhovac, 2014).

The researcher wonders if the definition from Devuyst (2000) is accurate in its illustration of the many tasks to be achieved. Will there be enough time to do the things we ought to in the time required? These tasks include identifying, predicting and evaluating the potential impacts of a wide range of relevant initiatives (such as legislation, regulations, policies, plans, programmes and specific projects) (Horaud, 1993).

The strategic choice that leaders make in guiding their corporate culture and attitude toward SD, have considerable implications for the planet. The following three descriptions indicate the choices of many that they face.

- To engage the principle of efficient resource and environmental management where economic and human development is sustainable and can be consistent with improving environmental conditions (World Bank, 1992).
- The second argues that unless a transition to SD is achieved, the results may demonstrate uneconomic growth and an ecological catastrophe that would impact living standards negatively (Daly, 2007).
- A third view is that the natural environment and its resources should be used whilst considering our obligations to future generations and that we leave future generations the option or the capacity to be as well off as we are now (Solow, 1993).

Different stakeholders exert their influence in different ways, making the decision of leaders difficult. Table 4 identifies the expectations from different stakeholders that influence this decision.

Table 4: Identifying the traditional stakeholder expectations of corporate leadership

Description	Demands and expectations	Action
Shareholder	Better performance	Economic performance
Employee	More job security and compensation	Organisational learning culture
Customers	Higher quality product	Economic, social and environmental products and services
Communities	Greater sustainable development	SV and human rights protection

Source: Logsdon and Wood (2005)

The choice companies make in this regard are determined by the leadership commitment to change that influences environmental and economic performance. The "Green" commitment from top managers and their understanding of corporate environmental management will influence the extent to which companies may innovate, take risk or avoid risk (Ki-Hoon & Ball, 2003).

Some of the actions implemented by business to avert negative impacts, derived from the literature are shown in Table 5.

Table 5: Business reasons for internal compliance to SD drivers.

Driver	Reason for Activity	Source:
Economic management	It is important to recognise that energy conservation technical measures alone are not enough. One might employ the best technology with the most efficient systems but, without proper energy management, these efforts might result in false economies	(Al-Homoud, 2000; Elkington, 1994)
Meeting societal expectations	The support of the public as citizens, voters, consumers, employees, and so on will be essential for the future of the worldwide drive towards sustainable development	(Elkington, 1994)
Climate change and maximization of environmental concerns	Globally, business wants to be seen as taking on a more responsible and interactive role in social transformation and sustainable development. Responding to this challenge presents companies with significant challenges, as well as opportunities. Companies ignoring these developments risk losing their licence to operate and their international competitiveness.	(Hamann, 2003)
Adherence to international best practice	The choice of instruments for environmental management is increasingly influenced by the specific state of African environmental and technological capacity and by a call for the recognition of the role of traditional customs in nature conservation	(Hens & Boon, 1999)

Driver	Reason for Activity	Source:
Industry leadership	Sustainable leadership matters, spreads and lasts. It is a shared responsibility that does not unduly deplete human or financial resources, and that cares for and avoids exerting negative damage on the surrounding educational and community environment	(Hargreaves & Fink, 2005)
Improving business performance	Faced with increasing pressure to consider sustainable development, many organisations have revised their business models, for improving both environmental and economic performance, the so-called win-win situation.	(Hall & Vredenburg, 2003)

In essence, it is logical to conclude that climate change is one of the most serious environmental risks of the twenty-first century, affecting not only business but also everyone on the planet.

As a conclusion to the review of the internal Corporate SD drivers and activity, the following emerged as key in addressing internal SD change.

- Corporates will need to change their production and consumption behavior if they are to remain competitive in an uncertain environment.
- The rate of change as described as urgent, is too slow. Urgent change is now needed by business to mitigate negative impacts.
- The perceptions of high cost attributed to the change contribute to the slow rate of change. This cost perception prohibits the business to capitalise on opportunities that emerge when SD activity is adopted; where long-term cost reductions are realised, thus positively impacting long-term economic performance and market value.

- The growing awareness of societal challenges has resulted in pressure being exerted on business. The perception that business is prospering at the expense of the broader community is increasingly seen as a major cause of social, environmental, and economic problems (Porter, 2011).

2.4.10 *Proposition 1*

The researcher proposes that the internal SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

2.5 External Corporate SD drivers and activity

2.5.1 *Background*

Resulting from the numerous sustainable development definitions, activities are difficult to define, implement and remain diversified across industries, sectors, nations, countries and businesses (Hilson & Basu, 2003).

The relatively recent shift of focus from environmental issues to social ones, added to the difficulty academics had in defining SD. As a result of the need for transparency, the 1990's began a shift in focus from environmental issues toward social ones. This shift arose from negative social impacts resulting from scandals centred on business exploitation, child labour and sweat shops. This created the need for greater transparency in business process where consumers became as concerned over the records on companies' worker-rights as to their records on environmental rights (Carroll & Shabana, 2010; van Beurden & Goessling, 2008).

As a result of this shift from the environment to the social where operational activity improving workplace conditions and benefiting society are addressed, the term Corporate Social Responsibility (CSR) emerged.

The idea of Social Responsibility (SR), the forerunner to CSR has been around for centuries which proposes that business enterprises have some responsibilities to society beyond that of making profits for the shareholders. However, in U.S in the 1960's, SR attention surged in response to activists and important social movements. Corporate Social Responsibility (CSR) evolved from movements in civil rights, women's rights, consumers' rights and the environmental. CSR was focused primarily on external, social conscious motivations where the business did not look for anything in return. Ultimately business did not link CSR with financial performance (Carroll & Shabana, 2010).

Formal debates and definitions of CSR began emerging in the 1970's, between CSR and Corporate Social Performance (CSP). CSP highlighted the focus of making a business case for CSR. These included corporate public policy, business ethics and stakeholder theory/ management (Carroll & Shabana, 2010).

An accepted definition of CSR is that, 'the social responsibility of business encompasses the economic, legal, ethical, and discretionary [later referred to as philanthropic] expectations that society has of organizations at a given point in time' (Carroll & Shabana, 2010).

Since the 1980's, the business case for CSR has been growing and becoming more significant demonstrating a shift in focus from a financial orientation to a much broader one. This focus includes

- Disclosure measurements consists of the content analysis of corporate disclosures to the public (Orlitzky et al., 2003)
- Corporate action, such as philanthropy, social programs, and pollution control; corporate action refers to concrete observable CSR processes and outcomes. Questionnaires addressed to employees or managers are included in this category because they directly reflect actions of the firm in question

- Corporate reputation ratings such as KLD, Fortune, Moskowitz, and Business Ethics (Wu, 2006). The focus on reputation ratings assume that CSP reputations are good reflections of underlying CSR values and behaviours (van Beurden & Goessling, 2008). The growing societal need for accountability became the focus of the 1990’s. Disclosure from business and government, on legal, social, moral, and financial aspects, was required in order to demonstrate greater transparency. Some examples are,
- The increasing government restrictions with respect to social conduct.
- Customer demands are rising with the increasing transparency of markets.
- Customers are asking for sustainable products (Gauthier, 2005).
- Increasing numbers of investors are not only looking at the financial performance in a corporation’s portfolio, but are also valuing the way corporations meet their social responsibilities (Barnett & Salomon, 2006; van Beurden & Goessling, 2008**).**

For a company to be deemed transparent, it must be socially responsible and have no secrets from internal stakeholders that include shareholders, employees and customers as well as external ones, such as neighbours, citizens and society. Transparency mitigates environmental carelessness or anti-social behaviour, therefore transparent business strategies must be sought out which simultaneously maximise the preservation of biodiversity, whilst improving the state of humanity (Holiday, Schmidheiny, & Watts, 2002).

2.5.2 *Governance challenges*

The economic crisis of 2008, according to Hassen (2009), also initiated a ripple of concern in South African society around external negative impacts, especially social and environmental awareness. The ripple began gaining momentum as unemployment rose (Ebrahim-Khalil, 2009).

In South Africa recent political instability, a government fraught with corruption (blamed on a past legacy) and the growth of social injustice began fuelling the concept of shared value. The result, according to Hassen (2009), is a growing discontentment as seen in ‘service delivery’ protests against poor delivery, access to service and a range of other complaints (Ebrahim-Khalil, 2009).

There is no clear and direct plan for South Africa. Governments and bodies are responding through various mechanisms and measures. However, according to Mukheibir and Sparks (2003), two reputable measures have emerged as solutions to ensure an adequate supply of water for economic activities. These are The Reconstruction and Development Programme (RDP) and the GEAR policies. Both policies focus on the attainment of equity and economic growth, without which ensuring jobs and equal income distribution will be difficult (Mukheibir & Sparks, 2003).

The global and South African challenge is to ensure a quality of life, which is described by Porter and Kramer (2006) as improved social well-being, greater medical care, access to social services and respect for civil rights and freedoms (Porter & Kramer, 2006).

The essence of the King III report, as cited in Cliffe Dekker Attorneys (2002), quotes the King committee themselves in describing successful governance in the world as,

“An inclusive and not exclusive approach. The company must be open to institutional activism and there must be greater emphasis on the sustainable or non-financial aspects of its performance. Boards must apply the test of fairness, accountability, responsibility and transparency to all acts or omissions and be accountable to the company but also responsive and responsible towards the company’s identified stakeholders.” (Cliffe Dekker Attorneys, 2002, p. 2)

To ensure that the ‘haves and have nots’ are protected in South Africa, the Bill of Rights was created in its Constitution in 1996. This landmark constitution has brought about a significant shift in society’s moral perception of companies. As a result, the notion of pursuing profit at the expense of human rights is legally untenable in South Africa (Institute of Directors of South Africa, 2010).

The Bill of Rights and the Constitution provide a framework for achieving good corporate governance. It is from this beginning that corporate governance is built and from where the TBL compliance standard was derived. PriceWaterhouseCooper (2010) describes the process of protection as an annual requirement for companies to report on how they have contributed, both positively and negatively to the economic life of the community in which they operate.

It is evident that there is a need for greater compliance as seen by the overwhelming response from the gathering of major nations in France and their collaborative Paris 2015 agreement, toward achieving SD. The agreement, a one-world-view towards sustainability, is driven by one clear road map to sustainable development. To this end, the signing of the Paris agreement 2015 has begun the journey of creating actions toward achieving a one-world view towards SV and SD.

Internationally, a working model and plausible definition for sustainable development and the change in activities to meet this definition is still being sought.

2.5.3 *Corporate Social Responsibility*

As described in the introduction of this section, the focus of corporates towards the external stakeholders is defined in the literature as evolving from Social Responsibility (SR), to Corporate Social Responsibility (CSR). As with SD, CSR too has various definitions. As early as the 1950's, CSR was just SR. This definition refers to the obligations of businessmen, requiring businesses to pursue those policies and make decisions for actions to meet the objectives and values of society (Carroll, 1999).

In the 1960's, SR was seen as the contributions people made to mankind, especially for creating an environment with more opportunity for each person to fulfil his potential. SR should be seen in a management context and delivered in a socially responsible process in order to have a good chance of long-term economic gain (Venkatesh, Morris, Davis, & Davis, 2003; Yamada, Yamamoto, Matsuzawa, Mitsuoka, & Fujita, 1972).

Each decade since the 1960’s has seen new CSR definitions emerging, resulting in today's businesses being confused in their attempt to find one definition to adopt when endeavouring to implement sustainable CSR initiatives. What is evident in all attempts is that on a conceptual level, there is agreement that businesses have social, environmental and economic impacts, that they are concerned about their stakeholders and that they deal with regulators. However, at an operational level, as a result of globalisation, the context in which business operates is changing at an increasingly rapid pace (Warhurst, 2001).

The current situation is ever changing. Each day there are new stakeholders and different national legislations. Each day new expectations arise for businesses, and new environmental and economic impacts to be considered, all of which need new thinking to be optimally balanced in decision making. Thus, in such a context, new CSR management tools are needed in order to develop and implement a successful business strategy (Dahlsrud, 2008).

Exacerbating this problem are the impacts from recent economic failures such as the Enron debacle, which precipitated a financial meltdown (Conrad, 2003). A new operating paradigm is evolving which is demonstrating a shift from the traditional "do no harm" approach to a "demonstrate positive benefit" imperative (Warhurst, 2001).

Within South Africa, one of the most pressing challenges to overcome in achieving social sustainability and sustainable development is the required change in attitude towards CSR. Businesses need to know how profits are made and their impacts on society (Hamann, 2004).

Although challenges to incorporating social sustainability are emerging, the literature indicates that if corporations were to analyse their prospects for CSR by revisiting the same frameworks that guide their core business choices, they would discover that that CSR can be much more than philanthropy or a constraint or charitable deed but rather a source of opportunity, innovation and competitive advantage where lies opportunities for cost savings (Porter & Kramer, 2011)

Disclosure of CSR information has, within the mining sector, become an imperative. Reporting on social and environmental issues has become a licence for business to operate, justifying their existence and documenting their performance to enhance visibility and image in society. This is as a result of the many environmental disasters or human rights incidents that have contributed to the growing public concern about CSR over the last 40 years (Jenkins & Yakovleva, 2006).

This concern has spread throughout the realms of business and even the JSE has created an index focused on Socially Responsible Investment (JSESRI), which integrates climate change parameters in its assessment criteria (Nhamo & Swart, 2012).

2.5.4 *Shared value Creation and Good Corporate Citizenship*

As a result of the growing concern for the planet, and the increasing importance of sustainability, the UN declared 2005-2014 as the decade of sustainable development. (Pasricha, 2010).

The concepts of Shared Value (SV) and Good Corporate Citizenship (GCC) thus emerged and strengthened in the 2000’s as ecology literacy grew, resulting in a greater awareness of climate change, shortages of resources, population growth, poverty and the negative social impacts of the business process.

GCC describes company behaviour as needing to go above and beyond internal regulatory requirements. Companies must walk the talk where they not only engage with stakeholders but also become stakeholders themselves, alongside governments and civil society. The production and consumption process of GCC companies rely on the stability and increased prosperity of global production and it is in their direct interest to help improve the state of the world (Schwab, 2008).

In South Africa, since 2008, climate impact has resulted in both energy and water shortages that are impacting people directly, leaving them often without water and in the dark. The GCC concept has grown from this situation and strengthened the movement for shared-value-creation (SV).

The water crisis and the energy situation are topics of daily conversation in South Africa and is affecting everyone in the land. The concern raised is that as global warming increases South Africa does not seem to be serious about implementing a coherent strategy for sustainable environmental development (Menyah & Wolde-Rufael, 2010).

The emerging view of SV reveals that the initial concerns over the narrow-view of business raised in the 1960's have been validated. As a result, pressure from environmentalists, scientists and concerned citizens is demanding from business, governments and international bodies, such as the United Nations (UN), that they take notice of the environmental and social negative impacts, as imperatives which affect almost every facet of life today (Porter & Kramer, 2011)

The health of a society and growth of SV is driven by a series of factors and operates at three levels. These levels are the community, the household and the individual (Ruel et al., 1998).

The factors that contribute to the corporate sustainability challenge to improve health on these three levels are identified in Table 6.

Table 6: Factors contributing to improved health on three levels

Community level	Household level	Individual Level
Quality of the overall environment which focuses on biological pathogens and chemical pollutants in air, food, and water	The general conditions of the household, including the type of housing, the availability and cost of water and hygienic facilities, and the number of rooms per household member	The interactive mechanisms among an individual's food and nutrient intake, nutritional status, and health status
Availability, cost, and quality of services such as water, electricity, sewage, refuse disposal, and health services are important health determinants	The availability of food	Better Nutrition; Better individual health
	Caring behaviours related to the use of preventive and curative health services	Better individual health

(Ruel et al., 1998)

SV or Corporate Citizenship, driven by public expectations, is real and often observed in many successful companies as they address the relationships between all stakeholders and not just employees.

2.5.5 *Consumer pressure and demand*

Throughout the literature review, it has become apparent that no matter which perspective businesses take on the sustainable development challenge, environmental and social concerns are driving the need for current corporate behaviour to address the SD activities critical to reducing negative impact on the planet. Evidence is accruing that consumer pressure and demand is growing for business to provide social environmental assessments (SEA) that address SV. Devuyst (2000), cited by Horaud (1993), found that impact assessment professionals see the need to introduce SEA as a general business practice (Horaud, 1993).

In addition, consumer pressure or demand for sustainable products and services, from many countries, are forcing the hand of many businesses to seek out innovation and sustainability. Ironically, this pressure offers governments and companies alike an opportunity to seek out a competitive advantage from sustainability through innovation of products, new models and effective strategies that enable them to either defend or climb the execution curve (Lubin & Esty, 2010).

As highlighted in the literature, there is an urgent pressure for businesses and government to give consideration not just to the materiality of the costs of production and consumption but also to their effects. There is a need for them to explain their activities and demonstrate how they perform them. CSR calls for a company to report on issues, such a human rights, employee welfare and climate change, not only to its shareholders, but also to other stakeholders, including employees, customers, affected communities and the general public (Hamann, 2003).

2.5.6 *Competitiveness and Trade-offs*

Sustainability economics is viewed as being both aimed towards justice and efficiency with respect to human–nature relationships over the long-term and an inherently uncertain future. (Baumgartner & Quaas, 2010). In the past, corporate reporting and economic efficiency has been aimed around the use and production of resources for financial gain and financial growth. Equity or justice and the inclusion of environmental and social sustainability issues have been separate and unimportant, relative to the viability of a firm or the sustainability of the planet (Sundin & Ranganathan, 2002).

Economic sustainability is centred on the concept of keeping costs as low as possible. According to Michaelowa and Rolfe (2004), these costs are controlled either by low carbon intensity technologies or with a short-term solution of applying a higher discount rate to future emission reduction costs. Although the first may sometimes impose an immediate cost, it is, in the long term, a preferred option as the second option of short-term gain could be at the expense of long-term economic well-being and affect future generations (Michaelowa & Rolfe, 2004).

The challenge that the literature has identified as a barrier to achieving sustainability is the balancing of trade-offs, all of which must consider both present and future generations. For balance to succeed, the challenges preventing sustainable development must be met head-on, considered and then collaboratively overcome to have a sustainable planet for current and future generations.

The literature argues that defining SD is complex and multi-faceted, where trade-offs and conflicts between economic, environmental, and social aspects in corporate management and performance, represent the rule rather than the exception. The balancing of trade-offs is described as creating a win-win paradigm. This paradigm is at the heart of the so-called business case for sustainability, where environmental stewardship and social responsibility benefit companies (Hahn, Figge, & Pinkse, 2010).

Much discussion around trade-offs, economic sustainability and competitive advantage has, in the recent past, been consumed by measuring a company's ability to be sustainable through sets of activities to set them apart from their competitors. Some examples of such advocated activities are: total quality management, benchmarking, reengineering, competition, outsourcing, partnering, change management and time-based tools. However, although a short-term operational effectiveness and improvement is achieved, it has not yet translated into a long term, sustaining competitive advantage (Porter, 2002).

Use of these tools and activities is seen extensively in the mining sector's commitment in their reporting process from 'cradle to grave'; where continuous environmental and socioeconomic improvement, from mineral exploration, through operation, to closure is achieved (Jenkins & Yakovleva, 2006).

The researcher agrees that this commitment will need to address every atom within the organisations' DNA and actively address the challenges that are preventing them from achieving sustainable development. The ultimate intent is to emerge as a competitive entity, contributing to the prosperity of all stakeholders, whilst preserving the planet for future generations.

2.5.7 *The role of Leadership*

The choices leaders make in this regard determine the leadership role within the organisation, where top management or the CEO's commitment to change, influences environmental and economic performance. “Green” commitment from top managers and their understanding of corporate environmental management will influence the extent to which companies may take innovative and risk taking strategies or defensive and risk-avoidance strategies (Ki-Hoon & Ball, 2003).

2.5.8 *Perceptions of high upfront cost from SD action*

The ‘wait and see’ attitude of many businesses globally, as described by Bohringer and Rutherford (2010), has emerged from the perceived long-term loss of negotiating power that immediate action may bring. The immediate action was therefore perceived as a cost implication. This concern is that by taking action immediately, the immediate costs associated with these actions, would affect their competitive advantage in the market place. Therefore the widespread resistance to convert this new SD knowledge into action is high and as a result, is perceived as a negative cost (Böhringer & Rutherford, 2010).

This problem was identified when Canada, one of the first nations to respond to climate change by formulating and ratifying the Kyoto Protocol, was one of the first to express their concerns. “The wait-and-see attitude of Canadian climate policy can be traced back to fears of negative impacts on over-all economic performance and competitiveness of the Canadian industry in the absence of equivalent emission regulations in the neighbouring United States; which is by far Canada's largest trading partner" (Böhringer & Rutherford, 2010, p. 178).

Ultimately, according to Bohringer and Rutherford (2010), the costs associated with compliance have created "outspoken doubts on the political feasibility of Kyoto compliance", where "Canada finds itself under high pressure both at the international level but also with respect to the broader domestic public" (Böhringer & Rutherford, 2010, p. 178).

However, the literature also indicates that in spite of these concerns, some leading companies have begun to identify the benefits to the system-wide changes required throughout their operations to reduce their risk and that the action is resulting in providing them with a competitive advantage. A blog by Persyn (2014) proposes that changing the DNA of any organisation is never easy. The consensus from those businesses that are trying is that "companies with a strong and sound corporate DNA are flexible organizations that are always learning. They are open to change and don't see this change as a threat but as an evolution. All employees understand and support the strategy and work together to implement it" (Carter, Ulrich, & Goldsmith, 2012; Persyn, 2014a).

As a summary of the literature and identifying how companies are attempting to mitigate their negative impacts of production and consumption to serve the needs and wants of society, Table 7 highlights the key activities supporting the drivers of SD.

Table 7: Examples of Mechanisms, Focus and Measurements for Environmental and social Reporting

Mechanisms		
Internal	**Supply chain**	**External**
ISO standard 14064 Corporate Accounting and Reporting Standard of the Greenhouse Gas Protocol (McKinnon, Straube, & Wutke, 2014)	Supply chain management, which acts in accordance with the cradle-to-grave approach, where a comprehensive carbon balance should embrace the various stages in a product's life cycle, including every aspect of the carbon balance from primary production, through to transport, use, and the eventual disposal of products. Supply chain management is at the heart of this measurement process, ensuring that an inter-organizational process-oriented approach is adopted (McKinnon et al.)	GHG Standard ICLEI and GRIP which provides a step-by-step methodology for companies to quantify and report their scope 3 emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Carbon emissions (Kennedy, Ramaswami, Carney, & Dhakal, 2011)
Focus		
Internal	**Supply chain**	**External**
Direct GHC emissions occur from sources that are owned or controlled by the company.	These are emissions from the generation of purchased electricity consumed by the company where they physically occur at the facility where electricity is generated.	Extraction and production of purchased materials, transportation of purchased fuels and use of solid products and services
Measurements		
Internal	**Supply Chain**	**External**
Well-being Index (WI)	Environmental Performance Index (EPI)	Living Planet Index
Health and Population, Welfare, Knowledge, Culture and Society, as well as an Equity Index	Reducing environmental stresses on human health and promoting ecosystem vitality and sound natural resource management	Measures trends in over 2000 populations of more than 1100 species of vertebrates, freshwater, and seawater ecosystems

Source: created from Böhringer and Jochem (2007); Kennedy et al. (2011); McKinnin, Straube, and Wutke (2014).

2.5.9 *Proposition 2*

The researcher proposes that the external SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

2.6 Conclusion of Literature Review

The original research problem of this review was to describe the relationship between the economic performances of South African listed, large cap companies and the implementation of sustainable development activities both internally, including their supply chain, and externally, beyond their supply chain.

The difficulty to achieve balance in the trade-offs between economic environmental and social issues in South Africa (SA) is evident in their global rankings on the following two indicators. Environmental - 13th internationally (in the volume of greenhouse gases emitted), Economic -29th (as indicated by GDP) and 70th (GDP per capita) (Farid, 2016).

By examining the response of business to climate change it is evident that companies are responding at varying rates and focusing on varying activities, dependent on the risk and materiality to the business. The literature identifies divergent views on the perceptions of cost to business when answering the Climate Change’s ‘call to action’. SD itself has been described in the review as being beneficial to reducing costs by finding innovative ways to address the consumption and production operational process. Supporting this proposition is the description from Miles and Colvin (2000), that there is a positive relationship between a firm's reputation and financial returns, as measured by ROA (Miles & Covin, 2000).

However, there is also the view that SD has no relationship to economic performance and poses a risk to business in high upfront costs with no proof of value.

The trade-offs between economic, environmental and social capitals have given rise to the concept of shared value creation where the benefits of achieving SD are described as outweighing the immediate costs attributed to action. In fact, SD is often linked to future market competitiveness and long-term economic survival. It is this view that researcher supports.

Therefore, after reviewing the literature on the internal and external drivers of SD, the relationship between SD and economic performance is not clear.

The research that follows, attempts to discover the nature of the relationship between economic performance and SD.

2.6.1 *Proposition 1:*

The researcher proposes that the internal SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

2.6.2 *Proposition 2:*

The researcher proposes that the external SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

CHAPTER 3. RESEARCH METHODOLOGY

This section of the report outlines the models and methodological considerations appropriate to the research. It begins with an introduction to the SD paradigm and details why the particular sample of companies was chosen as a reflection of the population. It is then followed by a description of the research instrument, the method of collection and analysis and the specifications of analysis. After a description of the limitations of the research, the validity and reliability issues are identified and insight provided in how these were overcome.

3.1 Research methodology /paradigm

The paradigm facing humanity is the trade-off of providing for the needs and wants of society whilst creating a sustainable world. Compounding this paradigm is another, which is how to translate these social and environmental imperatives into a language an economist can understand, i.e. translating the language of numbers and financial materiality of a business where the total costs and benefits can be quantified. The conundrum at the heart of this problem is that what is material to one is not necessarily material to another and vice versa.

The aim of the research was to determine whether SD has an impact on the corporate financial performance of large cap listed South African companies. As described in the literature, one school of thought believes that sustainability comes at an additional cost to companies eroding profitability and market performance, whereas another school argues that the financial benefits of sustainability outweigh the costs.

The report aimed to test whether there is any relationship between the economic performance of listed large cap companies on the JSE stock market to SD, be it positive, negative or nil.

The focus of this research is the paradigm of balancing the three-pillars of sustainability, economic, social and environmental, to achieve sustainable development and prosperity for all.

The researcher chose a quantitative methodology including a small component of qualitative content analysis as being the most appropriate method to answer questions that begin with ‘if’, in ‘what way’, and/or ‘how’. This research attempts to discover ‘if’ there is a relationship between SD activity and economic performance as defined by RONA. It also therefore asks why, in what way and at what level?

There are many methodological approaches appropriate to answer these types of questions, but as recommended by Clarke (2005), statistical correlation analysis, due to its process of analytical survey, provides statistical measures of the relationships between two phenomena. As such, it is an ideal methodology to test the relationship between SD activities and economic performance. Clark (2005) defines quantitative theory as,

“Relational studies: an exploratory form of study, which investigates the possible relationships between phenomena to establish if a correlation exists and if so to what extent” (Clarke, 2005, p. 40).

The advantage of this method is that it is the best way to gain clarity on how people see and act in the world in which they live (Duffy & Chenail, 2008).

3.1.1 *The quantitative methodology*

“Quantitative methodology is routinely depicted as an approach to the conduct of social research which applies a natural science, and in particular a positivist, approach to social phenomena” (Duffy & Chenail, 2008).

This research used a quantitative approach to provide a broader view of the relationship between corporate SD activity and economic performance as indicated by RONA. Quantitative methods were used to find the correlation between sustainable development activities and then accordingly ranked in relation to the RONA of the business.

Correlation theory is used to bring greater precision in a controlled manner to the data capturing and analysing process, in particular, assisting with summarising or interpreting of the data (Abawi, 2008).

This method or approach is advantageous in its ability to test relationships between two variables (x;y). The Pearson Correlation Coefficient is the easiest way to rank these variables to see if there is linear relationship between them (Atlas.ti, 2016; Explorable, 2008).

Statistics, even when taken from a small sample that is representative of society, provides credibility to a theory. In addition, it is central to the acceptability of most statements because it condenses data and presents it in the most logical and understandable way (Explorable, 2008).

By analysing activities statistically, in a numerical manner, we can determine if SD drivers and activities are related to economic performance and, from the results of these rankings, determine if going above and beyond compliance to mitigate climate change, relates to simultaneous improvement in economic performance and competitiveness in the market place.

3.1.2 *The qualitative method of content analysis*

To enhance the credibility of the research, content analysis of annual company financial statements was used. This included the collection, creation and integration of information to the quantitative data sets in order to facilitate a holistic understanding of the phenomenon being studied.

The qualitative information provided the detail for each data source where it is treated as a piece of a puzzle that contributes to the researcher's understanding of the whole picture. This convergence adds strength to the findings, as the various pieces of data fit together to promote greater understanding of the overall SD puzzle (Baxter & Jack, 2008).

3.2 Research Design

The methodology is that of mathematical modelling. The sustainability topic is fraught with varying beliefs on how the planet can become and remain sustainable. The process of modelling will hopefully indicate a set of related concepts that will help people describe their beliefs and how the world functions around them.

As the relationship between economic performance and the uptake of SD activity is extremely complex and governed by a multiplicity of factors that extend well beyond the scope of this research, no attempt was made to establish causality between the variables. For the purpose of this report, it would be sufficient to establish that there was indeed a correlation between the said variables. This should pave the way for future studies aiming to investigate any causality between economic performance of large cap businesses and SD.

Therefore, the design assumption is that,

> "Concepts within models may be based on opinions, values, traditions, cultures and rules that cannot be precisely 'pinned down" (Walliman, 2001, p. 322).

The use of this mathematical type of design is advantageous in how it brings order to the data. It is concise, precise, and able to coherently develop an understanding of the subject by identifying what we know and what we do not know (Lawson & Marion, 2008).

3.3 Population and sample

3.3.1 *Population*

The population comprises large cap companies working in South Africa. The sample representing the large cap sector in South Africa is taken from the JSE's Top 40 SATRIX index as listed on the JSE in 2015. The mix of business in this index is shown in figure 6, and describes the sector exposure within the index relative to the ALL share Index.

1. The research investigated the financial performance of RONA as well as the content of annual financial statements for all the companies listed on the Satrix 40 on the JSE. The Satrix 40 is an index of performance of large cap businesses operating in South Africa. Due to the credibility of the JSE, these companies should represent the behaviour required by large cap companies operating in South Africa. Therefore, the sample of this research report is assumed to be representative of large cap businesses operating in SA whether they are listed on the JSE or not.

2. Therefore, the population can be regarded as applicable to all large cap companies working in South Africa, of which the JSE constituents are merely a convenient sample.

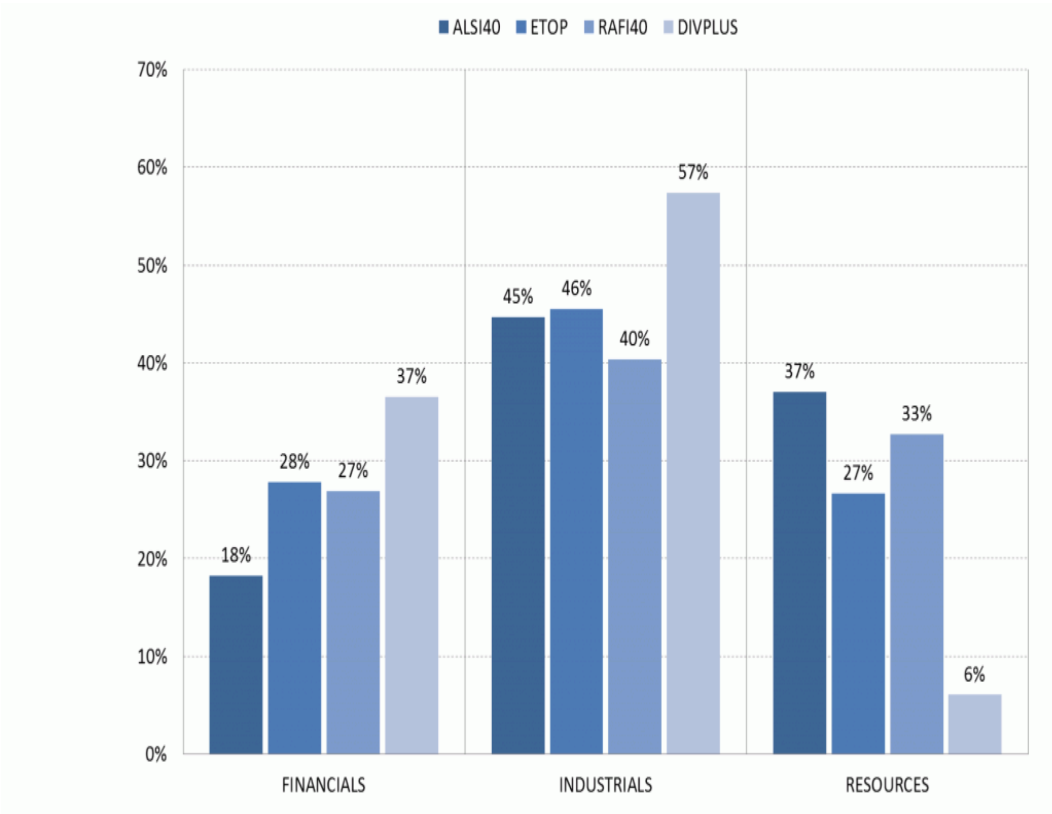

Figure 6: Sector Exposure – relative to All Share Index

Source: MSCI BARRA cited by Sanlam Investments (2014)

3.3.2 *Sample and sampling method*

The sample of population used in this research was taken from the JSE's SATRIX 40 listing in 2015.

Only one company was removed from the sample group during the analysis, which was Reinet Inv Soc Anon, as they do not subscribe to disclosing any SD activities or produce a SD Annual report.

The 40 companies researched are listed below in Table 8 as they appeared on the SATRIX 40 ranking sheet 2016-02-06.

Table 8: Research sample group of companies

	Share Code	Share Name	Industry
1	SAB	SABMiller plc	Consumer Goods
2	NPN	Naspers Ltd -N-	Consumer Goods
3	CFR	Compagnie Fin Richemnont	Consumer Goods
4	BIL	BHP Billiton plc	Basic Materials
5	BTI	Brithish American Tob plc	Consumer Goods
6	MTN	MTN group Ltd	Telecommunications
7	SOL	Sasol Limited	Basic Materials
8	SNH	Steinhoff Int Hldgs N. V	Consumer Goods
9	OML	Old Mutual plc	Financials
10	SBK	STANDARD	Financials
11	FSR	Firstrand	Financials
12	REM	Remgro Ltd	Industrials
13	MNP	Mondi plc	Basic Materials
14	BVT	Bidvest Ltd	Industrials
15	SLM	Sanlam	Financials
16	WHL	Woolworths Holdings Ltd	Consumer Goods
17	APN	Aspen Pharmacare Hldgs L	Health Care
18	AGL	Anglo Americna plc	Basic Materials
19	ITU	INTU PROPERTIES PLC	Financials
20	INP	Investec plc	Financials
21	SHP	Shoprite Holdings Ltd	Consumer Goods
22	GRT	Growthpoint Prop Ltd	Financials
23	MDC	Mediclinic Internat Ltd	Health Care
24	BAT	Brait SE	Financials
25	TBS	Tiger Brands Ltd	Consumer Goods
26	VOD	Vodacom Group Ltd	Telecommunications
27	NTC	Netcare Limited	Health Care
28	MRP	Mr Price Group Ltd	Consumer Goods
29	BGA	Barclays Africa (ABSA)	Financials
30	DSY	Discovery	Financials
31	ANG	Anglogold Ashanti Ltd	Basic Materials
32	RDF	Redefine Properties Ltd	Financials
33	RMH	RMB Holdings Ltd	Financials
34	NED	NEDCORE	Financials
35	MND	Mondi Ltd	Basic Materials
36	CCO	Capital&Counties Prop pl	Financials
37	CPI	Captitec	Financials
38	INL	Investec Ltd	Financials
39	RMI	Rand Merchant Ins Hldgs	Financials
40	MMI	MMI Holdings	Financials

The sampling method used in the research is based on a mixed method approach of qualitative and quantitative analysis of data. As the challenges posed by SD and climate change are difficult to measure, qualitative analysis and triangulation of content of information gained from annual financial reports were observed, compared to the literature and written documentation available from the companies' annual integrated annual reports, investigated (Curry, Nmbhard & Bradley 2009).

Purposive sampling techniques were primarily used to define the data sets of information extrapolated from the content analysis, in order to associate them with answering the proposals of the research problem. This sampling method is preferred when the sample size is small (Teddlie & Yu, 2007).

The qualitative process began with content analysis to select the drivers of SD as identified from the literature review and then extrapolating the information from the SD annual financial reports, creating the appropriate sub-sets. From within these sub-sets, SD activities were identified as to how they related to the sub-set driver. Please see Annexure B.

Once the information had been divided into these sub-sets of data, quantitative methods of analysing the relationships of these data sets was performed, enabling the information to be described numerically (Merriam, 2009).

Thus, the combination of qualitative and quantitative or mixed methods of sampling suited the aim of the research, which was to research a small population with a sampling methodology that creates vigour to the findings. It is not the intention of the report to be representative of the entire South African market but rather to determine if the research is worth extending, depending on the results, to the entire population of JSE listed companies, in order to satisfy market size and population. The mixed method approach enabled the researcher to creatively combine these techniques in answering the research propositions.

3.4 The research instrument

To answer the propositions posed by the research report, the researcher chose the method of mathematical modelling, using first Pearson’s and then Spearman’s correlation coefficient in order to rank variables and determine the relationship between the variables measured (Clarke, 2005). The research instruments are included as Annexures A, B, C.

3.4.1 *Pearson vs. Spearman correlation coefficient*

The Pearson’s correlation coefficient is a statistical quantitative measure of the strength of a linear relationship between paired data. The underlying assumption of this methodology is that the data must be measured at interval or ratio level, be linearly related and bivariate normally distributed (Statstutor, 2016).

During the initial testing phase using this calculation, the results identified the data as bivariate normally distributed. The data did not change as the independent variables changed. Using Spearman’s calculation, the conclusion that was drawn from the scatter diagram, that the curve to be monotonic, meaning that when the x variable increased, the y variable sometimes decreased and sometimes increased as depicted in Figure 7 (Statstutor, 2016).

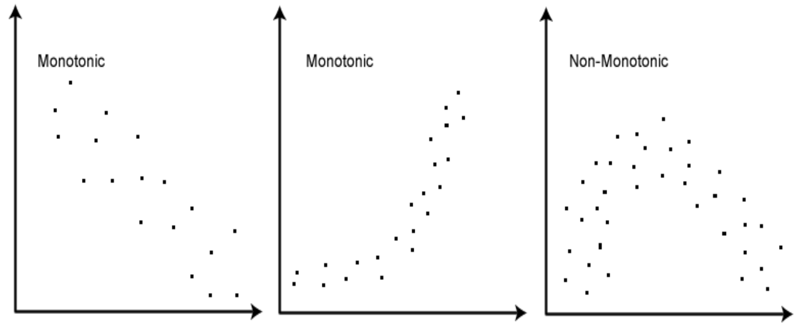

Figure 7: Illustrating a Monotonic and non-monotonic curve.

Source: Laerd statistics (2013)

Spearman's rank calculation was used as a better way to produce the data patterns. Unlike Pearson's correlation, there is no requirement of normality and hence it is a nonparametric statistic (Statstutor, 2016). The difference between them is that Spearman's first ranks the data and then calculates the correlation coefficient. The results from the correlation calculation depicted in Figure 8

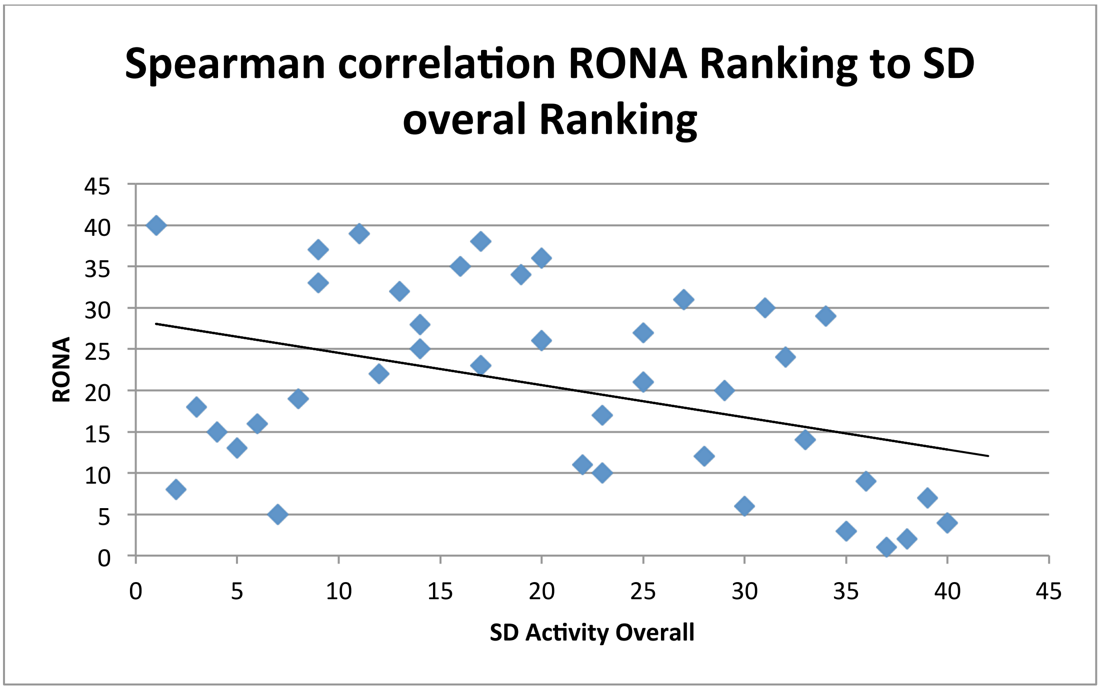

Figure 8: Scatter Diagram of Spearman's Correlation of overall Ranking results.

3.5 Procedure for data collection

As mentioned previously, the assumption is that the sample group complies with the compliance requirements of the economic pillar of sustainability due to its qualification to be listed on the JSE. The financial data relevant to the economic performance, which was used in the research, was the data relevant to calculate ROA for each company. The social and environmental pillars were considered for in-depth analysis.

The process of this analysis began by extrapolating the key SD drivers and activities from the literature. The epistemology and the literature review enabled the researcher to identify the key SD drivers and activities for inclusion in this research ("Development of Epistemological Theories: Beliefs About Knowledge and Knowing and Their Relation to Learning", 1997; Hofer & Pintrich, 1997).

Annexure A is the overall research instrument, capturing all the detail and data numerically. Each company was studied for the activity listed in the research tool attached as Annexure B.

The data was then converted to a numeric value and input into an Excel spread sheet to compare results (Annexure C). Once all information was captured, analysed by calculating the correlation of the data using the Pearson's method ranked using Spearman's correlation calculation, the results were then analysed and discussed.

3.6 Data analysis and interpretation

The research method was deployed considering the following.

- That the correlation coefficient can range from -1 to +1.
- That the closer to an absolute value of 1, indicates that the rank ordered data are perfectly linear.

- -1 indicates that the highest value of variable A is related to the lowest of variable B (Laerd statistics, 2013; Statstutor, 2016)
- The research instrument was created on Excel using a positivism approach to designing the framework
- The process began by building a list of SD drivers and activities identified as key factors to achieving SD from the literature review (Clarke, 2005)
- These key drivers and their related activities are represented in Annexure A and B.

The building process began with identifying the SD drivers and activities from the literature review.

The next step was to build a series of sub-sets applicable to each driver, thereby attempting to capture the essence of the information through the interacting activities or components. These sub-sets provided the parameters for the data that is studied, analysed and used in the correlation calculation (Lawson & Marion, 2008). This process was accomplished considering the following

1. To minimise the subjectivity of the researcher, each SD activity was categorised into three levels of performance, to demonstrate the activity internally, including supply chain and externally.
2. Each level of performance was allocated a numeric score of either 1,2,3 as follows.
    a. Per activity the lowest score is 0, which indicates no activity or mention of activity in the annual financial reports.
    b. The number 1 is allocated to the activity when the company mentions internal activity.
    c. Number 2 indicates that the company extends this activity to their supply chain.

d. Number 3 when the activity is above and beyond, impacting the external environment and beyond the supply chain.

3. The two main categories are social or environmental. Applicable activities are listed for each driver. The total achieved for each activity is then added together providing a total score for each driver.

   - The total possible score for all the activities is 135.
   - The total score for environment is 63
   - The total score for social is 72 (incl. consumer impacts)

(Clarke, 2005).

Once all the data had been captured, a method of correlation theory was applied using the Spearman’s correlation calculation (Statstutor, 2016).

3.7 Limitations of the research

Although the research was carefully prepared, the potential limitations of the research are:

- The research sample is too small. This could affect the predictive potential of the results
- That due to the voluntary environment of compliance reporting on SD activities and their impacts in South Africa, the information identified in the research is dependent on the information available from the reports and disclosures analysed. Some information may have been missed, due to the fact that not all companies report on SD activities but this does not mean they do not engage in them
- In addition, since the author herself conducted the analysis, it is unavoidable that in this research, a certain degree of subjectivity or bias may be found. Although validity has been sought, it would have

been preferable to triangulate the results using another two people to analyse the data

- The research did not investigate the relationships of other operational or market factors that may have an effect on a company’s ROA, other than those that relate to SD
- The sample group includes large multinational companies, significantly providing them an advantage in terms of economies of scale and marketing, therefore their economic performance or not, could be related to these reasons rather than to the relationship to SD performance, or not
- The data period is only extrapolated for one year (2015). Therefore, limits the credibility of the research, as more years would have aided the ability to build a trend line to help understand the direction of relationships
- The current economic climate has been under pressure globally and the heightened awareness of negative impacts may influence the research and relationship between SD and economic performance in the short term. Companies are still recovering from the effects of the global financial crisis of 2008 and recent political mayhem experienced globally between 2015-16. Therefore, the report cannot indicate the impact of SD on economic performance under normal conditions
- The research seeks not to establish causality between SD and economic performance, but merely to investigate whether a relationship or correlation between the two exists.

3.8 Validity and reliability

The main objective of the analysis of the data is to produce results, which are relevant, truthful and trustworthy. This is referred to in the literature as "rigour". Rigour is achieved when, internal validity, external validity, reliability, and objectivity is ensured whilst credibility, transferability, dependability is maintained, and the data remains true (Schoof, Marx, & Doerr, 1999).

To achieve both validity and reliability, strategies for ensuring rigour were built into the process and research instrument. These strategies focused on being honest about possible research bias and response, the quality of the methodological coherence, a focus that the sampling process was adequate and that the information was researched analytically and in depth (Schoof et al., 1999).

As the researcher created the research instrument, validity is questionable for the following two reasons. First it is considered a pilot test, which by its very nature, has no validity credibility. The second is the question it raises: does the instrument measure what it is supposed to?

To ensure validity, the process considered the following,

- To create a methodology that creates a fear of bias towards the subject. In other words, to remember that the researcher will find what they want to find and then write up the results accordingly. This bias could result in a selective recording of the information, or how the information is interpreted or analysed and of course, how the researcher allows their personal views and perspectives to cloud judgment and interpretation of the data. (Johnson, 1997).

3.8.1 *External validity*

The sample group was chosen as a reflection of the population due to the fact that the SATRIX 40 is representative of the largest listed companies operating in South Africa. Therefore, these companies are the largest employers in the market place, thereby providing a good example of population.

To achieve validity, the researcher analysed, scrutinised and compared the 40 annual financial and sustainable development reports for each company of the sample group. The information disclosed in these reports is a reflection of what is appropriate to the activities those companies are performing currently.

Thereafter the information was transferred to a numerical representation to add quantitative validity to the information. As described by Merriam (2009), the concept of generalisation will be the extent to which the findings have relevance to environmental factors of sustainability and where they can be applied or transferred to other situations. This assists the user or reader in transferring the concept of sustainability in a manner that applies to his or her own particular situation (Merriam, 2009).

3.8.2 *Internal validity*

The researcher endeavoured to ensure transferability, interpretation and analysis by doing the following;

- Narrowing the drivers of SD into key descriptions/sections
- Forming data sets of sub-activities (sub-sets), which concisely list important activities to the relevant driver
- Reduce objectivity and enable the technique for analysis to be a simple process of converting the analysed activity into a numeric representation. The method was repeated for each company to increase the likelihood that the process was applied equally to each company and decisions allocated in a uniform manner (Apus Library, 2016)
- Repeating the process of analysis randomly with various companies from the sample list, to check if the information matched the original analysis
- Systematically analysing the data over a fixed time period and replicating the process for each company thereafter, in the same manner to maintain the focus (Schoof et al., 1999)
- In addition, to reduce subjectivity, the activities were categorised into three levels of performance

- These levels of performance assisted in building layers of complexity and integrity for the researcher to interpret concepts or discover the essence of the data. This method of design was included to reduce the researcher's personal interpretation of the information

- Triangulation where multiple sources of data; such as company information, literature, and content analysis was used to confirm findings from the content analysis

- Peer review/examination to ensure congruency and validity of process

- Audit trail where a detailed record of process and method is captured

Source: Creswell (1994);Merriam (2009).

3.8.3 *Reliability*

The research instrument consistently measured the same activities for each of the sample group. The correlation testing was performed in the same way and from the same content.

As the data originates from JSE compliant annual reports, the researcher accepted that the information was reliable and should therefore provide reliable information to test (Biddix, 2009).

The degree to which the findings are independent of accidental circumstances will help ensure reliability (Kirk & Miller, 1986).

This was achieved by designing a research instrument, which accurately revealed data as relevant to the research. Appropriate changes and adjustments made during the course of the investigation ensured the research instrument was reliable and demonstrated consistency on a repeated basis.

Therefore, the process attempted to encapsulate the values of: fidelity, openness and transparency to demonstrate competence, beneficence, and statistical, practical, and clinical significance (Duffy & Chenail, 2008).

3.9 Demographic profile of sample group

The SATRIX 40 was used as the demographic profile of the index as it covers a wide basket of companies' operating in different sectors of the market. The Satrix 40 should therefore be representative of the characteristics of large cap companies due to their size and the subsequent level of their financial compliance (having been rated compliant by the JSE requirements). This sample groups represent the largest companies in South Africa during 2015, across a wide range of industries. Figure 9 illustrates the demographic sectors representing the highest investment on the listing as at 18 March 2015.

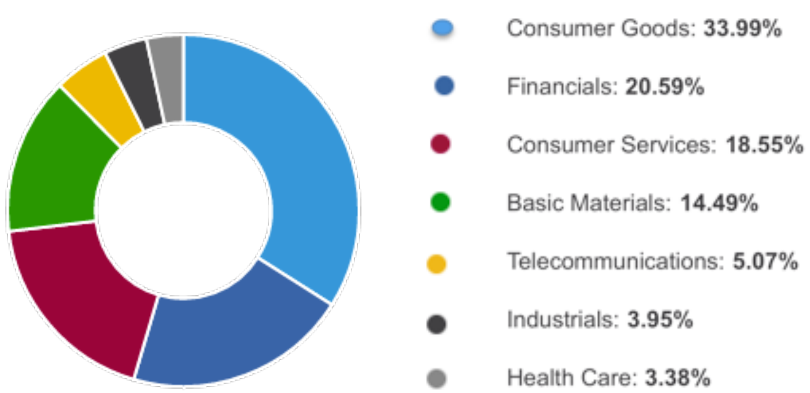

Figure 9: Basket of goods breakdown SATRIX 40 Index

Source: Sanlam (2015)

The intention of using this sample group in the research is to capture the essence of the quality and quantity of SD activity in large cap companies across a wide demographic area in order to obtain an overall picture of the relationship of SD to economic performance.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

Spearman's correlation calculation was chosen as the method of testing the data. The objective was to discover if there is a relationship between variables. The definition of the term 'relationship' when used to describe the results does not describe a causal relationship but rather an association between the data.

4.2 Results pertaining to Internal SD Activity

The researcher proposes that the internal SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

The results of the overall correlation between ROA and SD activities are indicated in Figure 10.

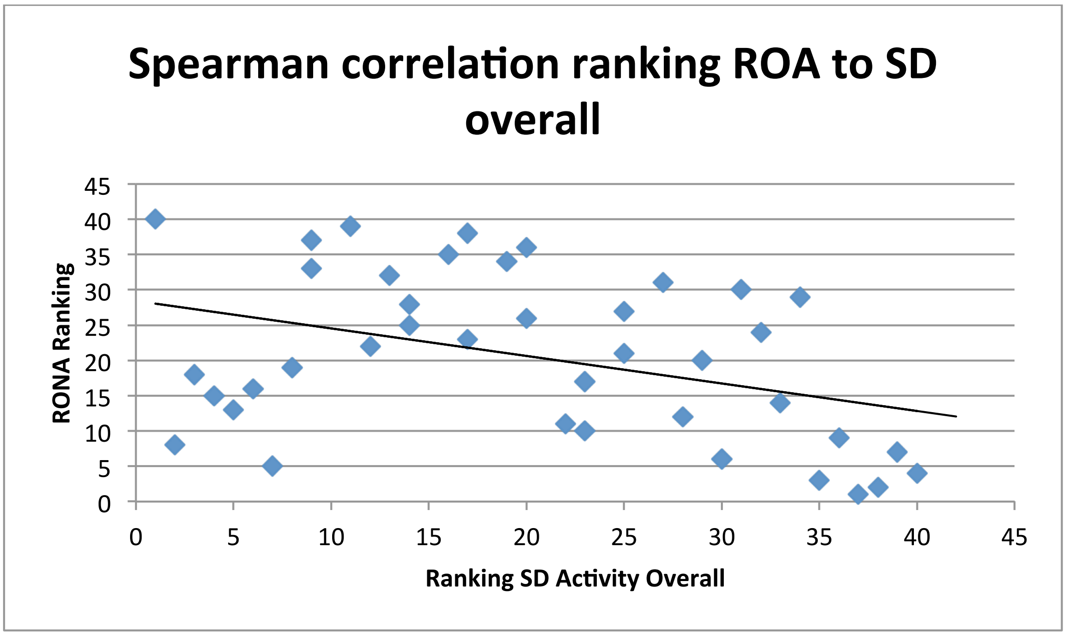

Figure 10: Illustrating the Ranking correlation between Overall SD activity and RONA

4.2.1 *Direction*

The negative sign of the results -0,39 indicates that there is a negative relationship between the overall results of the correlation between ROA and SD activities; as the one set of variables tends to increase, the other decreases and the correlation line slopes slightly downward.

Similarly, the results from the correlation calculation of ROA to internal (including supply chain) activities is also negatively related and depicted in Figure 11.

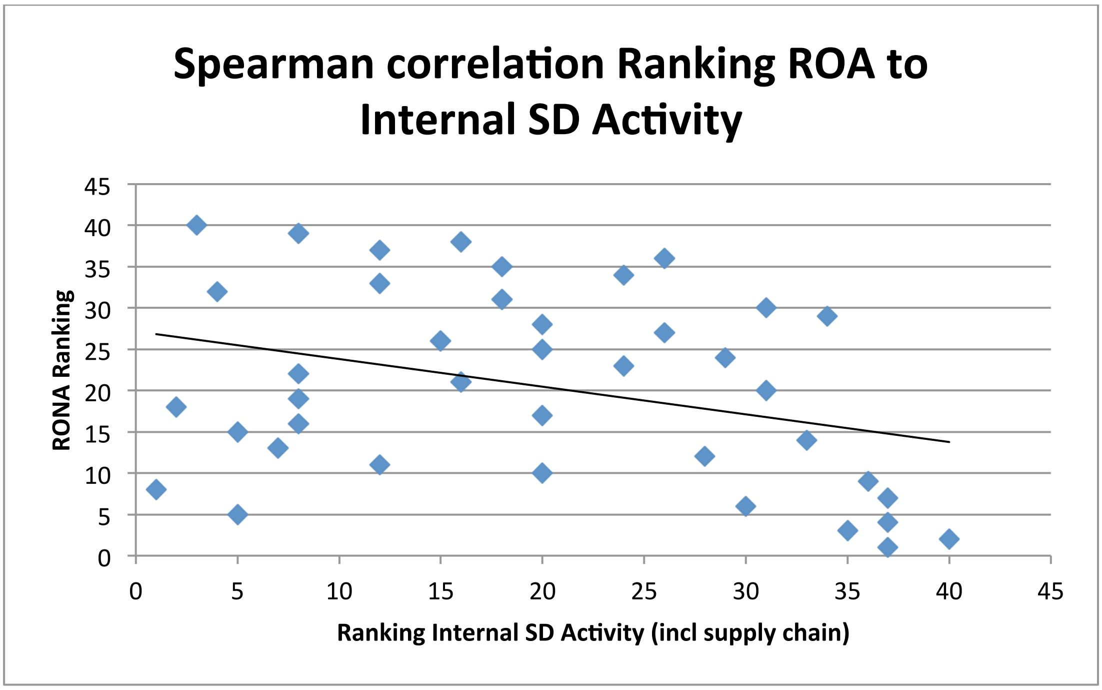

Figure 11: Illustrating correlation between Internal SD activity Ranking (including supply chain) and RONA Ranking

All calculations performed resulted in a negative relationship. Therefore, the first proposition that the relationship between economic performance and SD activity would be a positive one, is incorrect. Internal SD activities are negatively related to economic performance.

4.3 Results pertaining to External SD Activity

The researcher proposes that the external SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

The results for the relationship of businesses extending their SD activities externally to impact people, profit and planet, are provided in Figure 12.

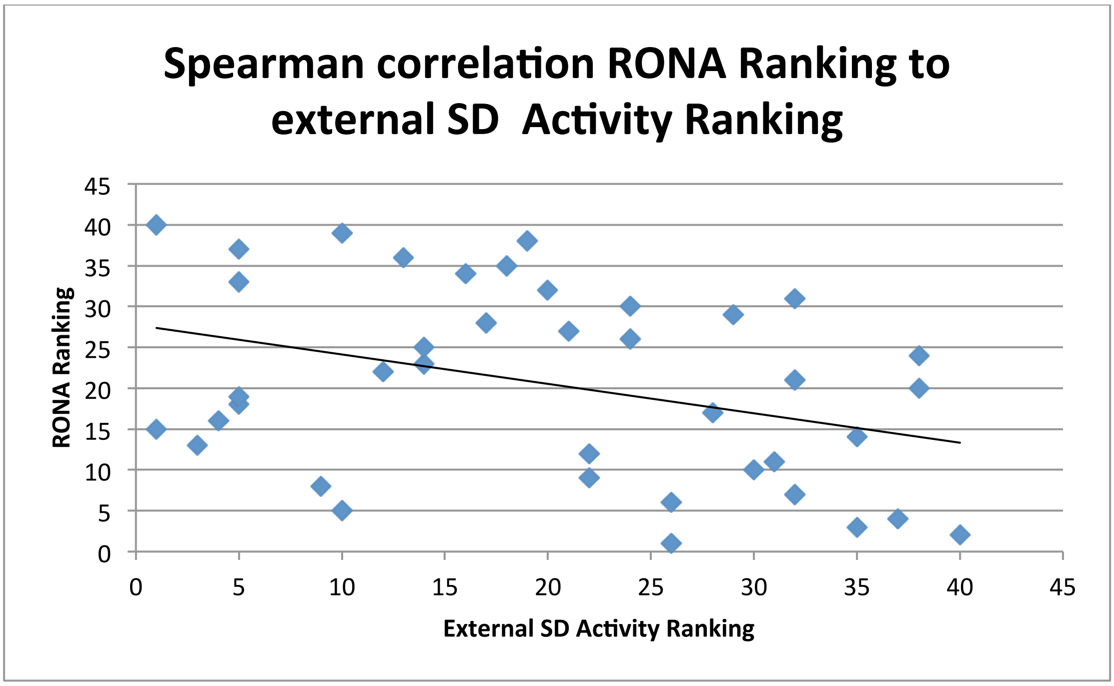

Figure 12: Illustrating the correlation between External SD activity Ranking and RONA Ranking

4.3.1 *Direction*

The results indicate a slightly negative relationship between external SD activity and RONA.

The results of SD social and environmental activity measured individually against RONA related negatively to economic performance. The results for the correlation between ROA and social (Figure 13) and environmental activity (Figure 14) are depicted as follows:

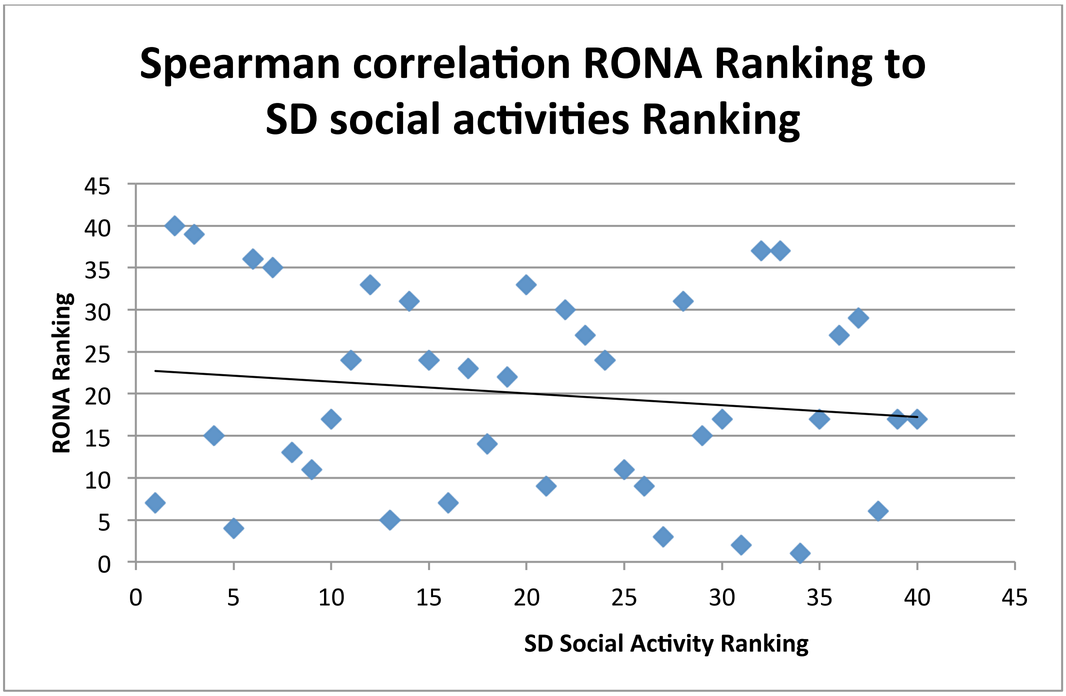

Figure 13: Illustrating the correlation between social SD activity Ranking and RONA Ranking

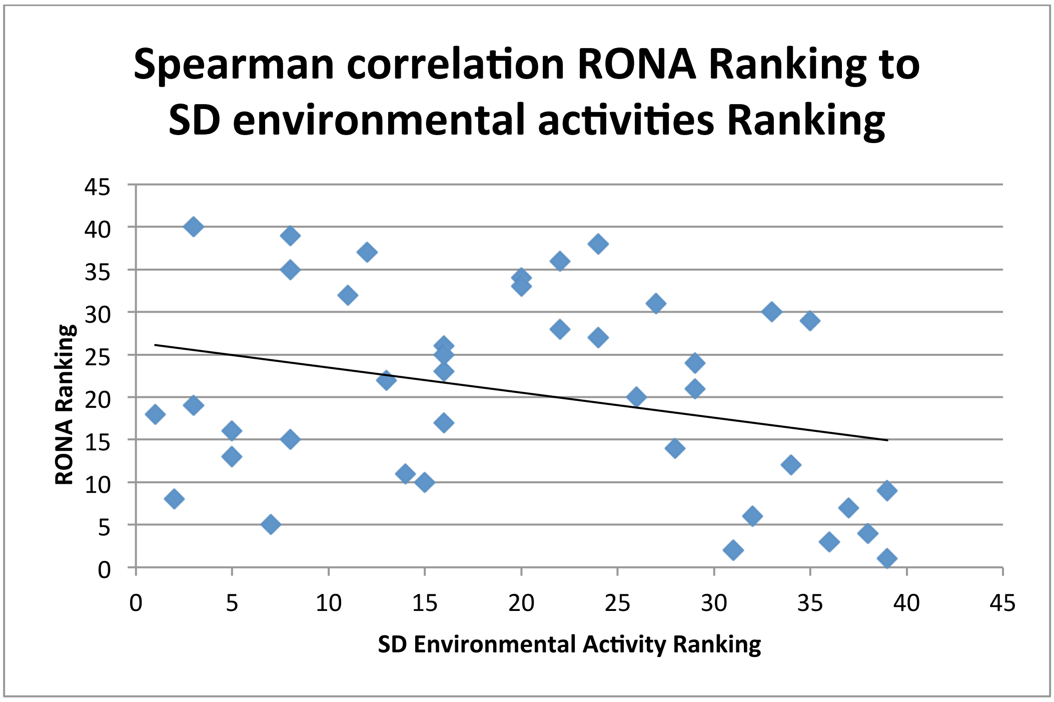

Figure 14: Illustrating the correlation between Environmental SD activity Ranking and RONA Ranking

Therefore, the second proposition that the relationship between economic performance and SD external activity would be a positive one, is incorrect. External SD activities are negatively related to economic performance.

4.4 Summary of the results

As is evident, the various calculations using Spearmen's ranking correlation method, relating the SD activities to ROA, all describe a negative relationship.

In all the calculations performed, the results were marginally negative. What this means is that as the variables of one increases, the other decreases and the correlation line slopes downward.

The results, using Spearman's correlation calculation depicts an overall negative relationship between ROA and SD activity.

CHAPTER 5. DISCUSSION OF THE RESULTS

The choice to 'do nothing' in response to the mounting evidence is actually a choice to continue and even accelerate the reckless environmental destruction that is creating the catastrophe at hand. — Al Gore

5.1 Introduction

As preparation for discussion of the results, the researcher asked the following question. Why is the relationship between RONA and SD activity a negative one?

Table 9 provides some detailed results of eight companies taken from the results of the correlation testing in order to discuss the possible reasons for the negative correlation results.

Table 9: sets of Correlation results for comparison discussion purposes

Company	Rank ROA	Rank overall	Rank internal (+ supply chain)	Rank external SD Activity	Rank of social SD Activity	Rank of Environment SD Activity	Number of social activities performed	Number Environmental activities performed
Brait	**1st**	**37th**	**39th**	**26th**	**24th**	**Last**	**47**	**0**
Naspers	**2nd**	**38th**	**27th**	**40th**	**40th**	**31st**	**19**	**24**
Anglo	**40th**	**1st**	**3rd**	**1st**	**2nd**	**3rd**	**65**	**54**
Anglo (Mondi plc)	**39th**	**11th**	**9th**	**10th**	**14th**	**8th**	**54**	**48**
BAT	**8th**	**2nd**	**1st**	**9th**	**4th**	**2nd**	**65**	**55**
Shoprite	**12th**	**28th**	**32nn**	**22nd**	**9th**	**34th**	**57**	**13**
RM ins	**9th**	**36th**	**37th**	**22nd**	**17th**	**39th**	**51**	**0**
Tiger	**16th**	**6th**	**9th**	**4th**	**11th**	**5th**	**56**	**51**

As is evident, the numbers of activities implemented by companies across the data sets in Table 9, is that overall, companies are aware of the SD imperatives highlighted in the literature review. This however does not seem to translate to an economic advantage in the market place. Once the data was represented in a quantitative manner, the SD activities related negatively to economic performance. The results seem to support the literature describing the need for GCC where SD is embedded in the core culture of an organisation. Another possibility is that the perception around high upfront costs is valid and impacting economic performance as expected. It is also possible that due to the trade-offs between shareholder value and shared value creation, the full value of SD has not been actualised.

As many businesses demonstrate an external view and go above and beyond that of compliance, this may be as a result of the global call to SD action and the growing need to ‘do good’, as opposed to embracing the SD agenda into the core DNA of the business; SD activity rather adopted as a strategy to relieve brand pressures around transparency, visibility and perceptions, therefore, activity attributed to the sustainability visibility goal rather than that of the activity itself (Miles & Covin, 2000).

The companies in Table 9 were chosen to demonstrate why the overall relationship of economic performance to SD is negative and also what is contributing to these results.

This chapter presents the results of the research findings with reference to the literature review. Each proposition as outlined in section 2.5.1 and 2.5.2 is discussed individually. The literature review provided the platform for the discussion.

5.2 Discussion pertaining to Internal SD Activity

It seems from the results, that internal SD activities are not related in the way one would expect. There is a plethora of academic SD definitions and activities designed to improve internal social, economic and environmental capitals. However, the results of the correlation for the internal relationship between economic performance and SD, is negative. There are many possible determinants for this relationship of which a few are discussed below.

The relationship is indicative of a narrow shareholder view of value, that SD costs outweigh the short and long-term economic benefits, therefore businesses only implement SD activity where there is a direct benefit to shareholder.

Mitigating climate change and creating social value is driven by compliance rather than by shared-value creation, which is seen in Table 9 where the uptake of social development activities is higher than environmental ones (unless material to the business).

The research of all the sample companies' SD annual reports revealed a number of SD drivers and activities consistent with the literature but found them to be dispersed across sectors in a fragmented and uncoordinated manner. Thus, preventing SD activity to be included is a material concern in most financial statements.

The literature highlighted that SD activity is taken up more vigorously where the activity materially relates to their individual company need. As a result, businesses are at risk of not providing social and environmental protection, on the scale and/or in the urgent time limitations required.

Complicating the transparency of SD, even though the definition of SD from 'Our common Future' is so widely embraced in the literature, is that it is being hampered by the wideness of the sustainability imperative itself. This is further exacerbated by a narrow focus of business value. Therefore, it seems that unless a shift from 'narrow' to 'shared' value occurs, the Brundtland definition as set out in Our Common Future, will not be met.

By deduction, if the most commonly adopted definition of SD is at risk of not being met then the world is at risk of not mitigating climate change and not creating or protecting social and environmental capital.

The driver of brand perception is currently being scrutinised through the lenses of environmental and social awareness, driving corporates to move from window dressing the SD problem to shared value creation and GCC. Therefore, external societal perceptions of brand promise are having a greater impact on reputation and economic performance than previously understood. Unless a shift in corporate SD behaviour occurs transparently, the possibility is that brands will suffer long-term where long-term economic growth and SD will not be possible at the rate required.

In light of the results, the Paris agreement 2015 is the first step toward a much needed collaborative and one-world-view of SD in order to meet the current needs of humanity without compromising the needs of future generations. As described by Harvey (2015), the agreement reached in Paris 2015, even though agreed at a time of terror attacks and economic global uncertainty, collective collaboration prevailed (Harvey, 2015).

In summary, the results of the research indicate that in addition to research bias, the researcher identifies four key factors, which could explain the results.

1. The need for visibility
2. Nature of business
3. Compliance and cost
4. The view of value

The Coronation report (2015) adds that in addition to the above, the following concerns may impact overall business performance:

- Inflation threats are looming
- The oil price has gained 25% from its recent lows
- The rand has remained weak.
- Rising administered prices and above-inflation wage settlements

- Cellphone costs
- Inflation breaching the 6% level at the end of the year, reaching a peak of 7% in 2016.

Conversations with Coronation (2015) further elaborate that the lack of electricity supply, the ongoing threat of industrial action as well as a weaker rand have impacted economic performance across the sample group. Figure 15 shows graphically these impacts on the sample index over a period of 13 years (Coronation, 2015).

Figure 15: Impacts on the sample group of external factors impacting economic performance over 13 years

Source: Coronation (2015)

If one looks at Figure 15, the dip in performance in Sept 2009, 2013 and 2014, indicate the effect of these external impacts to economic performance.

Table 10 shows how different companies of the sample group responded economically to these impacts, which seem to impact high resource dependent companies more severely than companies operating in other sectors, such as the retail or banking sectors.

Table 10: The movement of price performance highlighting poor economic performance of resource versus other commodities

Company	30 June-08 Price	31 March-15 Price	Price move
Anglo America	548.00	183.75	-66%
Exxaro	144.00	100.75	-30%
Impala	309.00	58.83	-81%
SAB	178.05	636.00	257%
Truworths	22.95	88.26	285%
Bidvest	98.38	328.68	234%
AVI	12.95	82.55	537%
Mr. Price	15.00	260.01	1633%
Spar	49.50	188.70	281%

Source: Coronation (2015)

5.2.1 *Brand awareness and Sustainability Visibility*

The use of green brand positioning and marketing to improve and enhance brand image in the resource sector is common in order to reduce negative perceptions around the extraction process of their operations. Thus sustainability visibility is required to mitigate or 'window dress' the negative impacts that result from poor sustainability behaviour. The negative relationship of the results demonstrates that ethical sustainable behaviour is not embedded in the day-to-day running of a business and that brand perception is driving the change in SD activity.

In the current environment, as seen by Figure 15 and Table 10, economic performance may be as a result of the bad press surrounding the political, energy and labour challenges hitting the economy in South Africa, as is particularly evident in the results from the resource sector.

As a result of content analysis from the annual financial reports of the sample group, it is evident the uptake of internal SD activities is in general high, especially in resource based companies operating in the mining sector. Therefore, the uptake of SD activity could be attributed to the need to be seen to be ‘doing good’.

Brand focus and reputation are of high importance across the sample group. It is clear from most annual statements that it is important for business to visibly demonstrate their positive impacts to society and to demonstrate good intent when addressing SD imperatives.

Conflicts between environmentalists and mining companies create external pressure for business to mitigate. BHP Billiton had to mitigate the negative brand perception created during their Indonesian conflict over forest management, where a conflict between environmentalists and mining companies resulted in a loss for environmentalists and an economic win for mining. BP Billiton and some others gained the right to open-pit mine in protected forests (Kobayashi, 2009).

The external pressure exerted on companies are also evident in the results Anglo American Plc. (Anglo); a company with a poor environmental reputation in the market place and high visibility. It is evident by their results when comparing them to Brait that they too show a need to mitigate negative external brand perceptions. Their economic performance is considerably lower than that of Brait (1st) who are not highly visible in the market place, do not have as much external pressures exerted on performance and who have a lower rank of SD performance (37th). Anglo delivered a disastrous economic performance coming last in ranking of RONA (40th), yet ranked first in overall SD activity.

As the visibility need of Anglo is much higher than that of Brait their uptake on SD activities is also much higher. Perhaps one can attribute this to their desire to improve brand image and therefore mitigate poor market perception; the higher the number of activities they are seen to be doing the better (Miles & Covin, 2000).

As Brait is a business operating in a totally different sector perhaps Brait does not need to visibly show society that they are 'doing good'. Sustainability, as described in their annual report, as not material to their business. Therefore, they are not constantly being scrutinised by the public to respond to SD imperatives.

This discussion, of course, does not assume that business implements SD activities for brand image only. The researcher does not believe this to be true but does accept that being able to brag about what they are achieving is a strategy to enhance economic performance.

5.2.2 *Environment and cost*

The further possibility for the results depicted in Table 9 is the nature of the environment in which individual businesses operate and the resulting costs of change of process to respond to SD imperatives.

The need for businesses to respond to their environment was identified in the literature as especially high in sectors where production, consumption and the environment are inextricably linked. Globally, this need to respond is directly related to the fight over resources between business and environmentalists.

Therefore, the fact that the process of consumption and production is pitted against the environment can cause concern to SD. Ultimately, as a result, these conflicts lead to labour unrest, social conflict and other negative impacts (Kobayashi, 2009).

In essence, the researcher understands the issue of cost to be fraught with conflict, unpredictable labour, political pressures as well as environmental disasters, all painting a dark picture for businesses operating in the mining sector. As a result, the nature of business may relate to the results of the number of activities implemented by each business toward achieving SD.

Brait, at the other extreme, operates in the financial sector where environmental risks are much lower. Change of production and consumption process is therefore much less radical and less costly. As a financial services organisation, Brait indicates in their 2014 report that although it has a low impact on the environment, “the Group is mindful of the effects of climate change and environmental degradation and continues to search and, where feasible, implement measures to mitigate the direct impact that their operations may have on the environment” (Brait, 2015).

“Brait strives to be carbon-neutral” (Brait, 2015, p. 13). However as demonstrated by their results where no environmental SD activity is performed and only social internal activities pursued, that they do very little to mitigate climate change or respond to the call to action from the global community. Striving to be neutral, according to the literature, is no longer enough, where the need is “for a shift from exploitative industrialism—“business as usual”—to “sustainable development” (Waas, Huge, Verbruggen, & Wright, 2011).

This is evidenced by the research results where Brait scored first on RONA, last on environmental measures, 2nd last on internal activity, 2nd last on the ranking for an external SD focus and last on the overall ranking of SD activity. These results describe a narrow focus of value, where the business implements SD activities only when they are material to their business and where they have a direct economic benefit to themselves. Brait do not even deem it necessary to produce a separate annual SD report as do most other companies in the sample group. In addition, they dedicate only five pages out of a total of a 123 to sustainability (Waas et al. (2011).

Therefore, it seems that, as SD is perceived as being not material to Brait, they report on what they must do and not on what they ought to do, demonstrating a narrow view of value only as it pertains to their immediate situation and not to the global understanding of SV, as described in the literature review.

In contrast the low ROA score for Anglo, and others in high extraction, production and consumption environments, also demonstrates a high level of activity around SD measures. These additional SD costs incurred by these companies may explain their poor economic performance. It is highlighted in the literature that the upfront costs are high but should provide long-term economic gain for early adopters. Perhaps the SD activities have not yet had time to impact the economic performance of these companies? Therefore, assuming that this is the case, it is possible to relate their poor RONA performance to high cost of SD activity. Their need to mitigate their current negative impacts on the environment by a high uptake of SD activity and their subsequent costs may in the short-term affect RONA. In other words, there is a short term cost in mitigating the negative perceptions around the nature of their industry, which impact short-term profits.

5.2.3 *Compliance and Shared Value Creation*

Compliance is another factor, which may contribute to the results in Table 9. In South Africa, the King III and the standards of Broad Based Black Economic Empowerment (BBBEE) compliance reporting structures are most commonly adopted by businesses. The King III, as discussed in the review, is voluntary, whereas BBBEE is a compulsory compliance requirement aimed at creating social equity in South Africa.

BBBEE may have an impact on businesses in how they go about their day-to-day activities as it includes the basic constructs of employment equity as the basis of South African legislation, built on the same basis as the

Canadian jurisdiction and including affirmative action provisions from United States legislation (Horwitz & Jain, 2011).

Demonstrating how compliance affects the SD business response, Table 11 provides extracts taken from some of the sample group's company reports.

Table 11: Extract from company reports

Company	Extract from Annual Report	Source
Naspers	We hope to improve the living conditions of our employees, their families and the communities in which we operate, ultimately balancing profit, people and planet.	Naspers (2015, p. 43)
BAT	Sustainability is a key pillar of our strategy. It is about creating SV for both our shareholders and our stakeholders in wider society.	British American Tobacco (2014, p. 5)
Shoprite	Assurance providers provide a level of assurance on integrated reporting, including the annual financial statements and the B-BBEE scorecard.	Shoprite (2015)

The adoption of either voluntary or compulsory SD activity by the sample group of companies creates an understanding of how they are approaching negative SD impacts. In this process, they are attempting to differentiate themselves from their competitors, as a guarantee of goods or to provide legal protection within the industry in which they operate (Hood & Henderson, 2005).

The high uptake of internal social development activity across the sample group could be attributed to businesses complying with both voluntary and compulsory regulation. However, a concern arising from the compliance dilemma of voluntary and compulsory are that trade-offs accumulate. Without a shared strategy and view to achieving SD, often individual business needs are chosen above those of the collective. This compounds the trade-off dilemma between economic performance, compliance and SV creation.

5.2.4 *Researcher bias*

Gut instinct says that the SD activities should be related to economic performance. However, the results show that even though they are related in some way, the relationship is dubious and not causal in nature. The most obvious reason for the correlation result of -0,39 as being incorrect or not valid is most likely due to the unconscious bias, which the researcher who designed and populated the research instrument, has about the topic (Johnson, 1997).

In addition, the relative inexperience around modelling and designing the research instrument could impact the reliability and validity of the results as the model may have included or excluded information that would affect the results.

5.2.5 *Conclusion to the discussion of Internal SD Activity*

The diverse response from large cap companies toward their internal SD activity is negatively related to their economic performance. The negative relationship between economic performance and SD activity could be attributed to numerous reasons, some of which are high upfront costs, the need to be seen to 'do good', the nature of their environment, compliance and the desire to create shared value or a combination of all the above.

The opportunities of early internal SD adoption, although not evident in the correlation results, should provide business with a much greater chance of reducing costs, growing profits and achieving long-term sustainability (Bertels, Papania, & Papania, 2010).

The research provides an understanding of the imperatives and subsequent actions for achieving internal SD that impact the business value chain. From the varying possible scenarios described in this section, it is clear that there exists a need to create a one-world-view towards sustainability.

It is therefore evident that in order to balance trade-offs and achieve greater internal shared value, a need has arisen for a one-world-view to achieving SD. This need is to overcome the diverse approaches and applications adopted by business to meet this goal. A one-world-view is needed to balance the trade-offs between idealism and materialism with uniformity and diversity (Van Egmond & De Vries, 2011).

5.3 Discussion pertaining to External SD Activity

When viewing the sample group's annual financial reports, it became clear that subscribing to King 111 and going above and beyond that of compulsory compliance, even though not fully embraced by all, certainly features high on business agenda for most companies. Affirming this view is the rating of Corporate Citizenship as No 1 on their 'Case for sustainability' in the Integrated Report for Tiger 2015 (Tiger Brands, 2014).

5.3.1 *Leadership*

Leadership is described in the literature as a key driver or barrier to achieving SD and can be seen in the results of those companies whose executives mention the external environment in their leadership reviews. The numbers of activities and disclosure throughout the content analysis of the SD Annual Reports indicated that they were higher in those companies whose leadership arose to the challenge than to those whose leaders said very little about the external environmental (Gear, 2015).

Overall the leadership commitment to SD described in the reports was good, indicating an understanding by large cap leaders and management teams of the SD imperatives.

Sasol (2015) attributes their performance to leadership and direction. They refer to leadership and having a streamlined corporate and management structure in place, and with the backing of solid corporate values and culture as the reason they are better positioned to anticipate and manage environmental regulatory and social challenges (Sasol Ltd, 2015, p. 6).

Further, even though Sanlam was the worst SD performer, they state in the annual report 2014 that their approach to sustainability will create value for their customers, shareholders and the broader society (Sanlam, 2014).

Therefore, even though the uptake of SD activity was in contrast, the leadership views were similar. This indicates possibly the role of leadership within the corporate environment. As the sample group is representative of large cap companies operating in South Africa, it is clear that their leadership teams should be the most informed about the SD imperatives and how to mitigate the challenges facing the global community.

The leadership role needed, as identified in the literature, is to drive good corporate citizenship.

All of the businesses of the sample group demonstrated some commitment by their leadership strategies to the internal SD activities and in fact, social reporting on the whole was better than the environmental reporting by approximately 12%.

5.3.2 *Good corporate citizenship*

From the results of the correlation analysis, the performance of three companies from the sample group, are discussed in relation to core values and good corporate citizenship: AngloGold Ashanti as it ranked best overall for SD performance, Shoprite as an example of average SD performance and Brait as the worst SD performer. The content analysis of these companies supports the view that companies whose leadership strategy is to achieve good corporate citizenship as described in the literature, by implementing SD where the activity itself goes ‘above and beyond’ that of compliance regulations, may be as a result of the focus shifting to shared value. Leadership within these organisations and their inherent ‘need to do good’ is described in the literature as personifying itself in the methodology of Corporate Citizenship (Carroll, 1998).

5.3.3 *First mover advantage, trade-offs, costs*

The results from the Spearman's correlation ranking for external SD activity and economic performance was = -0,39 (above and beyond) whereas the internal correlation (internal and supply chain) was = -0, 23. These results are of interest in how they relate to cost and the dilemma of trade-offs.

The negative correlation of the results of external rankings indicate to the researcher that companies who performed better according to RONA in the research results, may be ignoring the global call to action to mitigate climate change; therefore, spend less money than those with a high uptake of SD activity. Business may also be underestimating the value of innovation which has the potential to enhance economic performance long-term. Therefore, first-time movers, who have a high uptake of SD activity from the sample group, should see the economic value over the long-term, or business who have a low uptake of SD activity are not convinced of the perceived positive value this could bring to the business, as there is not proof of economic correlation between the two.

The dilemma of trade-offs seems to be affecting the supposed first-mover advantage more than expected, thus proving a barrier to SD adoption. This is evident from the correlation results where mining companies performed poorly in the ROA category. The trade-offs in this situation, according to Porter and Vanderlinde (1995), are between ecology and economy. On the one side social benefits or impacts arise, on the other are industry's private costs or savings for prevention and cleanup increase (Porter & Vanderlinde, 1995).

Affecting the economic performance could be attributed to one company doing and spending less than another due to high upfront costs of the operational change. Therefore, a company like Brait may be performing better economically than a company like Anglo, possibly because of the costs associated with the implementation of SD activity.

The leadership paradigm of trade-offs and making decisions to enable business to move beyond the cost/benefit stalemate is described in the literature as a hesitancy of business to be first to react as they are uncertain of their future obligations to regulation and compliance requirements for mitigating climate change. The basis of their concern is that the price they pay today could be higher than if they wait and see.

The bargaining position to negotiate better prices in the future for carbon related regulations are also a factor. This attitude of wait-and-see from Brait, as discussed in the review, could result in opportunities being missed in the long run (Baraskova, 2010). However according to the literature, if all companies adopted this philosophy, there would be no chance of mitigating impacts. Ultimately, common sense suggests that if just one company does not respond with the collective, the result affects them all.

Similarly, Kramer (2011) and Jacob, et al. (2012) confirm that the longer the world takes to effect a different approach to sustainability, the more urgent the problem becomes. Unless all businesses manage trade-offs so that a new shift of value is embraced, people, planet and profit, no matter the nature of the business environment, all will be affected.

In essence, all should be doing more to mitigate climate change. In Table 9, the results of BAT could be a sign that when business does adopt SD activities to combat their negative societal position around smoking and cigarettes, and who have extended their reach to the external environment, they may find that SD diversification, and innovation reduces costs. Their results are therefore enhancing the plausibility that the shift to SD unlocks potential for cost benefits (Jakob, Luderer, Steckel, Tavoni, & Monjon, 2012; Porter & Kramer, 2011).

The literature review suggests that the perception of many businesses today is that adopting SD activity within an organisation leads to higher costs, which in turn, lead to higher prices and ultimately, reduced competitiveness. However, the opinion of Porter and Vanderlinde (1995) is that “properly designed environmental standards can trigger innovations that lower the total cost of a product or improve its value. Such innovations allow companies to use a range of inputs more productively– from raw materials to energy to labor – thus offsetting the costs of improving environmental impact and ending the stalemate. Ultimately, this enhanced *resource productivity* makes companies more competitive, not less" (Porter & Vanderlinde, 1995, p. 120).

Explained by Baraskova (2010), "the first mover" in a market positions itself at the best location in the market, only if it is certain that the future entrant will not have a lower cost of production, and conversely, if cost structures are uncertain again the situation would result in a gap in the market from where the company could either move toward or away in their response.

BAT is demonstrating a first mover strategy, by investing in a number of SD activities whilst also performing well economically. The performance of ROA was good resulting in an 8th place indicating that the first mover positioning strategy is working for BAT in an environment which is rewarding the SD strategy. However, for companies like Anglo, the first mover is not as evident possibly due to it being swallowed up by external negative impacts such as political unrest affecting the company's profitability in the short term.

The Paris 2015 agreement is reflective of a large contingent of companies entering this first mover positioning strategy environment. This move has recently gained momentum over the concern of the time required to achieve success. According to Jacob, et al. (2012), delaying a global agreement raises mitigation costs to at least half by 2020 and thereafter by 2030 renders targets infeasible to achieve(Jakob et al., 2012).

This information should urge businesses to adopt strategies to reduce trade-offs and forego the wait and see attitude. Early adoption, it seems, will not only stabilise the planet, but also reduce costs long-term.

Jakob, et al. (2012) conclude "taking early action is crucial for stabilizing atmospheric GHG concentrations, in a cost-efficient manner", and that "if global action, however, is delayed for another decade, the above target can only be attained at significant additional costs, decreasing its political acceptability while increasing the likelihood that policy makers will favor a less ambitious climate agreement instead, including the related adverse environmental impacts" (Jakob et al., 2012).

5.3.4 *Environment and materiality*

Finance Minister, Pravin Gordhan, in his National Budget speech in Parliament, Cape Town, 27 February 2013 said, "The government, trade unions, business and civic leaders need to take bold steps to resolve unrest in South Africa's mining sector to reduce the impact on the economy" (Chauke, 2013).

2015, was a year of declining production rates. In December 2015, the rate of y/y of production dropped to 2.0% y/y, extending the 0.1% y/y drop in November. Therefore, not only have these mining companies invested in new SD activity, they have also been hit by negative labour and political unrest. External influences impacting on the production and consumption process perhaps explains the poor performance of RONA for those companies directly impacted.

Comparing the ROA results between Anglo 2 and BAT, the nature of business seems to have affected the mining companies more than BAT, operating in the tobacco industry. The tobacco industry has not had the same scale of external issues with which to contend. This could support the researcher's theory that Anglo 2's economic performance is worse than that of BAT due not only because of high upfront costs of innovating but also because of external negative labour and political impacts.

The proposed solution behind the early adoption strategy is for business to shift their narrow thinking to the broader concept of SV. Businesses need to shift their conventional thinking around cost and thinking that sustainability activity can only be achieved at high cost. Recent studies have shown that early adoption is beneficial for competitive advantage. Porter and Vanderlinde (1995), as cited by Stefan and Paul (2008), argue that improving SD performance can lead to improved economic performance and not necessarily to an increase in cost. (Stefan & Paul, 2008).

In essence, SD improvement is good for business. Old trade-offs will be rejected by successful companies who link the environment, resource productivity, innovation and competitiveness (Porter & Vanderlinde).

5.3.5 *Concluding the discussion of External SD Activity*

Therefore, there are many possible scenarios contributing to the correlation of results being negative, but the most likely is that businesses with an internal focus on SD do better than companies with an external focus. This is especially the case when those companies operate in circumstances where they are inextricably linked to the environment, such as mining companies. The opting for early mover advantage clearly shows that those companies mitigate negative impacts of production and consumption behaviour and are more likely to be competitive in the long run than the short, especially in the current political climate and economic uncertainty. For companies where their processes of production and consumption are inextricably linked to the environment, their rewards for early adoption may only be seen in the long run and not related positively to economic performance in the short-term.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

The main problem of the research is to describe the relationship between the economic performances of South African listed, large cap companies and the implementation of sustainable development activities both internally, including their supply chain, and externally, beyond their supply chain. The propositions are that both the internal and external SD activities implemented by business to improve social and environmental capitals are related to positive economic performance.

The following conclusions present a summary of the research and its findings to describe the relationship between SD activities and economic performance. This is followed by recommendations to businesses and governments interested in creating a viable world. The chapter concludes with recommendations for future research

6.2 Conclusions of the research

The purpose of this research is to investigate if the global drivers and activities of sustainable development (SD) are related to economic profits and long-term survival of corporates (operating in the large cap environment in South Africa). The aim is to have a better understanding of the sustainability challenges facing future economic performance and why the call to action from the global community to mitigate climate change and create shared value should be answered.

As a result of identifying the key drivers and activities from the literature, the research assigned and calculated the correlation of economic performance to these key SD drivers and activities. This investigation was performed on a sample group of companies taken from the SATRIX 40 Index as representative of large cap businesses operating in South Africa.

The research problem was approached by stating two propositions concerning the relationship between SD and economic performance; where they are both related and positive. To discover if this was true, the research used the Spearman's correlation analysis to rank the SD activities of companies to RONA.

As the research took shape, a greater understanding of the key drivers of SD was discovered. Chapter 5 highlighted these in an attempted to explain the possible factors impacting the adoption or not, of sustainable activities.

After analysing the data, it was possible to construct sub-sets of activity to the 10 key drivers of sustainability. Scrutinising the annual reports of each company enabled the researcher to essentially validate that South African large cap companies are aware of the sustainability imperatives and are in general responding, albeit sometimes with a narrow view of value. Further, the research also explored the range and number of activities that were being implemented in the sample group.

The narrow view of business is often described as the desire by business to meet the business mandate, rather than to meet the collective needs of humanity. The choices made surrounding value creation is where most trade-offs occur. As provocatively stated by Moulaert and Nussbaumer (2005, p. 49): "The extent to which market allocation mechanisms will manage to satisfy human needs will depend strongly on the distribution of wealth and income."

By applying the statistical approach of quantitative analysis, chapter 5 was then able to discuss issues not normally considered in business value creation. The value of water, natural resources, fresh air, and 'such capitals are considered a stock that is 'free' to society. This common property although free to the individual are scarce for society. Unregulated private exploitation of these free stocks can yield no 'rent' for society. (Gordon, 1954).

Therefore, there are no real financial valuations commonly understood and defined around natural resources and the rents that should apply. These costs are therefore perceived by businesses as being unmanageably high. Chapter 5 highlighted two issues as barriers to achieving SD goals. They are the concern over the shortage of time; in that the rate of change required to slow growth of global warming to 2°C is only 15 years. In addition, the costs attributed to these goals mentioned are perceived by businesses as being too high.

Once the research investigation was complete, the results were not as expected. The correlation of data indicated a negative relationship in all tests, which can be attributed to a wide range of reasons as described in chapter 5.

Having said that, during the content analysis of the sample group, some companies still demonstrate an appetite to voluntarily pay these costs in order to mitigate their risks of long-term negative impacts, even at the risk of the short-term loss of profits and competitive advantage. This was especially evident in the mining sector.

Businesses opting for first mover advantage show a lower ROA than companies implementing fewer or less costly activities in their processes. Over time, the hope from these companies is the reward of improved ROA long-term and the successful mitigation of climate change.

After the discussion of all the possible reasons one could attribute to the negative relationship between SD and economic performance, the discussions surrounding upfront cost and time needed to see a positive impact to economic performance seemed the most likely reasons for the negative relationship between variables.

It is clear that all of humanity must make the shift to how we produce and consume goods and that business must make a difference through their activities. Many are already taking action to be more environmentally responsible and, for listed companies, the local and international compliance arena of integrated reporting compels them to do so. The threat of climate change, if not taken more seriously by business will worsen and the prospects for creating a sustainable life for this generation and the next will reduce with time.

At present, businesses act toward SD imperatives autonomously in an environment where non-compliance is not punished and compliance as seen by ROA ranking results, not rewarded. As a result, the reward of achieving sustainability has not yet been felt. As identified in the literature, global collaboration is needed to achieve sustainability.

There is an urgent need for businesses to collaborate on the common drivers and activities identified in the literature. All companies need to do more, since doing less, even by one business, is damaging the possibility of success for all. The collaborative approach of 'GCC' is described in the literature as being the missing link required by business for SV to succeed (Porter & Kramer, 2011).

The issue of collaboration plays a big part in sustainability as identified in chapter 2. The needs and wants of people must be addressed in a collaborative manner to ensure SV for people, planet and profit (Epstein & Buhovac, 2014; Fisk, 2010).

Policy guidance plays a major enabling role or presents constraints if absent. Greater attention and research is needed on developing a policy process which reflects the deepening understanding of where the innovation and diffusion of cleaner technologies occur. (Foxon & Pearson, 2008).

This deeper understanding is that as population increases beyond the capacity of the planet to meet those needs, the systems and measures currently prescribed are failing and a reengineering of strategy toward achieving global sustainability is required. Perhaps the answer is a global accord or one-world-view to which all must subscribe for all living things to be considered and for SD to succeed.

This research proposes that globally, SD regulation and governance should be pursued with a one-world-view in mind and that companies operating in South Africa should steer compliance in the same manner. Good performance on sustainability on an ongoing basis can gain a license to operate and garner a good performance reputation from society. Whereas mismanaging sustainability and stakeholder relationships can be significant and costly to the business where reputational damage and potential impacts on the bottom line could be the result. (Epstein & Buhovac, 2014).

The research has identified that the nature of environment impacting the resources sector is a major issue driving SD activity. Therefore, business is inextricably tied to the natural environment and its subsequent protection is critical to long-term sustainability of those companies. Therefore, SD activities implemented by business, even though they do not result in a positive correlation to short-term economic performance, should place these companies in a more advantageous position; where their competitive advantage is as a result of being a first mover to achieving SD.

It is becoming increasingly clear that a one-world view to achieve sustainability is required. Everyone and every business is called to comply by the international community or the chances of success are described as dubious. Humanity's behaviour needs to shift in how they perceive and use their world and their response thereafter translating to production and consumption patterns must change.

The researcher believes the planet has enough resources to sustain humanity in abundance, and that it has the resources necessary to shift the paradigms required and release the stalemate in which we find ourselves, due to results from trade-offs. Solutions around the needs and wants of people will have to be collaboratively sought and achieved to ensure a balanced world between people, profit and planet. Abundance can be created in a world that works together.

In essence, this research highlighted that unless the world experiences a shift from the narrow-view of economic profit to the broader shared-view of shared value creation and sustainability, the outlook for achieving the aims of "Our Common Future" seem bleak, that unless the world unites collectively, with the same goals and aims, sustainability on this planet is not likely and future generations will not enjoy the opportunities we have today and certainly will not enjoy a better life (Brundtland et al., 1987b; Earth Summit, 2010).

In addition, as the subject of sustainability is not new, the negative correlation of results is surprising and especially concerning, considering the profile of sample companies used in the research.

As indicated in the review of literature by Porter and Vanderlinde (1995), one would have expected the results to indicate a positive relationship; especially taking into account size and visibility of the companies in the sample group. A positive relationship would at least indicate that humanity is going in the right direction (Porter & Vanderlinde, 1995).

Solving this leadership paradigm of having to balance trade-offs and resolve the paradigms of meeting the needs and wants of society is a difficult one. The literature described the response needed as urgent, where leaders have a responsibility to set the SD race on fire, in the manner of SV and at a rate that is appropriate. People, planet and profit and the creation of balance between the three pillars of sustainability, as described in chapter 2 of this research, seem to be at a stalemate in their trade-offs. Leadership plays a critical role in finding solutions to these trade-offs by the choices they make and whether their view is narrow or broad (Porter & Kramer, 2011).

Population growth is a paradigm in itself in that it is a by-product of the things humanity is getting right, and is also at the heart of the problems it must overcome.

However, population growth is not going away. Humanity must serve the needs and wants of the people of today and those still to come, in the manner defined by ‘Our common future’. Perhaps the problem of this dilemma is that this definition most commonly adopted by society does not define how companies must achieve this and therefore perhaps is at the root of the SD problem (McCloskey, 1998).

However even though the results of the correlation analysis were negative, light is still visible at the end of the tunnel. The agreement reached in the recent Paris agreement 2015 is perhaps that light, which requires one collective step by mankind, in its giant leap of faith for humanity.

6.3 Recommendations

This section presents the recommendations of this research as they pertain to the results and conclusions. The recommendations provided in this section are in reference to the stakeholders identified in section 1.4: Significance of the research.

This report adds to the pool of information and plethora of information available to business, especially in how SD action relates to economic performance, both in the short and long term.

In addition, this research should aid others in economic, social or environmental fields when assessing the SD drivers and activities commonly being adopted within South Africa, as they are relevant to the compliance standards of King III and BBBEE reporting mechanisms.

Furthermore, this research should be of interest to those companies considering the first mover advantage strategy as well as to those companies who think economic performance is the only value worth pursuing in the business production and consumption process that supplies the needs and wants of humanity.

6.3.1 *Recommendations to Business.*

The main recommendation from this research report is that businesses take seriously the first mover advantage to be had by adopting SD activities throughout the value chain with a shared-view toward value.

This is so that leaders embrace the global call to respond to climate change and realise SD as the most important imperative to overcome by humanity if their own economic performance and sustainability into the future is possible. If not, the results could be disastrous for humanity's future generations as well as for long-term economic profit.

In essence, SD should be embedded into the DNA of the business culture where it drives economic performance long-term rather than ignoring the imperative for greater short-term economic gain. Fulfilling this recommendation will create a viable planet, which is able to provide for current and future generations. Therefore, shifting the business focus from a narrow view of individual business sustainability to the broader shared SV view of GCC, will enable businesses to thrive and the individual needs and wants of humanity to be satisfied.

It is also recommended that businesses investigate further the benefits of understanding the drivers and activities commonly adopted by the global community to achieving SD. By understanding the drivers and activities, business leaders can make informed decisions around the trade-offs of the sustainability paradigm.

The recommendation to leaders within business is to do the right thing and to ‘do good’. Business, environment and people are inextricably linked, thus the SD imperative needs to be firmly entrenched into the heart and culture of the business.

Leaders are encouraged to steer their communities toward greater sustainability by embracing the economic, social and environmental opportunities that come with the adoption of SD activity.

The thesis recommends to businesses that embracing SD is an imperative for everyone on this planet, and not just for some. In addition, companies who are embracing SD activity to mitigate negative impacts should benefit from the first mover advantage in the long run. Therefore, it is recommended that business respond to the call for SD action sooner rather than later if they are to ensure a competitive advantage in the market place in the future.

6.3.2 *Recommendations to Government*

The recommendations to government are to guide, police and collaborate with all stakeholders to help steer the SD ship so that together we can discover the innovations required to mitigate climate change and preserve human and environmental capital.

It is also recommended to government that they look to GCC behaviour and mirror international compliance regulations to ensure that the common shared need and want of humanity is met.

Finally, the research report recommends to Government that SD compliance in South Africa should treat the SD paradigm as an ever-changing challenge that needs to be monitored, regulated and understood. Without a compulsory model to guide business action, greater judicial control needs to be introduced within the current voluntary disclosure environment to ensure a level playing field of market competition and to ensure all businesses take accountability for their actions. Only through the strict policing of SD can the lives of South Africans and future generations be provided for and protected.

6.3.3 *Recommendations to Society*

This research recommends that society take note of the critical challenges, drivers and activity of SD that our production and consumption patterns create. Therefore, to understand that it is our own behaviour patterns that need to change as they are causing the planetary challenges before us.

This research therefore recommends that in South Africa, citizens must not accept or ignore the changes that are needed and rally together as soon as possible to ensure sustainability has a chance to succeed. Therefore, it is recommended that society works together to overcome our challenges as only through collaboration can we ensure a prosperous future for us all.

6.4 Suggestions for further research

This result of the research suggests that businesses investigate further the collaborative opportunities available within the market place to mitigate costs and improve performance, to seek out innovation and sustainable solutions that create shared value.

Greater research is needed to discover the common innovations that contribute positively to mitigate climate change. New technologies and innovations to the production and consumption process must be sought.

Research is needed about the effects that non-compliance has on SD to understand the impacts to future generations.

Research into the benefits of a one-world view approach towards achieving sustainability should be considered. This seems to be an option which businesses cannot ignore.

Research should be performed to discover the value of the ‘free’ stocks that society uses in their production and consumption patterns. Once these values are included and the rents attributed to them accrued, true sustainable development can begin in the current competitive economic environment.

Further research into understanding the benefits of collaboration is needed, as sustainability is dependent on this paradigm shift in society.

In addition, finding value tested solutions for business that create collaboration and eliminate trade-offs between the three pillars of sustainable development is needed to mitigate the negative cost perception of SD activity.

More research is recommended to find the most relevant, common and impactful SD initiatives that can work in any environment, including models to measure the impact of every activity implemented.

This research report also recommends further research on the concept of corporate citizenship and how to incorporate it as soon as possible into business strategy design. This is required if we are to create the scale of collaboration needed to embed the concepts of sustainability into the DNA of business. Thus, further research is required to understand how to create a culture of SV from within the business environment.

As time is of the essence, it is recommended that business leaders do not wait for regulatory mandates or global accords, but rather seek out partnerships and collaboration with government and/or within their own value chain that unlock hidden shared value.

Further research is also needed to develop a collaborative SD model urgently, as the time issue is of critical importance to achieving sustainability.

Further research into finding solutions that can mitigate negative impacts across every sector of every business operating in South Africa is suggested.

In essence, it is suggested that the competitive economic market be equalised by subscribing to a one-world-view as the guiding principle. Voluntary compliance should be more strictly regulated through a judicial SD model to ensure SD challenges are overcome and to provide every business an equal bite of the apple.

Therefore, it is recommended that further research is conducted to find the solutions that balance the trade-offs between people, planet and profit; so that all can take the meaningful steps and initiatives to map out a sustainable future for all.

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