

UNIVERSITY OF KWAZULU-NATAL

**The extent to which corporate social responsibility activities in South Africa address
invasive alien plants**

By

Mapule Mdletshe

206523473

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School of Management, Information Technology and Governance, Pmb

College of Law and Management Studies

Supervisor: Prof Deborah Ann Ellis

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I Mapule Nomvula Mdletshe declare that

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Abstract

The problem posed by Invasive Alien Plants (IAPs) threatens all sectors of society. Government's limited budget and resources to address issues necessitate the involvement of businesses. This can be implemented through Corporate Social Responsibility (CSR), however, no study has established the extent to which businesses get involved in IAP management using CSR. There still is no study even comparing the extent to which CSR is focused on environmental versus philanthropic causes. Literature indicates that there have been successful (CSR) initiatives which give an indication that environmental CSR can be a useful tool which private companies can utilise to assist in the problem of IAPs.

From the top 200 Johannesburg Stock Exchange (JSE) listed companies the research investigated the extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities. The types of existing partnerships held with local organisations to carry out CSR activities as well as the stakeholders involved in and beneficiaries to, the CSR activities were identified and discussed. Stakeholder theory formed the basis for identifying active stakeholders.

Qualitative research analysis was selected for its use of analytic strategies to make sense of trends from research findings. Research themes related to CSR types and participating stakeholders identified in the literature and stakeholder theory were used in a deductive content analysis of the websites of the top 200 JSE listed companies. Key findings showed that, majority of companies participate in CSR related to climate change with very little attention given to IAP management. Private companies are given recommendations on ways to incorporate environmental CSR, specifically IAP management. There are recommendations also to government to incentivise CSR active companies through tax policy transformation. Further research is recommended to investigate the cost of sourcing indigenous plants as a result of native locations being dominated by IAPs.

Keywords: CSR, IAPs, stakeholders, partner, private sector, public, water

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Chapter 1: Introduction

1.1 Introduction

Corporate social responsibility (CSR) is a practice that stemmed from philanthropy practices, with characteristics of aiding non-profit organisations and underprivileged members of society (Bartelse, 2014, p. 14). The programmes sponsored by the business portray to the outsider the type of values that that business stands for (Genasci & Pray, 2008, p. 595). The values of the company will always be coherent with the cause it supports (Jamali & Mirshak, 2007, p. 254). Consumers associate a company with causes and ambassadors it aligns with. “The economic responsibility to owners or shareholders requires a careful trade-off between short and long term profitability” (Carroll, 2016, p. 5). Practicing CSR can appear to be wasting money for a growing company, but its benefits are seen in the long run. A business is sustainable when it is ethical and socially responsible in its strategic planning and decision making (Crowther, 2008, p. 59). CSR enhances the organisations’ marketing positioning among sustainability conscious consumers (Adigun, 2021, p. 41). Akbari, Nazarian, Foroudi, Seyyed Amiri, and Ezatabadipoor (2021, p. 20) highlights the function of environmental CSR in positioning an organisation where the price and product alone are insufficient in satisfying a consumer in the hospitality industry. CSR activities therefore play a key marketing role.

After 156 companies were studied for their environmental involvement over three years in Egypt, the conclusion drawn was that those who were actively involved in environmental management performed better in the market compared to companies who were not (Wahba, 2008, p. 96). When companies are dedicating substantial resources to socially responsible initiatives, a challenge arises to reassure stakeholders of the authenticity of resources directed to CSR (Du, Bhattacharya, & Sen, 2010, p. 8). Investors’ primary goal is to get returns on what they have invested in (Statman, 2010, p. 10) and resources going towards the greater good of the society need to have visible outputs relating to value-adding to the company. In addition, CSR grants access to bigger markets for a growing company (Książak, 2016, p. 57). Substantial literature reveals how CSR strengthens relationships with the company’s various stakeholders (Bhattacharya, Korschun, & Sen, 2009, p. 27). This is achieved through ethical business conduct and transparent reporting. For example, despite criticism of its operations, Google funds initiatives for clean projects in parts of the world where there are no profits to be gained (McLean, 2019, p. 6). An experiment comparing attitudes of consumers toward

companies before and after discovering that they had CSR initiatives in place, showed a positive view towards the companies (Nan & Heo, 2007, p. 64). The company's image, in general, was found to be uplifted and satisfied consumers refer others to where good service is received.

Invasive Alien Plants (IAPs) are a problem for every stakeholder of the economy as well as member of the public. An IAP is a plant that is not native to an area that gets introduced to a foreign country (Pratt, Constantine, & Murphy, 2017, p. 291). Even if IAPs were innocently introduced to the country for ornamental and commercial reasons, they quickly spread to natural landscapes where they out-competed native plants and transformed local to regional ecological processes (Cooper, Schroenn, & Quinn, 2002, p. 452). If biodiversity is destroyed, the human race is at stake for loss of basic products and services of nature. IAPs are viewed by scientists as a threat to biodiversity and the sustainability of natural forests (Eskridge & Alderman, 2010, p. 114), and aquatic and terrestrial ecosystems (Schirmel, Bundschuh, Entling, Kowarik, & Buchholz, 2016, p. 598). The Sunlight brand of Unilever, for example, introduced a ground breaking formula to save rinsing water by 50% (Unilever, 2019, para. 1), indicating environmental CSR focused on water saving. Based on the 2015 sales data, close to R54 million was saved from controlling water hyacinth in Eastern Cape (Arp, Fraser, & Hill, 2017, p. 7). Genasci and Pray (2008, p. 40) said that human rights, as well as protection of the environment, appear frequently in agendas of CSR. However, eradication processes tend to appear expensive when placed against other social issues (Westwood et al., 2018, p. 3). The extent to which South African companies are addressing the problem of IAPs through their CSR initiatives is, however, not known.

Ketola, Blombäck, and Wigren (2009, p. 261) put focus on how structures of the two types of businesses (small and large) have an influence on how CSR gets managed, expanding that CSR in small businesses is shared by all whereas larger businesses have dedicated marketing or corporate responsibility heads. The main constraint limiting small businesses from CSR, as identified by Zbucea and Pînzaru (2017, p. 425), is finance. This research, therefore, sought to determine the extent to which of the top 200 companies in South Africa are dedicating their CSR activities to environmental preservation, and the specific management of IAPs and what type of CSR activities are covered by these companies.

1.2 Background of study

The collaboration of private companies and non-profit organisations as part of philanthropic CSR has been able to address social issues and leverage long term relationships from shared values of both parties (Remund & McKeever, 2018, p. 9). This is the reason that CSR is explored in this research as a solution when used in the eradication of IAPs, where private companies, local communities and government can partner and equally benefit.

Keeping IAPs under control is made difficult by their strong adaptability (Septiadi, Wahyudi, Rachman, Syafrudin, & Alfuruqi, 2018, p. 55). The reason they become invasive is that the climate, lack of natural predators and competition, that they find in the host location is more favourable than the one they are native to (therefore consuming more water than native plants); this is how they easily out-compete and replace native plants (WESSA, 2008, p. 10). Although the government has allocated a budget (R2000 per hectare) to eradicating IAPs, the rate of their reproductions defeats programs in place (Cooper et al., 2002, p. 469). There is an escalating problem of sprawling IAPs and very little attention is given to addressing it in relation to the size of this problem (Eskridge & Alderman, 2010, p. 111). IAPs are an everyday challenge in the environmental sector where the primary mandate is to conserve the environment and accentuate its relationship with humans (Wilson & Primack, 2019, p. 345). The spread of IAPs on road sides makes one pay attention to productive land lost to IAPs (van Wilgen, Measey, Richardson, Wilson, & Zengeya, 2020, p. 377).

An internet search did not find any resource in academic databases looking at CSR activities targeting the problems caused by IAPs. This research aimed to look specifically at the CSR activities of South Africa's private businesses to determine the extent to which they addressed the preservation of nature and specifically the problem posed by IAPs in their attempt to position the organisation as, and actually be, socially responsible organisations.

1.2.1 The effects of IAPs

The effect of IAPs on terrestrial ecosystems

Any plant in its natural environment has predators which keep its population within desirable levels; when plants are moved from their natural habitats to a new environment, they leave these predators behind and in the new environment they have an advantage over local plants

by not having predators (Sanu & Newport, 2010, p. 293). In addition, IAPs come to invade an area occupied by insects that consume a naturally growing plant in the area and suffocate the natural plants and dominate the area; these insects will eventually die from not accessing sufficient food (Pratt et al., 2017, p. 292). This decline in numbers of insects affects the higher consumers in the food chain, creating a ripple effect for the ecosystem (Johnson & De León, 2015, p. 10).

If an invaded field experiences a veld fire, damaged soil erodes easily since IAPs sprout sooner than indigenous grass that was naturally stabilizing soil (Lal, 2015, p. 5885). IAPs also alter soil pH resulting in plants being disadvantaged to grow in their native soil whereas IAPs are able to grow in shallow and non-nutritious soils (Ghost.Digest, 2015, para. 1; Wilgen & Faulkner, 2018, p.105). Pine species in particular, have allelopathic properties which changes soil chemical structure thus preventing other plants from growing (Fernandez et al., 2016, p. 2). IAPs are able to conquer a rocky terrain because of their ability to flourish under unfavourable environments (Reinhart, Greene, & Callaway, 2005, p. 575).

Effects of IAPs on freshwater ecosystems

It is notable that wetland accumulation of sediments from higher ground contributes to its vulnerability to IAPs penetration (Zedler & Kercher, 2004, p. 431). Lower points on the earth's surface become a dumping ground; IAPs seeds are washed off to here. Wetlands serve as carbon sinks (Zedler & Kercher, 2004, p. 432), which is the ability of wetlands to absorb carbon carrying chemical compounds accumulated over long periods, serving in securing clean water (Mitsch et al., 2013, p. 595). IAPs have a higher evaporation rate than local plants; this factor does not ease the issue of scarce water reserves of the country (McConnachie, Cowling, van Wilgen, & McConnachie, 2012, p. 123). Water tables are significantly dropping as a result of the spreading of IAPs (van Wilgen & Faulkner, 2018, p. 177).

IAPs have been recognised as a significant threat to biodiversity and have negative knock-on effects on the economy (Wilson, Gaertner, Richardson, & van Wilgen, 2017, p. 199). Stock farming requires palatable plants for animals to graze, but when invaders such as famine weed (*Parthenium hysterophorus*), originating from Australia, suffocate grass, animals have less food available and eating famine weed causes bitter milk in dairy cattle (Sabapathy,

Devaraj, & Kathirvel, 2017, p. 24). Bitter milk cannot be sold commercially to be used as normal milk, thus the snowball effect rolls in this fashion from the ground to the consumer.

The vulnerability of an ecosystem to invasion is directly related to how well it is preserved. Severely disturbed lands or watercourses are more easily invaded by IAPs; this includes near-shore systems and mixed island systems (Heywood, 2005, p. 54). Near-shore systems contain debris carried by rivers which gets deposited there, unable to move on due to reduced water velocity. Alteration of any natural environment, changing its natural function or layout makes it easier to infiltrate (Sanu & Newport, 2010, p. 291).

Socio-economic impacts of IAPs

A livelihood for fishing communities is threatened as food for fish is reduced; resources that could be ploughed in to the economy are redirected towards clearance of IAPs blanketing water (Sanu & Newport, 2010, p. 293). Construction work is therefore required to have a rehabilitation program for the disturbed surface area post construction to limit the extent of IAPs spread.

1.2.2 Governments' strategies for managing IAPs

Läderach, Ramirez-Villegas, Caroli, Sadoff, and Pacillo (2021, pp. 1,2) conducted a study based on the 26th United Nations (UN) Climate Change Conference of Parties (COP26), where it was revealed that India has an estimated 79 million households that are climate-exposed; moreover, India and some African countries (Zimbabwe, Niger and Ethiopia) have been funded by the Green Climate Fund to tackle impacts of climate change. While President Cyril Ramaphosa committed in his State of the Nation Address (SONA) to create a green economy and reduce carbon growth choices to respond to climate change impacts (Ramaphosa, 2020, p.8), it is nevertheless challenging to achieve the desired goals when the funds cannot meet all the needs of affected countries. South Africa is part of the United Nations (UN), an international organisation comprising 193 countries set up to make the world a better place for all who live in it through a set of 17 Sustainability Development Goals (SDG) and 232 indicators (Qureshi, Qayyum, Nassani, Aldakhil, Abro and Zaman, 2019, p2). Empowering women and girls, the pandemic of refugees and poverty have all been prioritised by President Ramaphosa in his administration as reported by Denno and

Akuffo (2020, p. 5). Adding to the country's issues are the global warming effects and extreme weather patterns that threaten livelihoods and the economy (Ramaphosa, 2019, p.21). The UN's Rio+20 conference discussed the Sustainability Development Goals and recognised sustainability and ecological matters which were made additions to previously agreed on Millennium Development Goals (Baumgartner, 2019, p. 2).

Government has a duty to address IAP problems and offer support to active parties in order to ensure food security (Sanu & Newport, 2010, p. 295). An economic assessment by the USA government revealed that \$3 billion is lost per year in poor agriculture and fisheries turnover due to IAPs (Sanu & Newport, 2010, p. 295). Pimentel, Zuniga, and Morrison (2005, p. 279) estimated \$24 billion is spent on eradicating IAPs that were introduced (not knowingly that they are invasive) intentionally in USA.

Although there is a budget from the government allocated to provincial and local jurisdictions for IAPs eradication amounting to R1.5 billion, it is not enough to undo the damage caused by IAPs (Mail&Guardian, 2018, para 7). The Economic Development, Tourism, and Environmental Affairs' 2018/2019 budget for eradication of IAPs was R 58 524 380 with R 39 861 795.38 spent at the end of November 2018, leaving only R 18 662 584.62 until the end of the financial year in April (EPWP-IASP, 2018, p. 1). The eradication process is run through the Expanded Public Works Programme (EPWP) which is "short to medium term strategies devised by government to address unemployment. The primary long term strategies for unemployment reduction are to grow the economy and to improve the skills development system so that the workforce is able to obtain the skilled jobs which are being generated by the economy" (Public-Works, 2005, iv).

Eradicating IAPs can be done through five processes: mechanical, biological, chemical, habitat management and integrated pest management (WESSA, 2008, p. 12). Mechanical control removes the IAPs physically by using appropriate tools. Biological control methods use natural enemies of the IAPs that will negatively affect the IAPs these include insects and bacteria (Gaskin et al., 2021, p. 10). Chemical processes make use of herbicides to control the IAPs. Habitat management is uses fire as a management method, usually preferable for large areas. Integrated pest management combines any of the above listed methods and watchful co-ordination (WESSA, 2008, p. 12). The amount of damage attributed to IAPs can be

limited to an area of occurrence only over a limited duration. They produce seeds at a high rate, seasonally and sometimes throughout the year (Perrings, 2005, p. 2) whereby the resulting damage can be irreversible. When local vegetation is completely replaced by IAPs, soil must first be rehabilitated before planting with indigenous plants (Helman, Lensky, Mussery, & Leu, 2014, p. 52).

The Department of Environmental Affairs introduced the Alien and Invasive Species Regulations in an effort to curb the spread of IAPs in effect from 1 April 2014, requiring home sellers and buyers to cooperate (Ghost.Digest, 2015, para. 1). The regulation contains a list of 560 plant species that are forbidden to be introduced to South Africa due to their invasive nature. This regulation holds that the land owner is responsible for clearing these plants from their land (WESSA, 2008, p. 6). Accordingly, the seller must, in writing, let the buyer of an immovable purchase know the types of IAPs on the property being purchased (Ghost.Digest, 2015, para. 1). The Kruger National Park also has a program that detects early invasion so as to get rid of IAPs at a primary stage (Le Bourgeois et al., 2016, p. 105).

A programme by the Economic Development, Tourism and Environmental Affairs (EDTEA), KwaZulu Natal in 2017/2018 identified 101 760 hectares of land for rehabilitation, in which cleared land would be rehabilitated with indigenous trees to lower costs of the future follow up programmes (EPWP-IASP, 2018, p. 6). The amount of money spent by the government to eradicate IAPs only clears 3% of the entire problem (Mail&Guardian, 2018, para. 7). The Department of Environmental Affairs can only afford to spend so much with the budget it is allocated, to cover its expenses (Mail&Guardian, 2018, para. 7). If private sector contributes towards IAPs eradication resources, then there will be less damage control required in the future. It is for this reason that the private sector needs to urgently cooperate through CSR to save the natural resources that every business needs to operate, whether directly or indirectly. The risk posed by IAPs has an impact across all sectors of society, it requires more than government to address the problem of IAPs. The extent to which South African companies are addressing the problem of IAPs through CSR initiatives is unknown.

1.3 Research problem

Dealing with IAPs is perhaps easier to address at a national level than climate change or the rate at which the population is growing. This initiative however, cannot be only government's responsibility, firstly because government is not able to manage on its own, and secondly because not having water will have a huge impact on businesses and society too. Having no land to grow food or feed animals, will be the end of the human race. Through CSR, companies can play an important role in addressing the problem of IAPs while at the same time positioning themselves as socially responsible. However, the extent to which South African companies are addressing this problem through their CSR initiatives is not known. According to Toppinen and Korhonen-Kurki (2013, p. 213) local impacts for CSR activities that are in line with environmental sustainability are not clearly known and remain to be uncovered. This is particularly so in South Africa.

1.4 Research purpose

This study set out to investigate the extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities. IAPs invade an area occupied by insects that consume a naturally growing plant in the area and suffocate indigenous plants and dominate the area; these insects eventually die from insufficient food access (Pratt et al., 2017, p. 292). This decline in numbers of insects affects the higher consumers in the food chain, creating a ripple effect for the ecosystem (Johnson & De León, 2015, p. 10). The IAP problem thus becomes more than an environmental issue. This research presents CSR as a potential solution to the problem of IAPs bringing in the private sector to expedite what government is doing. This study aims to investigate the top 200 JSE listed companies with CSR activities to determine those that are committed to environment management, especially IAPs. It further aims to identify the active stakeholders using the stakeholder theory that is included in the study as a contributor to CSR.

1.5 Research objectives

The objectives of this research are therefore to determine from analysis of the top 200 JSE (a South African stock exchange) listed companies' websites:

1. The nature of their CSR activities.

2. The types of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.
3. The extent to which environmental preservation and specifically IAP management were incorporated into the CSR activities.
4. Whether the size of business or sector it is in, influenced the extent of CSR involvement directed at the IAP challenge.

1.6 Delimitations of the study

The study was limited to the first 200 companies listed in the JSE, and only publicly available information from the companies' websites was used. This study only gave a perspective of a limited number of companies and that from one stock exchange.

1.7 Brief overview of the literature review

The literature review presents the research problem, in order to substantiate the need for the study. The importance of managing IAPs encompasses key points such as the composition of IAPs and how IAPs have disturbed the balance in earth's natural order. It expands to show the consequences of the spread of IAPs. CSR is subsequently presented as a potential contributing solution. The research focuses on the role of CSR in addressing problems caused by IAPs. The literature review provides a brief history of CSR. CSR transformed positively by the 1990s as businesses began to realise its competitive advantage in strengthening a business' financial performance (Lee, 2008, p. 58). Suitable communication channels have allowed transparency with customers who engage with companies in terms of their CSR initiatives and strengthened loyalty (Chomvilailuk & Butcher, 2018, p. 773). Literature of success stories of implemented CSR reveal what has been done before to solve certain social issues. Environmental CSR as well as philanthropic CSR are broken down into subthemes that are used in data collection.

Environmental solutions that have been brought about by CSR include employing sustainable energy choices, recycling (Wei, Shen, Zhou, & Li, 2017, p. 3) and land rehabilitation (Cowper-Smith, 2011, p. 67). There still exists a gap in what is known regarding the extent of CSR to address the problem of IAPs in South Africa. There is a growing variety of CSR initiatives and environmental CSR is a sphere that is presented in this research as a potential solution in aiding to combat IAP problem. The stakeholder theory is well detailed as an

underpinning theory in CSR, where shareholders, employees, customers, the public, government and competitors are said to be stakeholders (Crowther, 2008, p. 30). Other scholars add the environment as a stakeholder (Crowther & Seifi, 2018, p. 30). It discusses the influence of the stakeholder theory in CSR and its potential role in the eradication of IAPs. Proceeding sections look at how the different partnerships within these stakeholders can be a tool in CSR implementation and further specifies CSR in managing IAPs and environmental CSR literature is provided. The conceptual framework displays common CSR types in the studied companies and displays how various concepts link within this research.

Past research on CSR to address environmental problems and particularly IAPs, is investigated in the literature review to determine what is known about the extent and nature of CSR to address the environmental problem of IAPs. The gap in knowledge in the South African context is established.

1.8 Brief overview of the methodology

The research problem and objectives guiding the collection and analysis of data are restated. The literature review was used to determine the criteria used to describe a company's CSR activities. The sample design involved non-probability sampling. This was due to the sample being in the top 200 companies on the JSE listed by market capitalisation. The sample size was determined using Slovin's formula, which is a scientific reliable tool for getting a sample size that can give dependable research results (Taherdoost, 2017, p. 237). A descriptive research design employed deductive content analysis as the method of research. Scientific data collection and thematic data analysis procedures and tools were applied. The deductive research methods test existing theory with the intention to improve or expand it at the end of the research (Bhattacharjee, 2012, p. 3).

Quality was ensured firstly through the research receiving ethical clearance from UKZN preceding collection of data. In spite of the disadvantage of the sample being non-probability, published resources, scientific methods and professional academic review were used in data collection and analysis to achieve data quality.

1.9 Contribution of study

This research took stock of the extent to which companies in South Africa are addressing the issue of IAPs in the country. Understanding whether, and if so how, companies are addressing the problem through their CSR efforts, can help both government as well as businesses in the private sector to locate the gaps that need to be populated in terms of CSR activities. Businesses can use a focus of the CSR activities on this critical environmental problem to differentiate themselves from competitors and attract environmentally conscious stakeholders (suppliers, prospective employees, customers, business partners). This will assist the government's strategies to prepare communication to try to encourage companies to get more involved and may even inform policy development on dealing with IAPs. Implications for government's communication strategies to encourage business involvement, is a key marketing contribution of this study. Thus, there are both a policy development, as well as practical management contributions. Guidance is also provided for companies that are pursuing CSR in the management and control of IAPs.

1.10 Overview of the dissertation

Chapter 2 takes the reader to a summary of existing literature related to this study as summarised above. In Chapter 3 are details of the research methodology. Chapter 4 follows with the JSE final sample described and all sectors identified. Company descriptors are discussed. The chapter presents data collected, analyses and discussed in relation to existing literature and to theories mentioned in Chapter 2. Themes used to extract data and quotes from the data are included in italics as evidence of the codes.

Chapter 5 concludes and provides recommendations based on the findings of this research. Study limitations are acknowledged, with a final conclusion which highlights the research contributions.

1.11 Conclusion

Chapter 1 opened with the introduction; explaining key terms and a brief discussion of the research problem and why it is important. The background of the study served to give the reader an understanding of the urgency of the problem due to the threats posed by IAPs to all sectors. Strategies that government has applied to eradicate IAPs are mentioned and critically

discussed. From this, the research problem is clearly and succinctly stated giving rise to the research purpose and study objectives that are later used in analysing data. Delimitation of the study indicates that this study only gave a stock exchange companies perspective. The literature review and methodology were briefly presented. The contribution of the study which is to expose the threats posed by IAPs and reveal to various stakeholders how CSR can, and is, being used as a tool towards the eradication and management of IAPs is presented. The research contributes in finding solutions to the IAPs issue. The chapter overview highlights the rest of the research chapters. The subsequent chapter gives the literature review; expanding on IAPs and their impact on the ecosystem, the potential and role of CSR is presented in addressing IAPs and their nature. The purpose of this chapter was to familiarise the reader with the research that is investigating the top 200 JSE listed companies on the extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities. The following chapter, Chapter 2 provides a literature review on IAPs, CSR and its potential as a solution to the problem of IAPs. Theories underlying CSR types that are discussed in the chapter to give their foundation.

Chapter 2: Literature Review & Conceptual Framework

2.1 Introduction

This chapter discusses in detail the two main types of CSR of relevance for the study, i.e., philanthropic, and environmental. The study used this typology by identifying, from the website discussion of the companies' CSR activities, the types of CSR being used. These therefore represented the themes of the deductive content analyse used to analyse the websites. This chapter provides different sections of existing studies in relation to the current research. The literature review provides existing knowledge of issues arising as a result of IAPs and CSR as a solution to this problem. This chapter defines and discusses the concept of CRS and expounds on it in the area of environmental CRS. The last part of this chapter discusses the Stakeholder Theory as a conceptual framework that will be used in this study.

The chapter is structured as follows: Why IAPs must be managed is explained in the next section. The nature of IAPs is described, as well as how they spread and threaten the natural ecosystem. The introduction of CSR gives the origin and evolution of CSR as well as the benefits of CSR. Planning and implementation of CSR precede the theories underpinning CSR; which are the types of CSR and the Stakeholder theory discussed along with examples. Evidence from literature shows how CSR can be planned and carried out and next comes similar studies that have dealt with CSR similar to IAP management. CSR types give guidance to the types of CSR that are investigated in the study.

The conceptual framework is presented explaining the relationship of key variables used in the study and then literature review on environmental CSR and IAP management is given. It presents how various stakeholders can partner and get involved within CSR implementation. CSR practices by other companies presents CSR done in other countries and CSR focusing on specific sectors.

2.2 The importance of managing IAPs

Once IAPs gain entry, they are able to suffocate indigenous plants and dominate an area and the ripple effect is broken food chain as well as loss of soil quality. Their ease to adapt allows them to survive arid areas and their high evaporation rate allows them to dry up water features that they have invaded (McConnachie et al., 2012, p. 127). According to Capper (2013, p. 233) the current state of the planet is not at its best to support life on earth. The resources are being used so fast that the earth is unable replenish itself to keep up with the needs of humankind. What people need to live comfortably is much less than what they keep accumulating, out of greed (Winarick, 2010, p. 325). Preservation of the ecosystems is fundamental in the well-being and development of human kind and ensuring quality of life (Perrings, 2005, p. 55). Life loses its solid foundation when the networks in the ecosystem are disjointed.

Plants form part of the lower tiers of the natural ecosystem; they are involved in the production of goods and natural services (Dimbleby, 2017, p. 21). Natural services include water purification, absorption of carbon dioxide and goods are food, medicine, oils, wood etc. (van Wilgen & Faulkner, 2018, p. 22). By disturbing primary ecosystems links that are involved in basic production of natural goods and services are broken. The belief of the Chinese is that earth and heaven are sealed in a circle which brings equilibrium in nature (Jelinski, 2005, p. 276); this balance in nature is achieved when there is no external interference. Invasive species disturb this natural alignment.

IAPs have been recognised as a significant threat to biodiversity and have negative knock-on effects on the economy (Wilson et al., 2017, p. 199). The evidence is in rivers drying up as a result of pine and other exotic commercial plantations (Baird & Barney, 2017, p. 783). IAPs evaporate at a higher rate than native plants; this phenomenon worsens the standing issue of scarce water reserves in South Africa (McConnachie et al., 2012, p. 128). Water tables are significantly dropping as a result of the spreading of IAPs (van Wilgen & Faulkner, 2018, p. 12).

IAPs also increase soil pH, the level of acidity, resulting in native plants being disadvantaged to grow in their native soil whereas IAPs are able to grow in shallow and non-nutritious soils (Ghost.Digest, 2015, para 1), (van Wilgen & Faulkner, 2018, p. 105).

Economic resources such as tourism attractions are also threatened. ISimangaliso wetland park, is a world heritage site for its unique variety of plants and animals occurring in St Lucia (Hart, Bowker, Tarboton, & Downs, 2014, p. 52). This tourism destination creates a source of income for local people who are selling wooden artwork, providing accommodation and operate restaurants. If IAPs are left unattended or given little attention, livelihoods provided by game parks are threatened (Spear, Foxcroft, Bezuidenhout, & McGeoch, 2013, p. 143).

The impact of IAPs creates problems for now and the future. The private sector could play a major role in the fight against IAPs. To show how much more wealth the private sector holds over the public sector; in the health sector the government spends R1200 per capita to serve 84% of South Africa's population while private sector spends R12 000 per capita to serve only 16% of South Africa's population (Veriava, 2016, p. 11). The contribution of the private sector in the eradication of IAPs would not only help to address the major problem of IAPs but would also protect their investments in the country.

2.3 CSR as a potential solution in Addressing IAPs

“CSR is essentially about maintaining economic success and achieving commercial advantage by building a good reputation and gaining trust. Customers want a reliable supplier with a good reputation for quality products and service.” (Demetriou, Papasolomou, & Vrontis, 2010, p. 11).

2.3.1. Introducing CSR

CSR is a set of ideas and norms relating to how businesses link to the greater social system that they operate within (Dey et al., 2018, p. 59). A social system has to be integrated into the natural system (the environment) in which it operates; pointing out that humans completely depend on nature (May, Cheney, & Roper, 2007, p. 5) yet forget to consider this in holistic perspective. “The general idea of Corporate Social Responsibility, therefore, is that businesses have a responsibility to contribute to economic outcomes that meet societal expectations. Although this general statement is relatively uncontroversial, it is surprisingly difficult to provide a more precise definition.” (Beal, 2013, p. 2). Minor practices make CSR differ from one business to the next.

During the 1950s and 1960s, the relationship between corporate financial performance and CSR was loose and unfavourable due to poor understanding of CSR (Kakabadse, Rozuel, & Lee-Davies, 2005, p. 279). The subject transformed over the years and by the 1990s competitive advantage as a CSR characteristic became a factor that strengthened the relationship between CSR and corporate financial performance (Lee, Paul, 2008, p. 58). CSR comes in to revive the relationship between people and nature so as to allow sustainable consumption. This resulted in wider understanding, acceptance and application of CSR to the business sector. Clean water and sanitation, sustainable cities and communities, life below water and climate action are a group of environmental goals within the Sustainable Development Goals (Salvia, Leal Filho, Brandli, & Griebeler, 2019, p. 487) that countries including South Africa have committed to achieve. Environmental CSR is presented by this research as marketing tool that the South African government apply to expedite achieving these goals.

2.3.2 Benefits of CSR

Demetriou et al. (2010, p. 11) showed that CSR is able to influence consumer behaviour when consumers were willing to switch to a brand that stood for a cause or was solving a social issue. Consumer's perceived value of a business grows when CSR is incorporated (Czarniewski, 2014, p. 141) thus making this business more competitive (Servera-Francés & Fuentes-Blasco, 2016, p. 184). Consumers prefer to support businesses that are ethical and who also fulfil environmental protection requirements (Misztal & Jasiulewicz-Kaczmarek, 2014, p. 62) Balancing the environment and sustainability gives the business a niche socio-economic value (Misztal & Jasiulewicz-Kaczmarek, 2014, p. 60).

Even though CSR is not enforceable, it has proven to foster adherence to codes of conduct like socially responsible investments for corporates without pressure from activist groups (Idowu & Louche, 2011, p. 83). A code of conduct for a company and a clear implementation strategy guards the company against being exposed (Leipziger, 2017, p. 20). Ethical business practices from CSR improve the overall quality of life for employees within the company; these employees are part of the surrounding community (Simpson & Taylor, 2013, p. 202).

Siano, Voller, Conte, and Amabile (2017, p. 33) say CSR communication is also a tool used to fulfil promises given to stakeholders such as seen in the case of Nike (in 2.6 below). Nike trying to expand, decided to minimise production costs through establishing factories in poor countries where people accepted any remuneration, had no demonstrations of job dissatisfaction and little monitoring of labour practices. This created an environment for to companies like Nike to get away with many labour malpractices as they set their own rules (Litvin, 2003, p. 234). One factory belonging to Nike in 1991 was found to be employing children who worked extended working hours and in hazardous conditions; and also earned \$2 a day for shoes that sold for \$120 (Peretti & Micheletti, 2011, p. 137). After petitions arose about Nike's unfair labour practices, the company devised a new CSR model that saw Nike's Pakistan based football factories transforming. Employees were trained on basic labour standards and workers' rights, while compliance in sites was ensured by employing independent auditors (Lund-Thomsen & Coe, 2013, p. 13).

Applying CSR creates value for the end customer (Servera-Francés & Fuentes-Blasco, 2016, p. 169). When a business applies CSR in its operations it reduces its input costs giving more value to its customers (Czarniewski, 2014, p. 141). A study conducted by Ghanbarpour and Gustafsson (2022, p. 479) revealed that CSR based marketing communication gains the company customer loyalty.

Findings by Li, Lu, and Li (2019, p. 5) show that despite the potential of CSR to amplify the corporate brand; there may be a tax avoidance motive by some corporates' involvement in CSR. This can leave ambiguity as CSR will decrease the profits thereby subsidising tax (Goerke, 2019, p. 18). It seems CSR work can give a business a good reputation and reduce taxes for reporting on its CSR expenditure, whether the motive is purely to do good or to dodge tax. A study conducted in the US between 2008 and 2009 during the global financial crisis found that companies with the highest CSR spend had 0.28% higher profits than those without CSR and this was consistent post the financial crisis period (Lins, Servaes, & Tamayo, 2019, pp. 60, 69).

2.3.3 Planning and implementation of CSR

The success of environmental sustainability requires organisations and the broader society to transform traditional behaviour (Melville, 2010, p. 4). A business has to look at a longer

supply chain and environmental consequences of short-term choices whereas traditionally, financial implications would have been a key decision factor. If businesses want CSR to work for them they must ensure that their identity and image are communicated consistently (Tata & Prasad, 2015, p. 776). The commitment to the business's image has been seen where companies cut endorsements partnerships with individuals who get entangled in news that oppose what the company values. Implementation of CSR needs close monitoring as well as long term consistency (Demetriou et al., 2010, p. 12) to yield set out objectives.

Traceable long-term conduct is one of the measures in which consumer loyalty is gained (Singh & Khan, 2012, p. 606). All business values need to be consistent with CSR initiatives, otherwise there will be little or no value added to the business (Pomering & Dolnicar, 2009, p. 285). The applied form of CSR by a business fits ideally when balanced with its product lines and appeal to the stakeholders of the specific company (Castaldo, Perrini, Misani, & Tencati, 2009, p. 13) achieving a desired position in the minds of these stakeholders. 'Old shoe reuse' for example was Nike's program where 21 million old shoes were recycled between 1993 and 2008 (Zhang et al., 2018, p. 4). This waste management type of environmental CSR resulted to reducing raw materials for production and transporting less waste to landfill (Ding, Zhu, Tam, Yi, & Tran, 2018, p. 6). Less methane resulted from decomposing waste (Jain, Wally, Townsend, Krause, & Tolaymat, 2021, p. 2) and less carbon dioxide from waste transportation, one act can avalanche to multiple positive actions. Companies informing consumers of their CSR practices need to show also how it fits the social issue it is said to solve (Pomering & Dolnicar, 2009, p. 298).

There are several theories related to CSR which shaped the study and were used to develop the conceptual framework.

2.4 Theories underpinning CSR

CSR typologies and stakeholder theory were used as the study foundation.

2.4.1 Types of CSR

There are various types of CSR (Ji, Xu, Zhou, & Miao, 2019, p. 3; Khan, Khan, Ahmed, & Ali, 2012, p. 47). The typology of CSR types provided a basis for determining the kinds of CSR activities South African companies are involved with, and the extent to which these address the problem of IAPs. This section thus discusses these typologies. There are many kinds of CSR (Khan et al., 2012, p. 43), but the four main types are environmental sustainability (for example, attention to limiting the carbon footprint through reducing waste), direct philanthropic giving (characterised by donation of resources to charities and organisations), ethical business practices (focused of fair labour practices for employees within the business and employees of suppliers) and economic responsibility (which facilitates long term business growth and meets obligated standards set out for ethical, philanthropic and environmental practices) (Krohn, 2018, para.1-4; Mishra & Modi, 2016, p. 29). These are discussed in more detail on the following subsection.

2.4.1.1 Environmental sustainability

Environmental sustainability CSR is the protection of natural resources providing needed access to them now while preserving the ecosystem for future use (Misztal & Jasiulewicz-Kaczmarek, 2014, p. 60). This type of CSR is described as the ability to maintain valuable aspects in nature and ensure health quality of air, water and land (Melville, 2010, p. 4). Environmental CSR has to do with organisations investing in environmental protection and conservation activities, it comprises energy and resource-saving, recycling as well as waste management (Wei et al., 2017, p. 3). Other environmental CSR activities include clean technology, water management, climate change management, nature conservation, and IAPs management. These are discussed below.

Climate change mitigation: Visser, Matten, Pohl, and Tolhurst (2010, p. 68) describe climate change as the alteration of average global weather patterns over time. Information on past weather is collected from things such as tree rings and glacial coverage as well as comparison with weather records from previous years (Smerdon, 2018, p. 192). The intensity of weather patterns occurring out of seasons is also evidence of climate change (Vaghefi, Abbaspour, Kamali, & Abbaspour, 2017, p. 192). Contributors to climate change include air

transport for its high consumption of fuel (Cowper-Smith, 2011, p. 62). A vehicle in motion uses energy from burning fuel, and carbon dioxide is a resulting gas that gets released to the atmosphere (Chirinda & Matope, 2020, p. 521). Activities directed toward controlling climate change are mainly energy-related. Moving away from non-renewable energy sources to solar and wind and installing sensor lights that turn on only if there is a person in a room (Sullivan, 2016, p. 132), are examples. Companies commit to reducing their carbon dioxide emission by modifying their production and product types (Weinhofer, 2010, p. 80). Using cars that weigh less than previously used trucks, combining delivery and collection trips are examples of what companies in logistics are doing in addition to educating drivers on the reasons to reduce fuel consumption (Sullivan, 2016, p. 132).

Waste management: Waste management is concerned with reducing waste and promoting recycling to prevent land pollution and groundwater pollution (Visser et al., 2010, p. 429). Frederick, Hobbs, and Donahue (2004, p. 493) state that the use of recovery facilities allow for solid waste to be separated which makes it easier for selling and recycling, which as an informal economy is foreseen to grow.

Clean technology: Clean technology involves modifying inputs, equipment, and applied processes in the production process to reduce pollution, and is an important component of waste management (Visser et al., 2010, p. 68). Managing energy forms part of adapting processes of production (Visser et al., 2010, p. 156).

Water management: Water management has to do with the monitoring and controlling of water use. Water management measures are ecologically and economically beneficial to companies (Frederick et al., 2004, p. 565). Water management has multiple categories such as water harvesting and thus provided a group of codes for this subtheme in the deductive content analysis. Rain water harvesting is a tradition of gathering rain and storing water for later agricultural or other uses (Nachshon, Netzer, & Livshitz, 2016, p. 7).

Nature conservation: Nature conservation is the use of natural resources that ensure future generations will have enough or more to meet their needs (Visser et al., 2010, p. 79). Companies contributing to nature conservation are involved in the conservation and rehabilitation of land, water resources, indigenous plants, and animals (Cowper-Smith, 2011, p. 67). Companies that are involved in nature conservation preserve and rehabilitate land,

water resources, indigenous flora and fauna (Cowper-Smith, 2011, p. 67; Shi, Wu, Chiu, Wu, & Shi, 2020, p. 2).

These categories represented codes within the nature conservation subtheme for research on environmental CSR activities.

IAP management: IAP management needs to be prioritised and mainstreamed to various areas (de Poorter, 2007, p. 6) because it poses a threat to the future if left unattended. Understanding of IAPs will lead to effective management hence the need for ecologists to vocalize the benefits of spending on ecosystem management (Richardson, 2004, pp. 48,50). IAP management could be represented by empowering co-operatives involved in environmental conservation programs (Jordan, Gray, Howe, Brooks, & Ehrenfeld, 2011, p. 1153), skilling the old aged and youth groups in clearance of IAPs (Chudleigh, 2016, p. 4) in private lands, funding government programs dealing with IAP eradication, volunteering time to educate and resource communities towards managing IAPs. Management of IAPs was thus a key subtheme in the deductive content analysis.

2.4.1.2 Philanthropic CSR

No literature gives a direct, clear-cut definition of philanthropy but the sum of what is gathered contains condition-less giving of money as a donation, thus creating an improved image of a company (Gautier & Pache, 2015, p. 346). Cause-related marketing is a closely related field to CSR whereby a company promises consumers it will donate a certain amount of money to a charity organisation provided consumers buy their product; this field contributes to social good on top of raising profits for an organisation (Nan & Heo, 2007, p. 63). Woolworths, for example, donates more than R1.5 million monthly from their sales to charitable organisations and underprivileged schools (Woolworths, 2019, para. 1). Consumers have been found to respond more positively in cause-specific marketing compared to general CSR (Sheikh & Beise-Zee, 2011, p. 35). It may be in such examples as the Woolworths cause, that when consumers know where the extra Rand or how choosing that product over the other, will improve a situation that resonates with them, they buy into the vision with ease. Philanthropic CSR can be divided into co-operatives, agricultural as well as skilling and these are discussed below.

Co-operatives: Co-operatives are organisations that are independent of government and belong to their members (Birchall, 2004, p. 6). Co-operatives bring together people who are interested in a common cause; they serve different purposes (Zeuli, 2004, p. 1). Despite receiving no assistance from government; through combining individual strengths; co-operatives collectively empower poor members of society and realise their common goals (Williams, 2016, p. 86).

Members of the co-operative use personal monetary resources where required to accomplish a goal, and the gains from the performance of the co-operative are shared among members (Zeuli, 2004, p. 49). Co-operatives are a type of CSR that businesses consider investing in when community members are to be involved in solving problems within their communities (Mukherjee, 2016, p. 1499). Businesses give financial assistance or skills to co-operatives that align with their CSR objectives.

Agricultural: Agricultural based philanthropic CSR employs technologies and methods which are friendly to nature and are sustainable and which can be applied by poor communities and small farmers (Wani & Raju, 2018, p. 16). Agricultural CSR fills gaps where the government's extension programs cannot reach; aiding with the conservation of soil productivity, improved water use, and extension services (Oguntade & Mafimisebi, 2011, p. 123) through assisting farmers and communities to apply these methods.

Skilling: Skilling is a philanthropic CSR program of allowing underprivileged youth to learn specialised industry skills to better their opportunities to be employed in the relevant sector based on individual strengths (Ghosh, 2015, p. 80). Skilling programs involve course work and practical work; the length of each program depends on industry sector and resource availability (Ricks, 2005, p. 151).

2.4.1.3 Ethical Business Practices

Ethical relativism denotes ethical standards and moral behaviour are set according to a time period of a society therefore cannot be regarded as absolute (Crowther & Seifi, 2018, p. 57). Here responsibilities exceed the legal and economic expectations of a business when conducting the business (Carroll & Shabana, 2010, p. 90). This branch of CSR gives attention to the ethical standards that a corporation holds towards society.

2.4.1.4 Economic responsibility

This form of CSR involves social and economic reform including working hours, minimum wage and workers' health and safety, that are in alignment with growing shareholder value (Haase, 2017, pp. 9, 209, 211). Visser (2011, p. 20) adds that the goal of economic responsibility is that after increasing profits, which is the goal of any business, companies have an ethical obligation to improve the economic status of the community in which they operate, through infrastructure and skills development. Sophisticated organisations will incorporate multiple stakeholders in their sustainability and innovative initiatives whereas unsophisticated organisations focus on economic sustainability solely (Amini & Bienstock, 2014, p. 17). Environmental sustainability leads to sound economic stewardship (May et al., 2007, p. 8).

Both environmental and philanthropic CSR types have the ability to incorporate some efforts that could be used to address IAP management and thus they are included as a basis for the deductive content analysis used in the study. Ethical standards on the other hand are a relative measure and not directly related to the content of the CSR and therefore not included. Economic responsibility also is not included as this type of CSR has an internal focus on employees and shareholder value and also not directly applicable in an investigation of the extent of CSR addressing IAP management.

The second theoretical foundation to this study was Stakeholder Theory.

2.4.2 Stakeholder Theory

Stakeholder theory proposes that shareholders, employees, customers, the public, government and competitors make up stakeholders of a company (Krisnawati, Yudoko, & Bangun, 2014, p. 47) and the local community (Crowther, 2008, p. 28). Crowther and Seifi (2018, p. 30) add that the environment as one more stakeholder. The involvement of stakeholders in decision-making processes is so that there is accountability, progress tracking of the organisation and it is an ethical thing to do (Crowther, 2008, p. 30). CSR decisions taken by a company can be used as a scale to weigh the level of involvement of stakeholders because each stakeholder has a different stance and expertise they bring to the stake (Husted, 2016, p. 384). The quality of decisions is highly influenced by the engagement processes stakeholders apply. Integrating CSR into the company's core functions catalyses that process of decision

making (Starks, 2015, p. 1098). Klu (2017, p. 23) proposes that although stakeholder theory has been widely adopted in various fields; it has its roots in strategic management.

Stakeholder theory has been studied by Cordeiro and Tewari (2015, p. 844) in the highest performing firms in the USA where it was found that the investor reaction (stakeholder variable) is largely influenced by the firm size and legitimacy. The industry a firm is in does not however influence the nature of CSR it implements (Trencansky & Tsaparlidis, 2014, p. 46).

Stakeholder theory challenges the concept that gaining profits for shareholders cannot be done parallel to uplifting society (Crowther, 2008, p. 30). Leaders who seem to prioritise the balance of multiple stakeholders are welcomed by their subordinates whereas those who prioritised economic factors in their leadership strategy do not realise profits any better (Orlitzky, Siegel, & Waldman, 2011). (Freeman & Dmytriiev, 2017, pp. 9, 10) identify a common principle between CSR and stakeholder theory; that societal interests need to be integrated into business operations.

Stakeholder theory does not clearly regard environmental scanning but Jamali and Mirshak (2007, p. 254) consider external factors (politics, environment, social, technology, economic and legal) as having a direct impact on a business. These authors cite the unpredictability of politics as the highest risk of practicing CSR in countries recovering from the effects of military wars. Scanning the environment before exploring possible CSR activities is critical to choosing what will best serve the local community (Yin & Zhang, 2012, p. 307).

Stakeholder theory assisted in developing a robust conceptual framework that could be applied to any company; regardless of the industry or size of the company because the common factor was the typical structure of a company as suggested by the stakeholder theory. Stakeholder theory guided the research in terms of the identification of stakeholder types in companies being studied and assisted to identify the roles and responsibilities of internal stakeholders involved, as well as intended beneficiaries for the CSR activities. These represented subthemes in the deductive content analysis protocol. Website discussion of the companies' CSR activities was analysed to identify evidence of which types of CSR were being used as well as whether stakeholder beneficiaries were being consulted in the planning of the activities conducted by companies for them.

The Stakeholder theory has stakeholders and partnerships as primary components used to form the conceptual framework of the study. The stakeholder theory is included to give principles from which CSR as a potential solution is founded. It also served to support forms of partnerships investigated in the study. Stakeholder partnerships are presented as a potential catalyst to implement CSR. Stakeholders' and partnerships' role in facilitating CSR is reviewed to show what has been done in practice and worked.

Two primary components of stakeholder theory were considered in the study, stakeholders and partnerships.

Stakeholders

A stakeholder is any individual or group who is, or may be, directly affected by the achievement of objectives by an organisation whereby enabling stakeholders (suppliers, business owner, employee, investor) are those who have higher control over the organisation, and beneficiary stakeholders are those who are positively impacted by a business' success (as recipients) (Brugha & Varvasovszky, 2000, p. 243; Rawlins, 2006, pp. 2,4). The stakeholder theory says shareholders, employees, customers, the public, government and competitors make up stakeholders of a company (Krisnawati et al., 2014, p. 47). Enabling stakeholders are most imperative in a partnership as they are responsible for the provision of resources to guarantee long term endurance of the initiatives for the long term (Rawlins, 2006, p. 7).

Partnerships

Public-private partnerships are strategies that stimulate private investments in public services. (Chou & Lin, 2013, p. 51). Partnership models include private companies merged with government forming public-private partnerships or multi-stakeholder initiative where more than two stakeholders can partner in any combination. For example, different private sectors companies may partner, or a private company with Non-governmental Organisations (NGO) or government as well as private with NGO partnerships (Florini & Pauli, 2018, p. 584). The sustainable development goal number 17 talks to partnerships to achieve the goal of sustainability and strongly advocates for multi-stakeholder initiatives to fight poverty (Fowler & Biekart, 2017). The 17 United Nations Sustainable Development Goals were adopted in

2015 by the general assembly to address environmental issues and climate change as well as to promote prosperity through addressing poverty (Bexell & Jönsson, 2017, p. 21).

2.5. Stakeholder partnerships in catalysing the implementation CSR

CSR initiatives require well-structured communication channels that keep relevant stakeholders informed of their interests and open room for other key potential stakeholders to join in (Remund & McKeever, 2018, p. 3). The public relations has been used to present CSR to communities in a manner that gains the company support from the host community (Tworzydło, Gawroński, & Szuba, 2021, p. 65).

Published CSR articles show that the stakeholder approach is the most commonly used in developing CSR conceptual frameworks (Dabic, Colovic, Lamotte, Painter-Morland, & Brozovic, 2016, p. 16). It is a combination of specific stakeholders that make CSR initiatives effective (Florini & Pauli, 2018, p. 584). Including locals in social initiatives compared to using only external human resources when dealing with social issues improves cooperation and success rate of the said initiative (García, Eizaguirre, & Pradel, 2015, pp. 9, 13). Successful partnerships between a business and a non-profit rely on the specific values brought by the parties to the partnership (Florini & Pauli, 2018, p. 593). When corporates partner in an effort to understand the communities they operate in, they can collaborate their CSR activities (Remund & McKeever, 2018, pp. 7, 9). Sadasivan (2018, p. 30) suggested that private-public partnerships for skilling, benefit the corporate by securing skills transfer for their future employees, enriches the community's skillset and the government saves on its budget and can redirect it to other areas. Effective implementation of CSR requires an alignment between values of the company and partnering beneficiary parties such as local communities and disadvantaged groups (Yamak, Ergur, Karatb Özkan, & Tatm, 2019, p. 9). Government is in power to set the climate for conducive partnerships that promote CSR.

Environmental and philanthropic CSR types have characteristics that can be incorporated in addressing IAP management. Partnerships that form from stakeholders listed in the stakeholder theory along the two CSR types made up the following robust conceptual framework. The design of the conceptual framework is applicable to any company; despite its industry or size because the common factor was the typical structure of a company as

suggested by the stakeholder theory. The conceptual framework below therefore focuses on environmental and philanthropic CSR types from the typology.

2.6 Conceptual Framework

Wojewnik-Filipkowska and Węgrzyn (2019, p. 3) researched the sustainability of urban developments through public-private partnerships and concluded that; all relevant stakeholders must be considered for the success of the development. Relevant stakeholders in CSR initiatives therefore also need to be considered for the effectiveness of the proposed program. The collaboration of suitable stakeholders within and externally is a necessity for effective CSR implementation.(Florini & Pauli, 2018, p. 593).

The conceptual framework uses external and internal stakeholders where beneficial partnerships can form to contribute in various environmental and philanthropic CSR types. The conceptual framework is a visual demonstration of how the stakeholder theory contributes in the integration of stakeholders within the implementation of CSR. All senior management needs to be brought to speed with what CSR is and how it benefits the company (Sobhani, Haque, & Rahman, 2021, p. 6). This limits conflicts that may arise among the finance and marketing teams. The layout of the conceptual framework demonstrates how the variables form the basis of the deductive content analysis.

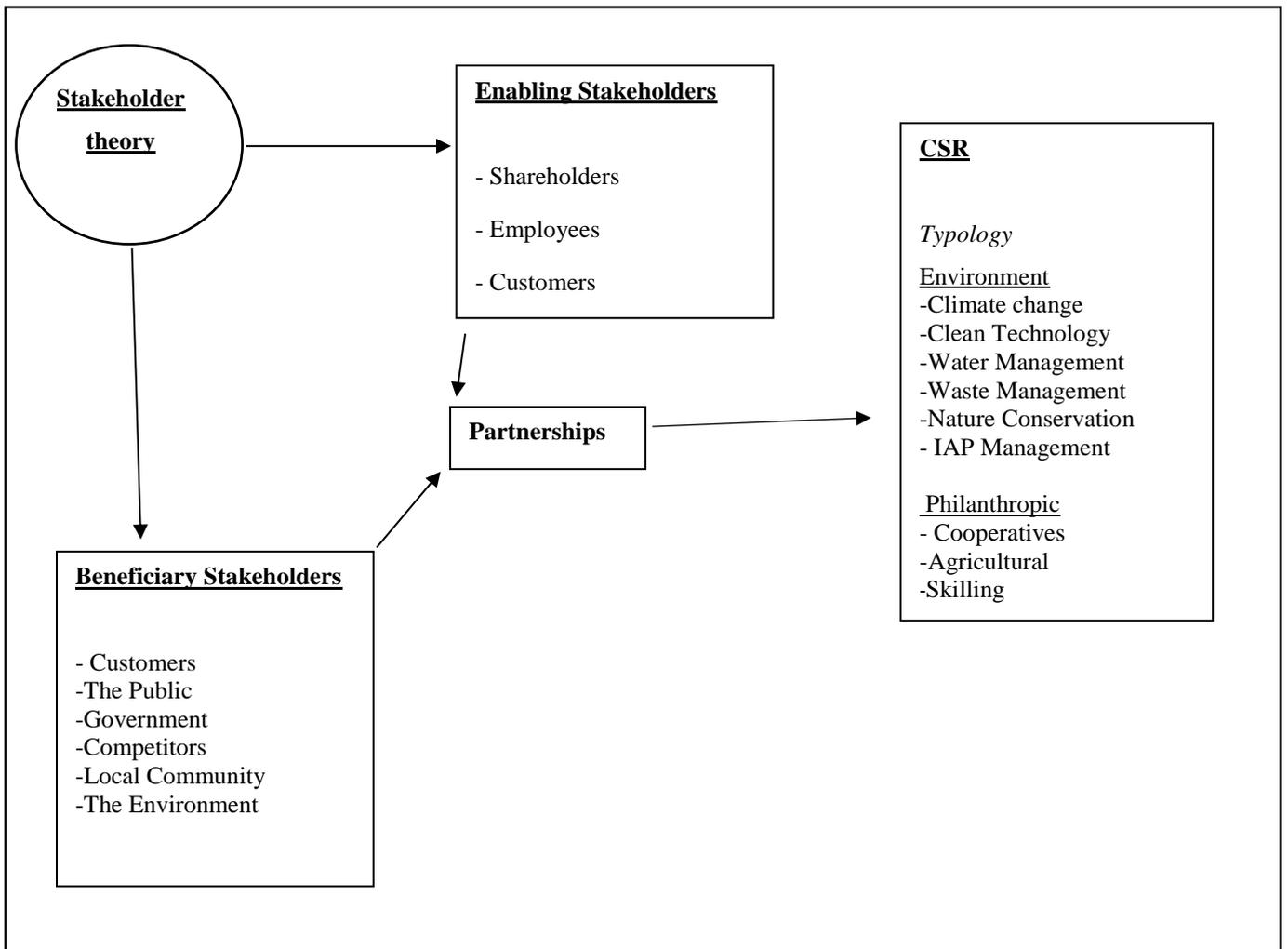


Figure 2.1: Conceptual Framework

2.7 Environmental CSR and IAP management in the literature

Existing literature treats the issue of invasive alien plants independent of marketing as a sector. CSR and branches within it such as environmental CSR, are excluded from marketing strategic plans (Babiak & Trendafilova, 2011, p. 13). There has, more recently, been more attention paid to the duties of the marketing function in society (Vilkaite-Vaitone & Skackauskiene, 2019, p. 60). The CSR image is important to an organisation because it is a mirror in which it sees itself (Tata & Prasad, 2015, p. 769). This is how the public views the company. Companies have been viewed by society as a major contributor to multiple environmental problems (Porter & Kramer, 2019, p. 4). An attractive CSR image can clear such perceptions about a company. Involving businesses in the eradication of invasive plants

could therefore be beneficial for society, government and businesses as a healthier environment has benefits for all.

Corporations who have attracted media attention for being caught breaking the law often turn to environmental sustainability to rebuild their reputation (May et al., 2007, p. 323). Although this is not a desirable motive for involvement in CSR for sustainability, the results yielded are still positive.

Seidler, Henkel, Fiedler, and Kranz (2017, p. 7) says that a link exists between a company's size and its involvement in environmental issues. Small businesses are still focusing on making enough profit to cover basic expenses and added expenditures of any sort do not make any commercial sense. On the other hand, well-established businesses can afford to donate to good causes and are able to sponsor events. When they have any bad publicity they can diffuse it by their good deeds (Uhrich & Flöter, 2014, p. 263).

There are various examples in the literature of environmental CSR activities. For example, in protecting India against flooding, the TATA group led the task of planting a little short of 3 million trees in various locations in India and changed their packaging material to be non-wood based (Srivastava, Negi, Mishra, & Pandey, 2012, p. 22). LendEdu's partnership with One Tree Planted began in 2014 where communities are taught the importance of having trees to guard against desertification (Blue&GreenTomorrow, 2017, para. 7). The Sustainable Living Plan is an initiative by Unilever that is reducing its greenhouse gas emissions and usage of electricity in its production (Unilever, 2019, p. 12). From 2015, 60% of raw materials used by Unilever were sustainably sourced (Blue&GreenTomorrow, 2017, para. 4,7). Reduction of electricity consumption cuts down production expenses and it also reduces the carbon footprint of the company (Van Heddeghem, Vereecken, Colle, Pickavet, & Demeester, 2012, p. 10).

A shampoo called Head & Shoulders is bought over 1 billion times every year, and its manufacturers have used this advantage to focus on reusing plastic as an example of environmental CSR (Procter&Gamble, 2019b, para 3). Volunteers in Europe helped in cleaning beach plastics that get recycled to make shampoo bottles (Procter&Gamble, 2019a, para 1). They are also reducing the size of their packaging to minimise energy that goes in to the (package) production (Procter&Gamble, 2019b, para 3). In South Africa, paper recycling

creates jobs for over 10 000 individuals (Toppinen & Korhonen-Kurki, 2013, p. 212). Recycling forms part of environmental CSR, that focuses on conserving the environment (Yu et al., 2021, p. 3). British American Tobacco (BAT) encourages its small scale tobacco farmers to use natural agricultural methods of farming and minimise their chemical usage (B.A.T., 2017, para. 3). All of the above are examples of environmental CSR however the following example specifically addresses the IAP problem. Through partnerships with relevant biodiversity stakeholders, BAT is researching possible uses of a plant in Kenya called *plectranthus* and addressing IAP impact in the Galapagos Islands (Payne, 2006, pp. 287, 292).

2.8 Previous research on what companies focus their CSR on

Findings from research done by Welford, Chan, and Man (2008, p. 62) show that the average top three CSR priorities for businesses and stakeholders are the environment as well as health and safety. CSR initiatives that serve at least one of these societal issues are desirable (Turner, McIntosh, Reid, & Buckley, 2019, p. 4). Findings of research done in Hong Kong's businesses and their stakeholders in 2007 showed that the top three CSR priorities for businesses stakeholders are the environment as well as health and safety (Welford et al., 2008, p. 62). Participants that formed the sample were businesses and their stakeholders operating in Hong Kong that responded to questionnaires (Welford et al., 2008, p. 58). This research focuses specifically on companies' participation in CSR focusing on the management of IAPs. This research uses Slovin's formula to objectively determine the sample from the JSE. It investigates the top 200 of the top listed companies of the JSE and will provide a perspective of non-geographically defined companies.

CSR trends for companies in Asian countries have been found to differ in comparison to other continents where CSR behaviour will be common across the continent (Tilakasiri, 2012, p. 255). Companies in India show no specific trend regardless of what may be common industries or company size. For example Arora and Puranik (2004, p. 98) echoed the same when they said "analysis of the surveys quoted suggest that though many companies in India have taken on board the universal language of CSR, CSR seem to be in a confused state.", due to companies doing work that is not clearly definable in kinds of CSR. The board of

directors in India is required under the Indian Companies Act to cover in their annual reports the contribution towards energy conservation (Agarwal, 2008, p. 102). Sri Lankan businesses on the other hand, are pressured by stakeholders namely; customers, employees and competitors to get involved in philanthropic CSR as means to alleviate poverty in the country (Tilakasiri, 2012, p. 107). Asian countries tend to prioritise renewable energy CSR, which can be attributed to the level of air pollution present in countries such as China and India. Having energy conservation as a requirement for companies in India is a measure to slow down pollution and reduce carbon emissions.

Partnerships between firms and groups in the public potentially yield mutual benefits (Gebbers, Evans, & Delany, 2011, p. 14). A United Kingdom-based pharmaceutical company Merck, Sharp and Dohme partnered with a school and suggestions made by students were constructively received by the employees and students felt being involved in the partnership aided them in being responsible citizens (Gebbers et al., 2011, p. 18). This partnership was joint research towards finding solutions for a local ecologically important coastal site in England (Gebbers et al., 2011, p. 13). The involvement of the wider community brought about views to the company that would have otherwise been overlooked. This approach directs plans of the company towards relevant local issues.

In South Africa, JSE listed companies are required to comply with King II report which is a corporate governance code that says companies must include annual reporting on sustainability (Agarwal, 2008, p. 102).

The banking sector in India showed growth in CSR incorporation, although ground truth showed that certain banks had reported falsely and do not disclose financial expenditure towards CSR initiatives (Dhingra & Mittal, 2014, p. 860).

Idemudia (2011, p. 5) suggests that CSR can be used as a poverty eradication tool in Africa, citing the United Kingdom as an example where there is a dedicated CSR minister that has facilitated lucrative tax laws benefiting those giving in philanthropy. Firms are capable of contributing much more through CSR than they do currently. Thailand promotes CSR engagement by hosting CSR awards as well as CSR related events (Medina-Muñoz & Medina-Muñoz, 2020, p. 4). Winning companies agreed that top management of the firm must be in agreement in providing a budget for implementing CSR and have policies at strategic level to provide for such (Virakul, Koonmee, & McLean, 2009, pp. 178,191).

Hinson and Ndhlovu (2011, pp. 333, 342) highlight mining and oil companies as the two that prominently assist local communities through philanthropic giving. CSR in South Africa has been shaped by its political history, and the wide economic gap between racial groups necessitates for community resources to be prioritised.

Nordic Governments fit CSR policy making into their welfare-state traditions, resulting in philanthropic CSR being the most adopted (Gjølberg, 2011, p. 59). Companies find donating financially or donating their skills simpler than participating in other CSR forms.

Only a very limited amount of research could be found that specifically addresses CSR to address IAPs. This research is therefore necessary to identify how companies are engaging with CSR initiatives aimed at environmental sustainability and particularly the issue of IAPs. Once established, it will be possible, if necessary, to provide recommendations for increasing the private sector commitment and support in addressing the IAP situation through their CSR initiatives.

2.9 Research on the extent of CSR dealing with IAPs

Udayasankar (2008, p. 173) argues that despite limited resources, small firms do practice CSR to increase their visibility among competitors, whereas larger firms have varying motivations to partake in CSR. Industry and willingness by owners rather are factors which influence CSR involvement (Baumann-Pauly, Wickert, Spence, & Scherer, 2013, p. 698), this research will show whether the size of business influences the extent of involvement directed at the IAP challenge.

Reade, Goka, Thorp, Mitsuhata, and Wasbauer (2014, p. 56) focused on biodiversity loss in Japan as a CSR issue with IAPs being a key enabler looking at the role of the bumble bee in pollination; without which, certain plants can no longer and may have to be imported which increases operating expenses. Primary data collection and observation was done to collect data and this research uses existing data that publicly available and deductive content analysis to test the existing concepts. This research focuses on the national problem of IAPs in South

Africa and suggests ways that businesses can get more involved in solving the IAP problem. Involving stakeholders is a suggested solution in this threat to the future (Reade et al., 2014, p. 62).

A study conducted by Cowper-Smith (2011, pp. 64,67) which included all industries listed in the JSE had seven themes investigating the rate of the CSR adoption in the airline industry, and 100% of the sample reported some goal towards lowering emissions.

A study of how much the top 40 JSE listed companies align with the National Development Plan was conducted (Pienaar, 2019, p. 12) although both researches study the same population, this research will be investigating the extent to which the top 200 JSE listed companies are involved in environmental preservation and specifically IAP management are incorporated in their CSR activities.

2.10 Conclusion

The introduction briefly presents what chapter 2 entails. This chapter gave a background of IAPs, their biological behaviour, and the reason they spread and adapt easily. The importance of managing IAPs demonstrated the behaviours of IAPs and why they must be controlled. The potential of CSR in addressing the problem of IAPs comprised the explanation of CSR and its benefits included amplifying the business brand and gave evidence of companies whose profits grew along their high CSR spend, planning and implementation of CSR presented how businesses can have CSR integrated. The researcher further sought theories that provide a foundation to CSR and these (types of CSR and stakeholder theory) provided the elements of the conceptual framework which demonstrated the link among key concepts with this research and guided the content analysis. This research aims to determine what is known about the extent and nature of CSR to address the problem of IAPs as an environmental concern in that way; establish the gap in knowledge in the context of South Africa. The subsequent chapter focuses on the research methodology.

Chapter 3: Research Methodology

3.1 Introduction

This chapter explains the methodology used in conducting research in this study. This study used qualitative approach and it is explained why this approach was more appropriate. The tools used in collecting information are justified and data extraction spreadsheet design section explains column headings representing the themes as well as their relevance in the deductive content analysis. Climate change is changing natural weather patterns resulting to water shortages and reducing available arable land; IAPs and population growth are also responsible for the magnitude of this problem. Dealing with IAPs is perhaps easier to address at a national level than climate change or the rate at which the population is growing. This initiative, however, cannot be only the government's responsibility, firstly because the government is not able to manage on their own, and secondly because not having water will have a huge impact on businesses and society too. Having no land to grow food or feed animals, will be the end of the human race.

3.2 Research problem and purpose

CSR has a potential of being a solution to the problem of IAPs, but due to limited research in this field, the extent to which South African companies are addressing IAPs spread and impacts through CSR is not known. This is particularly so in South Africa. This research, therefore, sought to determine the extent to which the top 200 JSE listed companies in South Africa are dedicating their CSR activities to environmental preservation, and the specific management of IAPs and what type of CSR activities are covered by these companies.

3.3 Research objectives

The objectives of this research are therefore to determine from analysis of the top 200 JSE (a South African stock exchange) listed companies' websites:

1. The nature of their CSR activities.
2. The types of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.

3. The extent to which environmental preservation and specifically IAP management were incorporated into the CSR activities.
4. Whether the size of business or sector it is in, influenced the extent of CSR involvement directed at the IAP challenge.

3.4 Research design and Research methodology

Research methodology is the route map of what was done to achieve the research objectives. It provides the start and finish points of a project but leave out the direction to be taken, allowing flexibility to modify choices that will lead to the same intended results in the end (Jonker & Pennink, 2010, p. 31). A descriptive research design employed a deductive content analysis as the method of research. Deductive methods test existing theory with the intention to improve or expand it at the end of the research (Bhattacharjee, 2012, p. 3). The literature review was used to develop the criteria or themes used to explore a company's CSR activity. A spreadsheet was developed to organise and capture information from the company websites in terms of the themes and codes developed deductively from the literature on the types of CSR activities, and specifically those related to environmental and IAP activities. The information gathered from the spreadsheet was used to analyse the extent and nature of the CSR activities and extract supporting evidence from websites.

3.5 Research approach

Three types of research approaches are:

1. Qualitative research: The main focus of qualitative research is to understand and explain behaviours (Kumar, 2019, p. 104). Qualitative research provides rich in-depth data that is context specific (Akinyode & Khan, 2018, p. 165).
2. Quantitative research: The quantitative research approach is drawn from the natural sciences, uses closed-ended questions to answer or prove a theoretical construct (Jonker & Pennink, 2010, p. 66).
3. Mixed methods research: The mixed methods approach applies both principles of the above methods which are qualitative and quantitative methods. It collects numerical and explanatory data which is collected concurrently or consecutively dependant on the design of research (Terrell, 2012, p. 273).

As stated by Creswell and Creswell (2017, p. 4) , studies today can neither be purely qualitative or quantitative but study methods are found on a spectrum of these research types. This research tends to incline towards qualitative end of the spectrum. This type of research was necessary for the rich in-depth data that satisfies the objectives set for this study.

Qualitative research analysis uses a set of analytic strategies to make sense of trends from research findings; these results must be interpreted and classified into themes (Soiferman, 2010, p. 10). Grounded data is an inductive interpretative technique to build a theory about a social phenomenon identified from data collected; interpretations here are grounded in empirical data (Bhattacharjee, 2012, p. 113). The inductive approach starts from a specific point and spreads out whereas the deductive research approach starts from a bigger picture and zooms in to a specific point (Soiferman, 2010, p. 3). Deductive reasoning was applied; starting with the themes extracted from the literature review and looking for evidence of them in the websites being researched. Thematic analysis of deductive reasoning was found to be appropriate for this study because it yields logical and meaningful results from collected data (Creswell, 2012, p. 51). Thematic analysis compares similarities in data sets being studied, CSR initiatives in the sample could be grouped according to their similarities.

3.6 Content analysis as a research method

Content analysis is an objective and systematic method where every step must be consistent in following formulated rules and procedures of research (Lewis, Zamith, & Hermida, 2013, p. 36). Given the nature of data, discrete variables are measured on ordinal scales and descriptive variables on a nominal scale (Kumar, 2019, p. 256). Content analysis systematically analyses themes; these are grouped into units and a conclusion is drawn based on the frequency of occurrence of the units (Kumar, 2019, p. 257). The websites of the top 200 South African JSE listed companies were content analysed for evidence of the extent and nature of their CSR activities aimed at environmental sustainability and specifically addressing IAPs. An excel spreadsheet was set up based on literature focusing on CSR activities and specifically related to environmental sustainability, philanthropic CSR, partnerships and stakeholders. The spreadsheet also contained columns for sample indicators: such as company name, the industry it is in, and then CSR reports and evidence relating to CSR were sought from the websites. All data was publicly available.

3.7 Sample design

Sampling techniques comprise of probability/random and non-probability/specific sampling. Probability sampling selects elements in no uniform fashion; making its findings free from bias and interference (Taherdoost, 2016, p. 20). Non-probability sampling is based on choosing the sample on non-random methods. has a known and equal chance of inclusion (Walliman, 2017, p. 11). The nature of the population and research determines the suitable technique. In this study, non-probability sampling was employed. Non-probability sampling includes quota, snowball, purposive and convenience sampling types (Taherdoost, 2016, p. 22). In non-probability sampling the researcher uses readily available samples (Palinkas et al., 2015, p. 537). Purposive sampling was used because the data being analysed were sought from websites of the 200 highest performing JSE companies.

The population being studied in this research was big businesses in South Africa. A sampling frame is a list from where a sample is extracted (Taherdoost, 2016, p. 20). The JSE lists approximately 400 companies (Info@JSE, 2017. para 6). Due to this number being unstable and fluctuating from day to day, only an estimation of the number of companies that was listed at the time of commencing with data collection could be made. This is the biggest stock exchange platform in Africa; it was formed in 1887 at the peak of the gold rush in South Africa (Info@JSE, 2017. para. 3).

If the top 200 companies are not involved in CSR, and specifically CSR to address IAPs, then it is unlikely that smaller companies are. Smaller companies lack the basic resources to practice CSR communication ideas and programs (Lee, Herold, & Yu, 2016, p. 7). Thus if the biggest companies are not involved in CSR particularly in relation to environmental and IAP issues, then the smaller organisations are also not likely to be.

Slovin's formula was used in the research to determine the sample size (Talukder et al., 2016, p. 889; Tejada & Punzalan, 2012, p. 129):

$$n = \frac{N}{1 + Ne^2}$$

Where n is the sample size, e is a 5% margin of error, 95% confidence and N is the target population (Nyambura & Simon, 2019, p. 779). Inserting the values in the formula where

N=400: South African JSE listed businesses and $e=5\%$ (0.05) therefore $n=200$, the sample size.

$$n = \frac{N}{1+Ne^2}$$
$$n = \frac{400}{1+400(0.05)^2}$$
$$n = 200$$

3.8 Data collection procedure

Websites of the top 200 JSE companies were studied to find CSR activities and determine whether any IAP management was conducted as part of the CSR activities. A spreadsheet was set up to specify key constructs aligning with objectives. Codes were specific words sought from the websites that provided evidence of the CSR activities conducted. For each theme, subthemes were listed and, codes formed at the end to search for CSR activities in the websites of the sample companies. A nominal scale of 1 = present and 0 = not present indicated whether the CSR code was evident in a website. Further rich data was captured in the form of direct quotes taken from the websites to provide evidence of the CSR activities to address the nature of CSR objective.

3.9 Spreadsheet design

The data extraction and analysis spreadsheet design took into consideration the research objectives listed above. It comprised columns that spread in lower levels to specify codes for each theme. This was done to focus down to the evidence that could be harvested in websites of companies being researched. Data entries talk to key words in the research objectives.

Data in the data extraction and analysis spreadsheet was set up based on literature focusing on CSR activities and specifically related to environmental sustainability and philanthropic CSR as well as partnerships and stakeholders. The spreadsheet contained columns with unit identifiers, themes and subthemes to ensure that data related to all the objectives was collected.

Sample identifier columns included information in the data entries that were used to differentiate each company. These included JSE position, company/website name, country of

origin, market capitalization, industry, number of employees, size of company measured by the number of countries it operates in, year founded, and website address.

In terms of CSR types, the main two themes were environmental and philanthropic CSR. The Environmental CSR theme was further broken down to subthemes: climate change (Sullivan, 2016, p. 132), clean technology (Visser et al., 2010, p. 156), water management (Frederick et al., 2004, p. 565), waste management (Visser et al., 2010, p. 429), nature conservation (Cowper-Smith, 2011, p. 67) and IAP management. Codes were then applied with these had 1 for the presence of a CSR activity and 0 for no CSR activity. These addressed the objective of the extent to which environmental preservation is incorporated into CSR activities.

Philanthropic CSR is a condition-less giving of money as a donation, thus creating an improved image of a company (Gautier & Pache, 2015, p. 346). This theme had co-operatives (Mukherjee, 2016, p. 1499), skilling (Ricks, 2005, p. 151) and agriculture (Wani & Raju, 2018, p. 16) as subthemes. These subthemes allowed the philanthropic theme to be finer analysed using evidence found in the company websites.

The last two areas of focus in this research, that is, partnerships and stakeholders were included as key contributors in CSR implementation and represented themes in the spreadsheet. Partnerships are relationships between the firm and groups in the public which have a potential to yield mutual benefits (Gebbers et al., 2011, p. 14). As the CSR activities were the primary focus of the research, codes for these were not listed in the data collection spreadsheet but allowed to emerge inductively from the data.

Stakeholders are shareholders, employees, customers, the public, government, competitors (Krisnawati et al., 2014, p. 47) and the local community (Crowther, 2008, p. 28). The stakeholder theme was further narrowed down to enabling and beneficiary stakeholders' subthemes. As with the partnerships theme, inductive content analysis was applied and codes of types of stakeholder in these two subthemes emerged from the data.

3.10 Data analysis

The extent to which South African companies are addressing the problem of IAPs through CSR initiatives is not known. Data sought was guided by objectives that answer the research problem. The age of the company and industry was important in company descriptors for the purpose of satisfying the objective asking whether the business sector influences involvement in CSR initiatives targeting IAPs. Subthemes within environmental, philanthropic, partnership and stakeholder themes served to show dominant CSR initiatives and specifically management of IAPs. Themes and subthemes that were used in a spreadsheet to collect qualitative data that would later be analysed by a thematic approach.

Data was foremost cleaned, and verified. Thereafter companies were compartmentalised by industry sectors. Themes were dissected into subthemes and then codes (based on CSR activities conducted by companies that were obtained from websites were captured as evidence) formed at the end to search for CSR activities in the websites of the sample companies. A nominal scale of 1 = present and 0 = not present indicated whether the CSR code was evident in a website. Websites were analysed for evidence of the quotes, when evidence was found; a 1 was added into the subtheme column and then the direct quotes extracted. A direct quote supporting a particular subtheme would be captured to show the code in context.

Codes for each subtheme were summed to determine the number of companies with evidence of a particular subtheme. Direct quotes taken from the websites were captured to provide rich evidence of the subthemes.

3.11 Quality control

A researcher verifies quality by answering questions about clarity of the theme, boundaries (what is included and excluded) and if data collected satisfies the scope of the theme (Sgier, 2012, p. 810). Peer reviews were therefore conducted to validate the usability of themes used in this research. Scientific data collection tools were applied to validate the sample size chosen. Applying quality control measures challenges criticism of bias that qualitative research encounters (Herzog, Handke, & Hitters, 2019, p. 4). All secondary data utilised in this work was referenced and academically reviewed.

Credibility focuses on finding a match between respondents and the researcher's pre-existing opinions (Sinkovics, Penz, & Ghauri, 2008, p. 699). When a study uncovers what it planned to and has no logical errors in the results; it is said to be credible (Drisko & Maschi, 2015, p. 46). Qualitative research can contain a degree of bias but credibility is achieved by using research objectives in the analysis of data, as was done in this study. Reliability of data is proven when results obtained remain stable over time (Sinkovics et al., 2008, p. 699). Web sources used in this research were dated and presented carefully to ensure accuracy; as is recommended by Walliman (2017, p. 55) to guarantee the reliability of data.

Formal data collection and processing methods make data more logical and trustworthy (Sinkovics et al., 2008, p. 709). Slovin's formula (Adam, 2020, p. 91) was applied and the top 200 companies in the JSE were selected as a reliable sample size. This aided to defend the objectivity of the findings from the population that was studied. The suitability of Slovin's formula to this study was the known population size (Susanti, Soemitro, Suprayitno, & Ratnasari, 2019, p. 51), at the time of data collection process commencing. Their CSR practices were identified and investigated for how active they are in contributing to solving environmental problems. Information used in this research was therefore made reliable through methods that are scientific and replicable to further research.

3.12 Ethical considerations

This research complied with the standards of the University of KwaZulu-Natal's research ethics. Ethical clearance was obtained from the Research Office of the University of KwaZulu Natal. In spite of the data used in this research being publically available and no signed consent required from the participating companies, ethical guidelines to collect data were still applied. Ethical requirements prevent possible litigation that may arise from collection and presentation of information in a manner that is degrading to the participants (Brittain et al., 2020, p. 9). There was anonymity in reporting to protect privacy of individuals within the collected data. Rigor is increased when data is collected from the direct or a reputable source (Ruggiano & Perry, 2019, p. 91), and accordingly data was extracted directly from the top 200 JSE listed company's websites. Direct quotes were extracted word-for-word from the websites so as not to misrepresent any company.

3.13 Conclusion

The chapter introduced the research problem, CSR has a potential of being a solution to the problem of IAPs, but due to limited research in this field, the extent to which South African companies are addressing IAPs spread and impacts through CSR is not known. This is particularly so in South Africa. Research objectives were listed to give goals to the research study. The research design and methodology were explained in detailed sub-sections within a qualitative approach. The population where the sample was extracted from was described and Slovin's formula introduced as a tool of determining a reliable sample size. The spreadsheet used to collect and analyse data formed part of the data collection procedure. Ethical procedures were followed. The forthcoming chapter presents study findings.

Chapter 4: Findings & Discussion

4.1 Introduction

The current chapter contains what was found from the data collected. Study findings and discussions are presented post the sample profile, containing information of companies where data was harvested from. It was important to include sectors and market capitalization of the JSE listed companies for the reader to get in-depth background behind eventual findings. Themes used in the data collection spreadsheet are described, dissected further to include full types of CSR practices that companies were active in. Information displayed in italics represents direct quotes from data to support what the researcher presented as findings. Other relationships and observations identified from collected data are discussed including industry sectors which appeared to more frequently participate in CSR, and specifically those focusing on IAP management. Research findings are discussed aligned to each of the four study objectives.

4.2: Sample profile

The sample was drawn from the JSE. The sample consisted of the 200 highest performing companies by market capitalisation. Exclusively publicly available information was used for the study and was accessed from the companies' websites. The list of companies is attached as appendix 3.

4.2.1 Sample distribution by market capitalisation

Just less than half of the companies (44.5%) were found to have market capitalisation above R1 billion and less than R10 billion. The top 200 companies on the JSE all have a market capitalisation above the R1 billion mark.

Table 4.1: Sample distribution by market capitalisation

Market capitalisation	N=200 companies	
	Frequency	Percentage
2 trillion +	1	0.5
1 trillion +	3	1.5
600 billion +	4	2
300 billion +	5	2.5
100 billion +	17	8.5
50 billion+	3	1.5
10 billion +	78	39
1 billion +	89	44.5

Prosus was the only company in the sample that listed a market capitalisation above the R2 trillion mark. Prosus offers internet to subscribed consumers. The fourth industrial revolution implies high information exchange, requiring the internet more than it has been in the past years. Prosus is well positioned as a key player in the modern age and this perhaps explains its high market capitalisation.

4.2.2 Number of employees

Employee information was evident on 50% of studied companies' websites.

Number of employees	5-20	21-50	51-200	201-500	501-5000	5001-20 000	20 001 - 1500 000	100 001 +
N=100*	1	1	5	3	19	33	31	7
(50%)	(1)	(1)	(5)	(3)	(19)	(33)	(33)	(7)

Table 4.2: Number of employees

*Not all companies had information on the number of employees; only half of the companies had reported on the number of employees.

The largest group by employee numbers was the 5000 to 20 000 segment which had 33%. These were all multinational operating companies. Small business segments of 5-20 and 21-50 employees each represented only 1% of the sample which is to be expected as these were the top 200 companies on the JSE by market capitalisation. Shoprite holdings recorded 147 268 employees and was the biggest employing company.

4.2.3 Number of years in operation

Not all companies had information on the number of years in operation; 82.5% of the companies reported on this on their websites.

Table 4.3: Number of years in operation

Number of years in operation	100+	50+	20+	11+	6+	5+
N=165 (82.5%)	16 (9.7%)	42 (25.5%)	65 (39.1%)	29 (17.6%)	9 (5.5%)	4 (2.4%)

*Not all companies had information on the number of years in operation; 82.5% of the companies had reported on this.

Almost 10% of the participating companies had been operating for over 100 years with Old Mutual being the oldest, having been established in 1845. The largest group was founded in the 1971-2000 (39.1%), whereas the segment of 2016-2021 representing young companies, had the smallest representation at 2.4%. Again this is to be expected as these were the top 200 companies on the JSE by market capitalisation and market capitalisation can take some time to achieve (Odularu, 2009, p. 222).

4.2.4 Number of countries the company operates in

The table below presents findings related to the number of countries.

Table 4.4: Number of countries the company operates in

Number of countries the company operates in	1-5	6-10	11-50	51+
N=50* (25%)	24 (48%)	15 (30%)	10 (20%)	2 (4%)

*A quarter of companies included information on the number of countries they operate in, in their websites.

From the 50 (25%) of companies with available information on the number of countries of operation, 30% operated in single countries. The biggest group of companies (48%) were those which operated in five or less countries. Two companies (5%) were found to be operating in more than 50 countries.

4.2.5: Country/Continent of origin

Countries/continents represented in the top 200 JSE listed companies are summarised in the table and analysed below. From the sample of 200; the number of companies with some form of CSR indicated on their websites was 152 (76%) and 48 (24%) were recorded as having no CSR reported on their websites. Antarctica and South America do not have any companies listed in the JSE.

Table 4.5: Country/Continent of origin

Country of origin	South Africa	Others in Africa	Asia	Antarctica	Australia/Oceania	North America	South America	Europe
N=182*	140 (76.9%)	3 (1.6%)	1 (0.5%)	0 (0)	3 (1.6%)	6 (3.3%)	0 (0)	29 (15.9%)

*Not all companies had information on the company's country of origin; 91% of the companies had reported on this.

Companies originating in South African ranked the highest at 76.9%, this is to be expected for a stock exchange operating in South Africa. The largest other country or region of origin

was Europe at 15.9%. South Africa was colonised by Britain and so was South Africa’s economy between 1806 and 1961; even the granting of independence was influenced by the high number of the British who had migrated to South Africa (Bertocchi & Canova, 2002, pp. 1855, 1858). Integrated Urban Development Framework is a policy that acknowledged inequality in spatial distribution and attempted to amend this but was unsuccessful (Everatt & Ebrahim, 2020). De-Westernisation is an ongoing process as stated by Oyedemi (2020, p. 6), different to decolonisation in that it changes the decision maker and the one who holds economic powers, the current South African economy is still strongly influenced by the European ideologies.

Interim and Annual Reports, Corporate Social Initiatives and Sustainability sections were targeted to harvest CSR information. Not all companies included any mention of CSR activity in their websites, and since only publicly available information was to be used and no private contact could be made with companies.

4.2.6 Sectors represented by the Top 200 companies on the JSE

These findings represent sectors from which the companies involved in CSR came.

Table 4.6: Sectors represented by the Top 200 companies on the JSE

Sector	Frequency	%
Investments	34	22.7
Property Development/ real estate	28	18.7
Mining	23	15.3
Finance/Banking	16	10.7
Insurance	10	6.7
Consumer goods (food and household)	8	5.3

Chemicals and energy	7	9.3
Food services	6	4
Diverse industrial	5	3.3
Logistics	4	2.7
Retail Clothing	4	2.7
Paper packaging	4	2.7
Telecommunication	4	2.7
Alcohol	3	2
Automotive	3	2
Communication	3	2
Information technology	3	2
Hospitality	3	2
Pharmaceuticals	3	2
Private Health Care	3	2
Retail Supermarket	3	2
Agriculture	2	1.3
Aquaculture/fishing	2	1.3
Engineering	2	1.3
Private Education	2	1.3
Technology	2	1.3

*Not all companies had information on the sector of company; 90% of the companies had reported on this.

Sectors that had only one company active in CSR (at 0.7% each) were consumer internet, tracker, electronic commerce, furniture retail, tobacco, alcohol, luxury goods, air travel, marine cargo and broiler sectors.

What was observed was that the service sector occupied the higher tiers in the table while at the bottom was the production sector with three of primary production industries. The most common sector involved in CSR was the Investments sector (22.7%). Property Development/ Real Estate came second at 18.7%, followed by 15.3% from Mining and 10.7% from the Finance/ Banking sector.

4.3 Findings related to the objectives

The section below presents findings in terms of objectives. It analyses data using tables displaying frequencies and percentages of findings. Data in the tables is supported by direct quotations presented in italics. Evidence given to support codes is taken from data collected in companies' websites to provide depth and context to the themes which show how the CSR activities are discussed on the websites.

4.3.1 Objective 1: The nature of CSR activities in the top 200 JSE listed companies

CSR comes in various types (Ji et al., 2019, p. 3; Khan et al., 2012, p. 47). The two CSR forms relevant to this study are environmental and philanthropic. The two were further investigated to reveal the depth of CSR activities conducted by the sample. The companies found to be practicing one or more forms of CSR are presented by percentage and supported with evidence in the form of direct quotes presented in *italics* taken from their websites to provide rich evidence of these CSR activities. The values given in all tables in this objective are in relation to the 141 (93%) companies with involvement in environmental CSR. Highlighted is the fact that companies were involved in multiple types of CSR and as a result, percentages are not cumulative i.e. do not sum to 100. From the 152 companies that had some form of CSR, 141 (93 %) of companies had environmental CSR and 123 (81%) of companies had philanthropic CSR. Subthemes were the types of CSR under each theme, and codes were types of CSR within the subtheme. Evidence to support whether there was

involvement in a CSR activity is provided by direct quotes taken from the websites. Company involvement was counted by involvement per code. For instance, company X being involved in all three philanthropy codes reflected as three in frequency in the findings, one per code.

The values given in all tables related to this objective are in relation to the 152 (N=152) companies with involvement in CSR.

4.3.1.1 Environmental CSR

The subthemes that were found in the literature in relation to Environmental CSR, and were thus searched for in the websites were climate change, clean technology, water management, waste management, nature conservation and IAP management. Each subtheme is discussed below with evidence from the websites.

Table 4.7: Environmental Subthemes

Subtheme	Frequency	% (N=152)
Climate change	121	80
Clean technology	117	77
Water management	117	77
Waste management	116	76
Nature conservation	88	59
IAP management	18	12

Climate Change

Climate change initiatives were common across the majority of companies (80%), and 45% of these companies were involved in more than one initiative in climate change. According to Visser et al. (2010, p. 68), climate change is the average global weather patterns change

over time. Climate change is perpetuated by the increase in consumption patterns of the modern culture (Cowper-Smith, 2011, p. 62). Findings are as presented below.

Code	Frequency	% (N=152)
Cutting down on Emissions	52	34
Sustainable raw materials	50	33
Carbon footprint reduction	48	32
Rewarding targets	16	11
Supply chain optimisation	7	5
Going paperless/online transactions	3	2

Table 4.8: Climate change codes

The following discussions expand on the findings of what is presented in the table.

Cutting down on emissions

The most common climate change CSR initiative evident in the websites was cutting down carbon emissions found in 34% of the companies. For example, PG Bison which is a company that produces wood-based panel products indicated that it will be *installing a new dryer to replace inefficient dryers, which will reduce the drying of wood fibre by an estimated 20%*. Wood drying accounts 14% to 21% of the energy costs (Breiner, Quarles, Huber, & Association, 1987, p. 5), thus this will have a great impact for the business and climate change. PG Bison, which produces wood-based panel products, additionally from the source the company approaches carbon emission reduction by monitoring their dryers. Here the dryers are old models and replacing them will be costly immediately, but in the long- term, cost-efficient. Energy efficiency can be maintained by servicing equipment as if it is not

properly maintained it can consume a lot of energy with minimal output (He, Chen, Yang, He, & Liu, 2018, p. 3). Newer technologies are highly efficient (Hu & Chen, 2016, p. 8).

Sustainable raw materials

This code had 33% active participating companies. Raw materials obtained in a sustainable manner have positive repercussions for the natural environment (Laird, Pierce, & Schmitt, 2003, p. 112). The following quote from British American Tobacco's (BAT) website provides evidence of this type of CSR activity: *Since 2016, our monitoring of contracted farmers' wood use for curing has shown at least 99% was from sustainable sources.* Sustainable wood harvesting leaves enough forest to replenish itself, food and habitat for animals living in those forests (Paembonan, Bachtiar, & Ridwan, 2020, p. 9).

Carbon footprint reduction

For the cutting down on the carbon footprint code, 32% of company websites showed evidence of this CSR activity. Mondi is a paper and pulp processing company that has prioritised greener forms of energy to achieve a lower carbon footprint. Non-woody biomass is created from crop remains such as straw, leaves, and plant stems, processing residues such as sawdust, bagasse, nutshells, and husks, and residential garbage such as food waste and sewage, and animal waste from animal farming (Ulucak, 2020, p. 1). The following quote indicates this activity: *We do this by modernising our plants and increasing our use of biomass to produce primary energy and reduce our carbon footprint.* Less reliance on fuel-based electricity results in less resulting carbon dioxide that is generated in producing electricity.

Rewarding targets

Companies that reward their employees for meeting or exceeding targets represented almost 11% of the climate change initiatives. Working towards a visible goal inspires dedication (Ng'ethe, Namusonge, & Iravo, 2012, p. 298) as seen done by Anglo-American in this quote: *We have set targets in safety, diversity and inclusion, localisation and emissions, among others.* It is more over reported that *In this regard, the Social, Ethics and Sustainability*

Committee has created clear, understandable links between the sustainability of the business, its overall performance and the remuneration and reward of the people responsible for implementing the company strategy.

Optimising the supply chain

Mr Price group plans to *Increase supply chain visibility by mapping to 90% of the value chain, thereby deepening measure of social and environmental performance as well as supplier longevity and resilience.* Five percent of companies had evidence of supply chain optimisation. Navigation apps give options of quick or short routes, which means the quicker route may be longer but be a national road with a high speed limit. Shorter routes may mean longer driving because it goes via residential areas, however using slower routes emits less carbon dioxide. The greener option is slower but saves fuel and the environment while the faster route saves time and contributes more carbon dioxide to the environment (Zhu, Holden, & Gonder, 2018, p. 3). Supply chain routes also have to be designed efficiently by means of combining trips and sourcing from local suppliers to shorten the chain length and maximise efficiency for the business (Pourhejazy & Kwon, 2016, p. 13). An example, from the South 32 website reads: *In the 2020 financial year, direct partnership with customers was increased in order to reduce the length of the supply chain and in turn the overall emissions.*

Going paperless/ online transactions

Technology during Covid-19 lockdown regulations taught people that meetings and work can go on successfully while offices are locked for months (Razif et al., 2020, p. 796). Innovative communication channels were discovered and the environment recovered from strict travel restrictions.

Only 2% of companies with the climate change involvement represented this code within the climate change subtheme. *Trading through our online platform OLX to purchase second-hand products lowers carbon emissions* is how Prosus managed to lower their carbon footprint. Online shopping platforms such as OLX provide a virtual direct contact between customer and seller yet eliminates the requirement of floor displays or storage space as well as water and electricity requirements to run a brick and mortar shop (Speicher, Cucerca, &

Krüger, 2017, p. 26). The second-hand products reduce overall waste taken to landfills, availing these on OLX reaches customers who would have otherwise not have seen them if this had been a physical brick and mortar store (Herjanto, Scheller-Sampson, & Erickson, 2016, p. 9).

To sum up, CSR addressing climate change was the major theme amongst the environmental CSR activities. Within this subtheme addressing carbon emissions represented the key focus. Carbon emissions declined visibly in five European Union countries upon introduction of Carbon Tax (Hájek, Zimmermannová, Helman, & Rozenský, 2019, p. 10). This serves as evidence of how policy making is able to influence positive behaviour. This focus on carbon emissions is noted in the findings of this research where 30% of companies were actively cutting down on their carbon emissions. Chaiyapa, Esteban, and Kameyama (2018, p. 457) studied oil and gas companies in Thailand and concluded that international trends (such as sustainable development goals) do motivate corporates to take action against climate change and adopt green practices. Such motivation might explain why almost a third of the companies in this sample involved in CSR, are implementing CSR initiatives to address climate change. Sustainable goal seven talks to addressing factors contributing to climate change and carbon emissions are a catalyst to the problem (Bexell & Jönsson, 2017, p. 14).

Clean Technology

Clean technology reduces pollution by the means of modifying inputs, equipment and applied processes in the production process as a contribution towards waste management (Cubillos-González & Tiberio Cardoso, 2020, p. 1; Visser et al., 2010, p. 68). Managing energy forms part of adapting processes of production (Visser et al., 2010, p. 156). This research discovered 12% of companies active in new environmental technology CSR as well as researching even more efficient ways to engage in environmental CSR.

Table 4.9: Clean technology codes

Codes	Frequency	% (N= 152)
Clean energy	29	19
Solar energy	23	15
Renewable energy	21	14
Technology and research	14	9
Green building	12	8
LED lights	11	7
Natural lights and ventilation	4	3

Clean technology subtheme yielded the most codes. A variety of seven codes provided a rich source of CSR practices that range from using energy sources that do not produce any carbon dioxide to changes in architectural designs. The following discussions expand on what the table presents.

Clean energy

The code, clean energy, refers to practices that yield energy efficiency through low to no carbon dioxide emissions (Hájek et al., 2019, p. 5). Electric vehicles produce high performance using a fraction of the fuel to produce equivalent energy, with fuel saving between 23% to 44% (Huang et al., 2019, p. 7). Prosus' *eMAG has a fleet of 100% electric delivery vehicles for last-mile urban deliveries*. This is interpreted to zero carbon dioxide from the transportation services. The largest alcohol beverage producer; Anheuser-Busch InBev (Ab InBev) uses multi trailer trucks to deliver its products and were in the process of cutting environmental impacts by investing in research and development that improves their energy choices. The following quote provides support: *The zero-emission trucks — which will be able to travel between 500 (805 km) and 1,200 miles (1931 km) and be refilled within 20 minutes*. This project was set to be in motion by 2021. Lighter trucks, combining delivery

and collection trips are examples of what companies in logistics are doing to reduce fuel consumption Sullivan (2016, p. 132). These findings ascertain the same as seen in the sample studied in this research.

Solar Energy

Solar energy is provided by the sun; its quality is determined by a geographical location as well as weather conditions and it has the highest renewable energy potential (Demirtas, 2013, p. 26). A solar tube is a device able to convert heat from the sun, (sun's heat) which is absorbed by photovoltaic panels (Xiang et al., 2019, pp. 2,3). Solar energy was mentioned by 15% of companies. For example; for Redefine: *The use of solar PV at buildings in 2020 achieved a saving of 33 607 tons of Carbon Dioxide*. Redefine is a real estate development company; the company has full control over the architecture of its operating offices and other rental properties it owns. Installation of photovoltaic panels reduces reliance on coal powered electricity which is a high producer of carbon dioxide. The Royal Bafokeng mine's *street lamps use solar energy to reduce reliance on fuel from fossils*. The weather in Rustenburg is generally sunny, making solar street lamps a reliable light source. FNB's website has this to boast about its office in Lesotho: *the roof is covered with solar panels generating the primary source of power for the building*. The building is 100% powered by solar-based electricity and is the only of its kind in the country. Quoting Imperial Logistics: *A 200,64kWp solar PV system was installed at a site in South Africa that is expected to provide 355 megawatts of power each year*. It is evident that practicing environmental choices is ongoing for this company as the project demonstrates year on year progress.

Renewable energy

The currently established infrastructure accommodates fossil fuel-based non-renewable energy that contributes significantly to pollution (Kaushika, Reddy, & Kaushik, 2016, p. 12). This is how countries of the world generate most of their electricity (McKendry, 2002, p. 38). It was 14% of companies which were studied mentioned utilising renewable energy. Renewable energy makes use of resources that do not get depleted when utilised and those resources which improve the state of the environment (Gabriel, 2008, p. 114).

Montauk's website shared that: *The Group develops, owns and operates large-scale renewable energy projects utilising landfill methane in the United States of America. The Company captures methane, preventing it from being released into the atmosphere, and converts it into pipeline quality renewable natural gas ("RNG") for use as either a vehicle fuel (ultimately in the form of compressed natural gas ("CNG") or liquefied natural gas ("LNG")), or for electricity generation.* Montauk Energy is a USA company that is solving the following two environmental problems through capturing methane; less heat is trapped in the atmosphere and secondly renewable natural gas created from methane provides a sustainable electricity source for mining operations (Karacan, Ruiz, Cotè, & Phipps, 2011, pp. 135, 154). This then slows down the rate of global warming and land is preserved in its natural form (Li, Chen, Liu, Yuan, Li, Zhang, Wei, 2021, p. 15). Quoted from a website of a logistics company; *Over 5 years the group has increased its renewable energy reliance by 20%, Barloworld logistics is shifting from traditional sources of energy and improving its sustainability targets. RCL foods is reducing disposed waste and making electricity from its biodegradable waste, as quoted from the website: Bagasse is an energy-dense residual by-product of sugar production used to create renewable energy at our sugar mills.*

Technology and research

Companies providing evidence for this code came to 9%. *BHP is working on technology which removes Carbon dioxide from the atmosphere for cleaner air.* BHP Billiton is a mining company that uses high energy resulting in high emissions of carbon dioxide. Being conscious of what their production does, the company invests in various research initiatives (Arnout, 2020, p. 5).

Hydrogen based energy is able to produce power without emitting any carbon dioxide (Hosseini & Wahid, 2020, p. 4112). A platinum mining company called Amplats *is growing its research in hydrogen based clean energy.* This is a scientific approach to tackling energy demands especially for a power intensive operation as a mine. Tharisa Plc mining is investing in discovering new energy sources as the quote from their website confirms: *The research and development budget is towards the decarbonisation of energy to achieve net zero carbon by 2050.*

Green buildings

Green buildings were represented in 8% of the websites with CSR. The green building grading system investigates the building design, water and energy management, ecology and innovativeness (Zuo, Xia, Chen, Pullen, & Skitmore, 2016, p. 3). Vodacom boasts a *new head office in Lesotho, the first of its kind 'green building' in the country*; the website adds that Vodacom is a South African telecommunications company that is pioneering buildings that are kind to the environment and use renewable forms of electricity from wind and solar. Green buildings use efficient means of energy, have low to zero carbon emissions, and produce less waste through reducing used materials, reusing and recycling (Zitars et al., 2021, pp. 1, 2). These buildings moreover are overall healthier because cleaner air circulates inside the building (Simpeh & Smallwood, 2018, p. 1831). Standard bank's *new head office building in Namibia, was designed and built with extensive water and energy saving features, and has achieved a 5-star green design rating by the Green Building Council of South Africa*. Growthpoint Properties' website signalled that *Two buildings were certified as net-zero. These have a zero carbon footprint and use 100% clean energy*. The website says furthermore this is a wholly self-maintaining building, its clean energy is derived from solar and waste it produces and no waste is sent to a landfill site. The green buildings code could have included more information on wooden walls in comparison to bricks (Prianto & Setyowati, 2015, p. 170). The green star is a board that rates the level of a building's environmentally friendliness; the limitation it shows is its prescriptive rating methods exclude room for innovation (Crafford, Wessels, & Blumentritt, 2021, p. 81).

LED Lights

Companies that were leaving traditional light bulbs for more efficient LED's amounted to 7% of those mentioning clean technology CSR initiatives. LED lights are Light Emitting Diodes which are preferred over traditional light bulbs due to their significantly efficient usage of electricity (Moghavvemi, Jaafar, Sulaiman, & Parveen Tajudeen, 2020, p. 2). They use up to 7 times less electricity in comparison to a traditional light bulb (Jhunjhunwala et al., 2016, p. 2). Sanlam is a finance company whose *LED lights replaced traditional lights in Sanlam's buildings*. This means that Sanlam cut its consumption of Eskom's coal-based electricity and reduced the building's carbon footprint. Old Mutual financial service company also added LED lights to cut down on their carbon footprint alike. This quote was derived from the Old Mutual website: *We have Installed light sensors and LED light panels to reduce energy*

demand at most of our offices. The primary impact of using LEDs is significantly less greenhouse gas (GHG) produced (Park et al., 2015, p. 316). They also save on electricity costs as they consumes less power in comparison to traditional light bulbs (Moghavvemi et al., 2020, p. 4). Shoprite, a food retailer, *installed 250 000 energy efficient LED lights in 340 stores saving 30 million kWh of electricity and saving 28 500 metric tons of CO₂ in 2019.* The comparison of electricity use from the prior traditional light bulbs to LEDs showed savings by the use of LED lights. This quote is in congruence with the study findings provided by Moghavvemi et al. (2020, p. 4) that LEDs energy consumption is significantly low.

Natural light and natural ventilation

This code garnered 3% of companies in the clean technology subtheme. Natural ventilation is promoted by designing open plans, high ceilings and using overhangs to shield direct sunlight from penetrating windows (Mohd Sahabuddin & Gonzalez-Longo, 2017, p. 4). Super Group was quoted saying *Helping to reduce the carbon footprint is the use of solar technology and natural light.* The use of natural light limits the requirement for electricity by up to 10% (Gago, Muneer, Knez, & Köster, 2015, p. 3). Super Group is a logistic company that uses large footprint warehouses that would otherwise utilise large amounts of electricity to control air conditioning and lights. Adding *environmentally friendly features in new developments include energy-efficient lighting, cooling and heating equipment* and has moreover reduced their carbon footprint and direct GHG emissions. Advtech's *new buildings are architecturally designed to make maximum use of natural light and airflow to reduce energy need.* Advtech is a private education group and these findings reveal that it is incorporating aesthetical views with environmental improvements in their buildings.

Water Management

Water management measures are ecologically and economically beneficial to companies (Frederick, Hobbs, & Donahue, 2004, p. 565; Weber & Saunders-Hogberg, 2020, p. 1937). The water management subtheme was an environmental CSR activity practiced by 77%. At 77% this subtheme was the 2nd most common subtheme within the Environmental CSR

theme. Water management is concerned with the monitoring of water and controlling water use with the goals of saving water and preserving water quality.

Table 4.10: Water management codes

Codes	Frequency	% (N=152)
Saving/conservation	41	27
Water-smart technology	29	19
Water recycling	24	16
Water harvesting	22	14

Below are codes within the water management subtheme, Findings showed that simple practices can prove economical to companies. Water smart technology was an established trend at 19%, coming after 27% of water saving/conservation.

Saving/conservation

Companies involved in water saving/conservation together made 27% Within the nucleus of conservation, is a balance between sustenance of human needs while maintaining nature’s intrinsic worth (Doak, Bakker, Goldstein, & Hale, 2015, p. 5). In the water management subtheme, this code featured a mining company BHP which managed to save megalitres of water: *In FY2021, freshwater withdrawal decreased by 11 per cent (113,444 megalitres compared to 126,997 megalitres in FY2020)*. Saving water for these companies saves operating costs and leaves some water for the rest of the general population to meet their water needs.

The 2019 environmental CSR report from the website says: *We succeeded in reducing water consumption in our facilities by 15 760 kl*. The Standard Bank’s website also revealed that their 2018-2019 water management targets were hit when they developed an effective water use guideline. Aspen is a pharmaceutical company that also recorded water savings in their

2016 to 2020 period, quoted as: *There has been a significant reduction in the volume of water withdrawn during the above-mentioned period.*

Water-smart technology

At almost 20% (19%) of companies in the water management subtheme presented information on water-smart technology. The use of smart meters entails the attachment of a device that records water usage data and allows wireless data transfer to compatible electronic devices (Gurung, Stewart, Sharma, & Beal, 2014, p. 5). Users are able to track and monitor their set targets. *Installation of water tanks and smart meters in Cape Town has almost halved municipal water usage* and Pick n Pay has simultaneously cut operational costs. It was the 2018 drought that took place in the Western Cape that prompted Pick n Pay food retailer to invest in a technology that would measure and control water expenditure. The smart meters identify leaks and reduce wasteful water usage (Gurung et al., 2014, p. 6). It was for the same reasons (the drought) that Vukile Property Fund took advantage of smart metering and taken from their website is the subsequent quote: *We identified centres with high water consumption, with a focus on common areas and cooling systems, and responded by installing smart water metres thus enabling us to quickly detect abnormal consumption and take remedial action where necessary.* The real time data availability provided by smart meters enabled Telkom telecommunication company to cut down on wastefulness. Telkom installed smart meters in some high-energy-consuming sites.

Water recycling

This code was found in 16% of the 77% of companies who reported on water management. Recycled water (greywater) consists of water that has been primarily used; it may contain dirt, waste and detergent chemicals when used again, and studies report that greywater usage sheds the load for public wastewater treatment works (Thiam, Dinar, & Ntuli, 2021, pp. 180,185). *The system recycles water until the water quality is too poor to be used and then is discharged. This allowed the Western Cape distribution centre to achieve a 98% reduction in water usage per condenser.* Quoting the Spar group, also prompted by the 2018 drought in Western Cape, initiated efforts to stretch the little available water. The company also

installed adiabatic cooling systems and water collection measures, and drilled boreholes to mitigate water risk in creating alternative water sources. The Foschini Group is a clothing retailer whose *Suppliers are recycling water and using the same water across multiple batches, saving on average 600 litres of water compared to conventional denims*. The fashion or textile industry's greatest water pollution stems from applying dye and in printing ink on fabrics (Li et al., 2018, p. 24). The practice by these suppliers saves water and reduces pollution.

Water harvesting

Rain water harvesting is a tradition of gathering rain and storing water for later agricultural or other uses (Nachshon et al., 2016, p. 7), with 16% of these involved in rain water harvesting. Water harvesting was done by companies with large building footprints as a result of large roofs. Woolworths was among the spear heading retailers in environmental consciousness (Biyela, 2018, p. 57) observed among South African clothing and food retailers. The Woolworths website was quoted saying: *42 projects for harvesting rain water were concluded in 2018 to support underprivileged schools*, and the website shown that this project formed part of benefits from the Myschool rewards program. Growthpoint Properties announced that *There are plans in place to redesign the properties so they are able to harvest rain water and do reverse osmosis*. Reverse osmosis is the process that removes salt from sea water to make it usable as fresh water and this practice is common in water scarce countries (Cohen, Semiat, & Rahardianto, 2017, p. 1772). At KAP Industrial Holdings: *Rainwater is harvested, recycled and reused at several of the company's operations*. Water harvesting is an uncomplicated practice, where many rural homes place containers at a corner of a house to gather water as it rains. This quote shows that not only is KAP reducing the load to wastewater treatment works, but KAP is also reusing the same water harvested.

Waste Management

This subtheme reported 77% presence of active companies. Waste management monitors waste through promoting ways of reducing land and groundwater pollution (Visser et al., 2010, p. 429). Frederick et al. (2004, p. 493) state that the use of recovery plant machines which sort waste allow for solid waste to be separated which makes it easier for selling,

recycling, and this type of informal economy is foreseen to grow. In concurrence with that; this research found the recycling code at 41%, and recycling provided several informal employment opportunities within low income communities.

Table 4.11: Waste management codes

Code	Frequency	% (N=152)
Recycling	62	41
Eco-friendly processes and products	23	15
Reduction to zero	22	14
Waste to energy	5	3
Zero plastics	4	2

The codes in the above table are discussed with supporting quotes from the websites of companies that were studied.

Recycling

Recycling focuses on conserving the environment by means of repurposing an item that could have been otherwise discarded (Yu et al., 2021, p. 3). Just under half (41%) of the companies in waste management CSR exhibited evidence of recycling activities in the waste management subtheme. The *truck yard asphalt was made from recycled plastic* in the Mr Price Group’s Hammarsdale distribution centre. Mr Price Group is a clothing and home-ware retailer. Truworths is also a clothing retailer that is sharing its damaged merchandise with community-based organisations: *We partner with organisations that recycle or reuse damaged goods or convert fabrics into garments for resale*. Community-based organisations do not receive steady income and this deed contributes towards meeting their needs while Truworths reduces its disposed waste. Tigerbrands is a consumer goods company that has simplified and encouraged the recycling process for informal recyclers through *setting up*

recycling stations in partnership with others, creating potential job opportunities for recyclers in the informal sector, and raising awareness about recycling.

Eco-friendly processes and products

Eco-friendly waste management practices were mentioned on the websites of 15% of companies involved in waste management. Eco-friendly waste management uses alternatives that have a positive, or at least less adverse, impact to the environment (Bharagava & Chowdhary, 2019, p. 90). Barloworld logistics website said *Food waste is used to make compost that supplies the on-site garden.* Biofertilizers vary from chemical to organic fertilizers in that they do not actively feed nutrients to plants and are cultures of particular fungus and bacteria; they are also extremely simple to produce and apply (Suhag, 2016, p. 163). Food waste used as fertilizer is more favourable to the environment than chemical-based fertilizer and reduces Nitrogen Oxide emission (Song et al., 2021, p. 2). Sibanye gold mine minimises waste disposed in landfills by using biodegradable waste in their grass programme. This quote was taken from Sibanye website: *At the Marikana operations, sewage sludge, along with garden waste and cow manure is being composted in windrow composting circuits, and this compost is used in grassing programmes.* Chemical-based fertilizers are known to increase Nitrogen Oxide content of the soil and escalate land management costs gradually (Zhou et al., 2021, p. 2). Using compost instead maintains good qualities of soil (Song et al., 2021, p. 8). Standard Bank revealed what they do with food waste in the following quote: *In our efforts to reduce our waste to landfill, installed a composter at one of our facilities in 2018, that converts wet waste to compost for use in our gardens.*

Reduction to zero waste

This code at 14% came third within the waste management subtheme. This concept is favoured for its promotion of sustainable production and consumption, recycling and limits landfilling (Zaman, 2015, p. 1). Reduction to zero waste code represents companies that are working towards repurposing all of their solid waste and not taking anything to a landfill. *More than 25% of our manufacturing sites do not send any waste to landfill,* stated the website of British American Tobacco (BAT) which was working to accomplish zero waste to

landfill by 2025 in 100% of their sites. BAT is on track to attaining this target. ABSA is getting rid of non- biodegradable materials: *In larger offices in South Africa, only biodegradable material is used.* This decision was taken to reduce the company's negative environmental impact. Old Mutual has *a worm farm in place for vegetable and fruit peels from our kitchens at Wanooka Place.*

Waste to energy

Waste to energy code was at 3% of the 152 companies with CSR activities. These are companies that are converting waste into sources of energy. Hammerson is a real estate development company whose *3,356 tonnes of organic waste were sent to anaerobic digestion (AD) where it was used to generate green gas; an alternative to fossil fuels.* South 32 redirected garden refuse amounting to *18 500 wet metric tonnes of timber waste product (biomass) in place of fossil fuels at their multi-fuel cogeneration facility.* Biomass is energy derived from plant and animal matter (McKendry, 2002, p. 37); it often is decaying or waste matter. It stimulates sustainable developments and presents an alternative to the high fuel prices (Adekola, Eiroboyi, Yerima, Akinmoji, & Uti, 2021, p. 40). Mediclinic hospital in Switzerland has their *Food waste processed in biogas facility* and this power supplies the hospital. The website furthermore added that food waste from the hospital is supplying a biogas facility to avoid the spread of potential infections when disposed otherwise.

Zero plastics

There was 2% of companies that reported on zero plastics code of the 152 companies with CSR activities, as taken from the Investec website: *Going plastic-free in our Sandton restaurant to contribute towards less pollution and marine life endangerment* and this quote supports that Investec the financial company has contributed towards cleaner oceans and saved animals by eliminating all plastic containers. Plastics get mistaken for food by some animals, that when eaten risk suffocation and loss of life.

In Mediclinic South Africa *19 hospitals discontinued the use of plastic straws.* Marine life suffers entanglement and smothering as a result of plastic straws (Chitaka, 2021, p. 5). The single action of cutting out plastic straws has a positive impact on the life in water (Rana,

2020, p. 4). *Through an innovative process, plastic waste found in the ocean is recycled into yarns, which are woven into luxurious mattress fabrics.* This quote serves as evidence showing what KAP has done as an initiative in saving marine biodiversity while decreasing their raw material expenses, creating employment and generating an income for the company. The Hammerson website included that they also installed water fountains in the food area to cut off any single use plastic bottles.

Waste management codes indicate that it is now possible for landfills to receive no waste at all by redirecting waste to building the economy. The recycling code gave ways in which greenhouse gas emitting products can be done away with and still achieve the same benefit. Technologies of methane harvesting from decomposing organic matter as well as from landfills are growing. It was recorded that 9 billion kilowatts of electricity was generated from methane and other gases from waste in the USA alone as early as 2005 (Yip & Chua, 2008, p. 304).

Nature conservation

The nature conservation subtheme was well represented by companies at 59%. Nature conservation is the use of natural resources in a manner that ensures future generations will have enough or more to meet their needs (Visser et al., 2010, p. 79). Companies contributing to nature conservation are involved in the conservation and rehabilitation of land, water resources, indigenous plants, and animals (Cowper-Smith, 2011, p. 67; Shi, Wu, Chiu, Wu, & Shi, 2020, p. 2).

Table 4.12: Nature conservation codes

Code	Frequency	% (N=152)
Reforestation/reverse desertification	26	17
Biodiversity Conservation	20	13
Wildlife protection	18	12
Ocean life	9	6

Small companies did not allow low budgets to exclude them from doing their bit, by planting indigenous trees in their sites to beautify and contribute in conserving biodiversity (Česynienė & Neverkevič, 2010, p. 52).

Reverse desertification

Desertification is described as land degradation that results from overgrazing and climate change, affected bare soil is prone to surface runoff and unable to absorb rain water (Maestre et al., 2009, pp. 930, 931). There was 17% of companies involved in initiatives which seek to undo the impacts of desertification. The BAT website reports that as they are dependent on plantations for raw materials, BAT focused on stopping the spread of a desert in Bonayan. The quote indicates what BAT has achieved: *Bonayan in Bangladesh where, since its launch in 1980, we have 100 million saplings*. Oxygen levels rise and forest animals are restored to the area as the tree planting widens, the regions grows ecologically resistant against infestation of invasives as well (Cunningham et al., 2015, pp. 302, 304). Indigenous trees assist in limiting area for IAPs to establish colonies (Weidlich, Flórido, Sorrini, & Brancalion, 2020, p. 1807). *Working towards zero net deforestation Mondi uses wood fibre from responsibly managed forests to make its packaging and paper products*. Mondi is a paper and pulp producer and uses commercial trees that are foreign to where Mondi's forests are planted. The type of wood Mondi uses, is of foreign origin but used for its commercial benefits (Lipsey & Hockey, 2010). In conserving soil quality, Tiger Brands agricultural practices are indicated this quote: *Environmentally benign chemicals are used where possible*

as part of an integrated pesticide management system to minimise environmental impacts and ensure biodiversity. Crop rotation also prevents biodiversity loss.

Biodiversity conservation

Biodiversity conservation looks at the cause of biodiversity loss, protecting animal and plant species by removing stresses affecting them and safeguarding protected areas to enhance benefits for all (McCarthy, Banfill, & Hoshino, 2021, pp. 290, 291). Goldfields is a South African mining company that commits to safeguarding biodiversity by limiting its exploration outside of sensitive areas. Goldfields cite that - *No mining or exploration will be conducted in world heritage sites in the effort of conserving biodiversity.* World heritage sites are declared upon discovery of features that naturally occur in an area and the area is the only one in the world (Gullino, Beccaro, & Larcher, 2015, p. 14205) and they form part of the protected areas.

Anglo-American has incorporated opportunities presented by technology to conserve biodiversity: *With developments like robotic drills and self-driving ore carriers, technology is helping to protect biodiversity in the areas we mine.* Richemont produces luxury consumer goods; in conserving biodiversity they have the following quote in their website: *Peace Parks Foundation facilitates the establishment of trans-frontier conservation areas (Peace Parks) and develops human resources, thereby supporting sustainable economic development, the conservation of biodiversity and regional peace and stability.* Richemont's quote emphasizes that conservation can be done harmoniously alongside development of human resources. Amplats has a long-term plan towards sustaining biodiversity as seen in their website: *Conservation projects underway will contribute towards net positive impacts on biodiversity by 2030.*

Wildlife protection

This code was supported by 12% of companies within the nature conservation subtheme. Wildlife, apart from the big cats and elephants includes all the plants and animals residing in their natural habitats, outside of human control (Misra & Ghanakumar, 2020, p. 1545). It is a reality that humans have to protect wildlife from humans. The website of Redefine Real

Estate Development has evidence of how the company values the significance of birds in biodiversity. They have created a natural environment in their site for birds to be able to mate and secure their population. Redefine is quoted from their website saying: *In Atlantic Hills we are part of a bird hide facility which will contribute towards conservation of a few bird species.* It mirrors what Shoprite has done in protecting a frog species that is in danger of extinction: *The rehabilitation of the Sun Valley wetlands around the Sun Valley Mall in Cape Town was completed in the financial year. This area is a known breeding ground for the endangered Leopard Toad.* This initiative concurs with what Misztal and Jasiulewicz-Kaczmarek (2014, p. 60) said, that businesses are distinguished by the environmental concerns they address. The concentration of these little frogs is nature's indication of the state of the environment; leopard toads only live in clean water (Casola, 2017, p. 49). ABSA is taking full advantage of their position as a bank in protecting wildlife by *constantly improving the level of intelligence by understanding the money laundering typologies related to illegal wildlife trafficking.* This quote as seen in ABSA's website, this initiative may not appear to be the greenest initiative but plays a critical role in blocking the poaching syndicate.

Ocean Life

The 59% of companies involved in nature conservation had 6% of companies involved in initiatives that were involved in the ocean life code. The ocean is responsible for the GDP of 2.5% and supports jobs of over 1% of the world's population (Duarte et al., 2020, p. 3). Marine life is a competitive source of protein and good quality oils (Hua et al., 2019, p. 317). The natural services and products that the ocean gives cannot be put in monetary terms.

Towards preserving the ocean, BHP which produces metals and petroleum *Made a measurable contribution to the conservation, restoration, and sustainable use of marine and terrestrial ecosystems in all regions where we operate.* This quote is proof of how the company's contribution ensured the damage is rectified to an extent and gave animals on land and in the sea, a safer environment. Oil spills into water resources lead to marine life and financial loss (Albert, Amaratunga, & Haigh, 2018, p. 1056). All rivers drain to the ocean (Osadchiev & Korshenko, 2017, p. 465); a spillage may not necessarily occur at sea but through water channels reach the sea (Kalbuadi, Goenadi, Santi, & Nurtjahja, 2019, p. 447). Vivo Energy and Chemicals had this to support their sustainability statement: *To minimise*

sulphur entering the ocean from ships in Cape Verde and Mauritius we worked closely with the port authorities and governments to ensure that pipes and tanks are thoroughly cleaned.

Pick n Pay’s effort to safeguard marine life, have seen this giant retailer investing large sums of money. Pick n Pay assert that *R18 million [have been] invested in marine conservation over the past decade for sustainable sea food harvesting.* Pick n Pay source sea food products from companies that harvest marine sustainably. This includes the use of larger nets which allow smaller fish to escape so that they will be able to reach their harvestable size which is reproductive stage.

The nature conservation code results had relatively low scores. Awareness could be a contributing factor as companies will participate in issues that present relevance to their values. It was encouraging to find the efforts to stop or reverse desertification.

IAP Management

Companies involved in environmental CSR had 12% of involvement within IAP management. No academic literature could be found that reported a company practising IAP management as CSR. Participation in IAP management related to land rehabilitation and clearance of IAP infested sites was present; as supported by what is done by Sasol- *In Sasolburg good progress was made to eradicate alien and invasive species in the Bongani Mabaso Ecopark and the Leeuspruit Nature Reserve.*

Table 4.13: IAP management codes

Codes	Frequency	% (N=152)
Clearance of IAPs	13	9
Saving water	4	3
Products from IAPs	1	0.7

The codes below emerged from the findings. It is evident that a path has been paved and there is potential for growth.

Clearance of IAPs

This code came topmost with 9% of the companies that had CSR reports. *As the Der Brochen project is in a biodiversity-rich area, it focuses on removing alien and invasive species while protecting indigenous and endemic fauna and flora.* Amplats mining company cleared IAPs to protect the pristineness of the biodiversity rich Der Brochen. When there is clearance, there is room for indigenous plants to reclaim their natural habitat (Kiran, Rani, & Pal, 2009, p. 175); thus food security for the endemic fauna. The availability of those native plants promotes the population of native animals in the area. Upon clearing IAPs affected areas; *Bare ground and weed-infested areas are planted with endemic plants which have naturally adapted to the local environment* as done by Redefine, a real estate development company.

The Pan African Resources mine tackles unemployment by means of involving the local community in their initiatives, their website says: *Local community members are involved in the invasive species removal programme, which also creates employment opportunities.* Advtech encourages their staff and students to take part in protecting the environment. *Two hundred and twenty indigenous trees were planted in Trinity House School after removing invasive wattle trees.*

Water saving

Managing IAPs to save water was represented by 3% of the websites that contained any evidence of IAPs related CSR. Sanlam which is a finance services company collaborated with World Wildlife Fund in reclaiming water resources that had been captured by IAPs. Sanlam claims that *since 2014, 700 hectares of land have been cleared of alien plants, with 880 hectares under management. This has created 20 000 days of employment, and released an estimated 1 billion litres of water back into the rivers and aquifers of affected areas.* Nedbank is another financial institution that supports many environmental management initiatives, including the IAPs management. Nedbank claims *Support of an organisation that removes alien invasive trees in key water catchment areas* and this means that water quantity and quality has improved in those areas which is essential for aquatic ecosystems and water provision. Attacq Limited is a real estate development company which values the importance of protecting water sources so *in order to prevent ponds from becoming clogged, brush vegetation is cut before the wet season, and alien invasive plants removed.* The significance

of removing IAPs before the rain season is to limit the number of plants that will be there when there is water abundance and higher seed production (Hitchcock, Cowell, & Rebelo, 2012, p. 31).

Products from IAPs

Barloworld was the sole company in representation of this code at 0.7%. Barloworld sponsors a small business where *The company produces charcoal from an alien plant species called black wattle which is harvested from the Gcado forest in Hogsback in the Eastern Cape.* The website also reveals that Barloworld iMbewu funding enabled Limise promotions from a small rural area called Hogsback to create jobs in the process of restoring the environment and the beauty of this tourism hot spot.

The management of IAPs is still at a very low participation level in comparison to other environmental CSR themes. IAP management needs to be prioritised and mainstreamed to various areas (de Poorter, 2007, p. 6; Weidlich et al., 2020, p. 1807) because it poses a threat to the future if left unattended. Understanding of IAPs will lead to effective management hence the need for ecologists to vocalize the benefits of spending on ecosystem management (Richardson, 2004, pp. 48, 50). Quantifying the value of the natural service provided by indigenous plants, wetlands and natural rivers is one way of attracting attention from the private sector in explaining the magnitude of the threat posed by IAPs.

Li et al. (2019, p. 5) found that despite CSR's potential of amplifying the brand of a business; there may be corporates whose involvement is motivated by tax avoidance. A study conducted by Lins et al. (2019, pp. 60, 69) done during USA financial crisis that occurred between 2008 and 2009, presented that companies that obtained 0.28% higher profits were those with the highest CSR spend.

4.3.1.2 Philanthropic CSR

Direct philanthropic giving is characterised by the donation of resources to charities and organisations (Krohn, 2018, para. 1-4). Philanthropic CSR's key contrast against environmental CSR is that people must come first in the benefits of the initiative, whereas the latter has the environment in its fore. Organisations uplift the disadvantaged and the poor

through giving in kind or financially (Mpofu, 2020, p. 11). The subthemes investigated under philanthropy were co-operatives, skilling, and agriculture, are discussed below.

The findings related to philanthropic CSR fell into three subthemes which were able to pull through deeper understanding of practices than a blanketed overall theme. Broomes (2021, p. 198) observed that the past 10 years has seen businesses moving from doing courtesy philanthropy to intertwining it with the business' central values. This thinking approach closes the gap between employees and CSR when it is part of their work values to begin with. The philanthropic types of CSR are combined in Table 4.14 below.

Table 4.14: Philanthropic CSR subthemes

Subthemes	Frequency	% (N=152)
Skilling	117	77
Agriculture	63	41
Co-operatives	19	13

Skilling

Skilling is a type of CSR that equips the underprivileged with specialised industry tools to improve their employability opportunities in the relevant sector based on individual strengths (Ghosh, 2015, p. 80). Table 4.15 presents codes that were found in the study sample.

Table 4.15: Skilling codes

Code	Frequency	% (N=152)
Business and career skills	38	25
Entrepreneurship and other	37	24
Women and youth	30	20
Gardening and farming	12	9

Business and career skills

The business and career skills code had a presence in 25% of the companies involved in skilling philanthropic CSR. Prosus’ *Udemy provides free business skills programmes accessible anywhere in the world*. Udemy is an online learning platform that was developed by a firm in San Francisco to offer self-paced short courses, it has both free and paid courses that empower with skills and knowledge in various study fields (Täuscher & Kietzmann, 2017, p. 16).

BAT’s website reads: *we run vocational training programmes to help rural community members to learn new skills to provide alternative sources of incomes*. A once-off transfer of skills to better someone’s life is directly teaching them to fish so they are able to feed themselves long after you have left (Zhu, Zhang and Guo, 2021, p.2). Spar reports that *R7 million was invested in the skills and training programs specifically for black people living with disabilities*. Spar recognises this as described by Nasir (2020, p. 80) that there is a high level of economic exclusion encountered by African people and those with disabilities. If one is self-employed, and provides a service or product that has a high demand; they are empowered to a position of not needing to wait for an employer (Dakung, Orobias, Munene, & Balunywa, 2017, p. 5).

Entrepreneurship and other

This code was created from the CSR initiatives that indicated the type of skills directed towards empowering those starting up as entrepreneurs and initiatives that did not fit the three

other codes, and these made up 24%. For example, Kumba Iron Ore mining company *invested over R300m towards sustainable development in Siyathemba community by supporting local projects and entrepreneurs through business development trainings*. The mining communities are frequently poverty stricken small towns where the mine is the main, if not the sole, source of employment (Heyns & Mostert, 2018, p. 5). This quote serves as proof that Kumba has empowered the community to be sustainable beyond the life span of the mine and provides alternative means of making a living. The mine cannot employ every economically active population in a town. *The MTN Cija Ngebhizinisi entrepreneurship training radio programme provides business and entrepreneurship training through the country's national broadcaster, reaching approximately 10 000 people*. MTN which is a cellular network and internet provider (Ramlall, 2018, p. 39), shows in this quote how it is maximising the potential of radio and able to reach people who would otherwise have not afforded to gain such knowledge. Investec combined funding individuals and opening opportunities for them in the career space through a follow-up mentorship program, *103 bursary recipients are paired with 102 Investec employees who mentor them along the careers they are funded for*.

Women and youth

Within the companies involved in philanthropic CSR were 20% of initiatives involved in the women and youth CSR code. The Sasol website has this quote in support of women and youth: *In South Africa, 741 unemployed youth were supported with various work-readiness skills resulting in 104 employment opportunities in local municipalities*.

Woolworths' *Yes campaign saw 1 million youth being provided with employment skills in 2019*. The Woolworths website shows that the Yes campaign empowered youth who could not afford tertiary education to qualify to enter the formal employment sector.

Schroder European Real Estate Investment Trust Plc has been changing women's lives by giving them means to be independent, freeing them from remaining in situations because of being dependant. They are quoted saying: *The charity transforms women's lives by empowering them with leadership skills, entrepreneurship and skills training to gain full-time employment*.

Gardening and farming

Gardening and farming came last at 9%. AbInBev works closely with their small-scale farming suppliers, quoted from the website saying: *Supporting our direct farmers to be skilled, connected and financially empowered*, this company has given its suppliers professional skills to manage and grow their businesses. Pick n Pay *Along with other partners working to establish rural and urban food gardens, as well as convert a few of them into training gardens*. Municipalities give land to commence food gardens; these are managed and operated by NGOs that identify disadvantaged community members to benefit from these gardens (Wills, Chinemana, & Rudolph, 2010, p. 35). Food gardens solve malnutrition problems facing some children in Early Childhood Development (Suri, 2020, p. 4). Astral producer of broiler and animal feed is doing their CSR in building up developing farmers, this quote is taken from Astral foods website: *invest in development and empowerment of emerging farmers through training, development initiatives, preferred procurement and capital investment*.

Agriculture CSR

Agriculture CSR was at 41% with the companies within philanthropic CSR. Sun, Di, Fang, and Burgess (2020, p. 2200) describe agriculture as the food production process that has been supplying humans with energy from the beginning of time, further adding that farmers and affected stakeholders have an obligation to make well-informed decisions to ensure the sustainability of crop yield. The CSR codes discussed below relate to meat and plant production for the purpose of producing food.

Table 4.16: Agriculture codes

Code	Frequency	% (N=152)
Community upliftment through farming initiatives	27	18
Farmer support through equipment or cash	19	13
Green/ethical farming	10	7
Farming technologies	7	5

Community upliftment through farming initiatives

This code ranked the highest in the agricultural philanthropic CSR subtheme with 18%. This code gives evidence of CSR initiatives in farming being practiced by companies to empower and promote sustainability. Shoprite in an effort to rebuild men that need a hand to get reintegrated to society to their lives *Reverend T.Z. Motaung established the Carroll Shaw Memorial Centre in Braamvlei, Randfontein, as a halfway house for men who have survived human trafficking and violent crime. The garden aims to provide fresh vegetables to the 150 people living on the 67-hectare farm.*

Cashbuild is a hardware retailer that is also located in low income communities for its affordable prices. *Cashbuild has donated gardening tools to an NPO Lejwe La Thuso Community Services. Food is donated to needy families and sold to maintain the organisation's needs. Octodec Investment company sponsored an integrated programme in Tsakane that reached 325 children, 25 teenage girls, and 114 women in the Garden Project.*

Zeder agribusiness investments *Zaad also assists with the teaching of agriculturally based subjects by providing material for planting, and visits to the trial plots.* The website adds that this initiative took place in a school located in Zambia whose students were majority underprivileged. The economic status of the school has since been elevated.

Farmer support through equipment or cash

Agricultural subtheme had 13% of companies involved in farmer support through equipment or cash, with the intention of maximising what farmers' make from their produce. Jubilee Metals Mining enhanced the farmers' harvest by means of upgrading their irrigation system. Quoted from their website it says: *A water system installed in Bokfonein allowed irrigation of local farming operations, aiding in an increased harvest for the local community feeding scheme.* Pick n Pay maintains their good reputation of uplifting small businesses. *Eden All Natural is a small company that grows nuts and was granted shelf space by Pick n Pay for its processed products.* Processed agricultural products have added value and generate higher profits (Cucagna & Goldsmith, 2018, p. 295). Astral foods provided aid as farmers who were unexpectedly forced to find alternative food sources when a natural disaster that struck Western Cape in South Africa in 2018. *Drought relief assistance to more than 60 farmers*

was provided during the year and donated animal food worth R750 000 to associations in the Northern and Western Cape provinces.

Green/ ethical farming

This code exhibits evidence of ethical and environmentally commendable CSR initiatives and 7% of companies provided evidence within the agriculture codes. Distell *set ambitious targets to empower apple and grape farmers and female tavern owners along our value chain as well as create jobs by developing a circular economy for post-consumer waste.* Distell's quote exhibits a solution to the issue of excessive landfilling and simultaneously creates informal employment for the jobless through recycling. *A not-for-profit association works with stakeholders across the palm oil supply chain to make sustainable palm oil the norm. Some members include plantations, processors and traders,* this quote from the website of A-V-I shows what the company is doing to rectify the palm oil's blemished reputation of unethical farming practices.

Massmart owns a chain of wholesalers and general merchandises including Makro and Game. *In 2019 an independent vet was employed to inspect the welfare of animals producing products sold by Makro.* In house professionals albeit qualified in their specialties; can in other instances be biased in their reporting, hence external auditors or professionals are invited to verify their reports, as Massmart did. Companies are beyond taking face value reports and are verifying lifecycles of the products in their shelves.

Farming technologies

Farming technologies are pursued for the convenience they bring to the farming practice, but these can however be too expensive for emerging farmers and even established farmers (Jaiganesh, Gunaseelan, & Ellappan, 2017, p. 264) and 5% of companies from the agricultural subtheme were aiding farmers in this area. Liberty Two Degrees (real estate investment trust) *in November 2019, Eastgate shopping centre launched rooftop aquaponics farm.* Aquaponics uses water to grow plants and not soil while fish can be simultaneously grown in the same body of water; plants absorb more nutrients when they grow in water (Lennard & Goddek, 2019, p. 114).

Standard Bank In Zambia, we're helping local farmers keep better track of their crops, make more informed decisions, and engage more effectively with the financing partners, through a digital satellite application. The web- and mobile-based Contour app, developed in partnership with Origin Enterprises Plc (trading under RHIZA), uses agricultural satellite imaging and analysis to give farmers satellite data, crop growth models, soil analysis mapping, independent fertilizer recommendations and weather data. Contour farming is the type of planting in horizontal contour fashion and avoids vertical patterns to limit soil runoff and preserve nutrients, the app uses satellite imagery to keep users updated on the state of the soil and suitable crop for that soil; thereby minimising risk of loss (Mourad & Sang, 2018, p. 2).

The AECI group (African Explosives and Chemical Industries) developed the app that provides a platform for networking, marketing and other tools to grow any agricultural business. This app is seamlessly accessible through app stores. It is quoted as follows from their website: *Khula App is enabling us to support emerging farmers in South Africa and beyond in their quest to grow healthy crops.*

Co-operatives

The co-operatives subtheme had 13% activity of companies within the philanthropic CSR. Observed initiatives were inclusive of funding and business sustaining tools that were donated to support starting or struggling co-operatives, women and youth groups. Co-operatives are organisations that are independent of government and belong to their members (Birchall, 2004, p. 6). Co-operatives amalgamate individuals who are interested in a common cause; they serve different purposes (Zeuli, 2004, p. 1). Co-operatives are found to be common in rural and low income communities and have shown success in bringing people together and creating sustainable job opportunities (Afolabi & Ganiyu, 2021, p. 10).

Table 4.17: Co-operatives codes

Code	Frequency	% (N=152)
Other	7	5
Co-operative funding to generate income	6	4
Co-operatives for commercial farming	6	4

Other

This code at 5% came about by finding co-operative initiatives that did not fit in the other two groups but still made a significant contribution to this study. Woolworths' *Country Road group works directly with women's co-operatives promoting fair working practices and fair price*. Ethical work exceeds the legal and economic expectations of how a business conducts its operations (Carroll & Shabana, 2010, p. 90).

A-V-I Mbokomu Rural Co-operative Society in Tanzania are assisted to improve the quality of their coffee and improve processing to reduce waste. It is reported that farmers lose at least 33% during food processing (Ostojić, Stankovski, Tegeltija, Đukić, & Tejić, 2017, p. 117). A-V-I sharing their expertise with Mbokomu is cutting the co-operative's losses and saving the environment.

Co-operative funding to generate income

Just 4% of the companies in philanthropic CSR were involved in this code. This code refers the initiatives that companies were involved in to empower co-operatives to be self-sufficient; the target is to reduce poverty. Anglo-American funded the following co-operative; *Kwakhanyisa co-operative limited received a loan from Zimele Fund to expand their timber harvesting and processing*. The Anglo-American website also reports that this co-operative has subsequently grown to employ close to 100 people as a result of growing their operation. KAP Industrial Chemicals offers assistance to an emerging nursery, as quoted from the website: *PG Bison's nursery seedlings with fertiliser, are supplied to two projects that have*

been established as sustainable co-operatives. Seedlings can be sold for an income or grown to supply food and provide food stock to sell.

Co-operatives for commercial farming

Initiatives representing this code came at 4%. Coronation Fund Managers report that *92% of the co-operatives trained, mentored and supported have secured access to contract and community markets for which they now supply produce on a regular basis.* These co-operatives are growing to the level of competing with established fresh produce suppliers and they are expected to employ more individuals through the support provided as presented in this website's quote.

Spar Receiving fresh produce from local co-operatives to grow local economy and shorten the supply chain of transporting food, is creating jobs by giving shelf space to these co-operatives and is environmentally favourable in that shorter supply chains emit less carbon dioxide. Sourcing products locally reduces carbon dioxide emission significantly (Striebig, Smitts, & Morton, 2019, p. 223).

On the website of Glencoe Mining and Minerals was this quote: *We promote alternative sources of employment through supporting co-operatives that offer a range of activities, including agriculture and farming, welding, dairy products, sewing and carpentry.* The wide spectrum of job opportunities that Glencoe has played a role in materialising; allows that even individuals with mental or physical limitations be included in economic activities as presented in this quote.

Findings from philanthropic CSR reveal that companies lean towards activities that are within their scope of work. Mining companies are likely to have IAPs eradication programs or land rehabilitation programs in place because of the nature of their work. This is stipulated in their operational licences or environmental authorisations (Mentis, 2020, p. 10). Mining companies also 'overcompensate' in terms of local community work; they usually are foreign companies with no local community members forming part of their board. Hospitals have medical philanthropic work. All of the hospitals who were sampled were involved in illness awareness/research initiatives.

Results revealed that there is no correlation between the size of company and level of involvement in IAP management CSR. Older companies tend to incline towards philanthropic CSR and climate change is the most practiced CSR, where it was found that over 60% of companies had more than one climate change initiative. This phenomenon may be attributed to the good media coverage concerning climate change and its impacts; whereas IAP management scored the lowest.

4.3.2 Objective 2: The types of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.

The arrangement of the subsequent section is arranged differently from the prior sections. Partnerships and stakeholders are to be looked at in two categories. The partnerships theme had multiple codes which emerged and allowed for the investigation of the depth and richness of data from the sample. Likewise, companies were counted in terms of their involvement in each code. That duplication resulted in the possibility of the same company being counted more than once in a code.

4.3.2.1 Partnerships

Partnership information appeared in 115 (76%) of the 152 JSE listed companies that had reports. Partnerships are relationships between the firm and groups in the public whose goal is to yield mutual benefit parties concerned (Gebbers et al., 2011, p. 14). CSR and stakeholder theory overlap in that the two concepts have societal interests as foundational (Freeman & Dmytriyev, 2017, p. 9). Stakeholder theory says shareholders, employees, customers, the public, government and competitors make up stakeholders of a company (Krisnawati et al., 2014, p. 47). This section will show how various identified stakeholders partner to benefit others using CSR.

Table 4.18: Partnership codes

Code	Frequency	% (N=152)
Private-NGO	50	33
Private-government	25	16
Private-private	20	13
Multi-sector	11	7
Private-women owned businesses or women run organisations	9	6

Private-NGO

When establishing and implementing CSR programs, companies frequently form partnerships with non-profit organisations to acquire a better knowledge of societal issues and to use existing tools and knowledge (Remund & McKeever, 2018, p. 1). Within the studied companies; 33% of companies had private-NGO partnerships. Nike’s partnership with Peaceplayers International successfully fostered social inclusion using sports as an enabling tool (Rayne, Leckie, & McDonald, 2020, p. 49). There is a pattern of companies and communities with permanent results standing that resulted from successful partnerships. This is because when people are included in the decision making of actions in their communities, they will defend and market the cause further. The facilitation of partnerships is aided by clear goals, open communication channels and review of progress.

The applied form of CSR by a business fits ideally when balanced with its product lines (Castaldo et al., 2009, p. 13) and the following quote aligns with what Castaldo found. Tigerbrands *Providing nutritionally balanced food parcels to NGOs who work with community members in need* is evidence to the alignment of the findings of this study as quoted from their website.

BidCorp is a food service company which partnered with Foodbank in South Africa, to tackle food insecurity, and to reduce their landfill waste. BidCorp also asserts that *sourcing locally positioned food banks to donate food products before spoil date has been implemented in*

most operations. Partnerships with foodbanks are important as they provide a platform where businesses can donate excess food to, in that way facilitating efforts aimed at reducing hunger in communities.

Distell alcohol beverage assists *GreenUP with Baphumelele, a community organisation based in Khayelitsha. We hope to raise awareness of our GreenUP recycling programme within the local community and build trust among potential EAs and BBCs.* According to the website, Environmental Assistants (EA's) are in control of sorting waste before recycling and BBCs are buy back centres. *The BBCs also help to address the low percentage of recyclables being collected from landfills and at source.* Recycling initiatives have a psychologically positive impact. Cleaner and greener public spaces have a therapeutic impact and improve air quality (Vaeztavakoli, Lak, & Yigitcanlar, 2018, p. 10).

Private-government

Companies presenting on partnerships had 16% of private-government partnerships alternatively called private-public partnerships. These are characterised by the investment of private companies in public services (Chou & Lin, 2013, p. 51). Sanlam *deployed R4 billion in capital to support expanded transformational infrastructure in South Africa. This includes targeted investments in affordable housing and agricultural development.* This came as a desperately needed relief in South Africa where daily community protests are experienced over dissatisfaction in service delivery, which comprise water availability and dilapidated public schools (Akinboade, Mokwena, & Kinck, 2013, p. 459).

Life Healthcare is a private health care group that has partnered *with governments to complement shortfalls in public healthcare services.* The quote displays how Life Healthcare is using their infrastructure and human resource in providing essential health services and medical supplies to save lives. This finding is therefore in support of the study by Veriava (2016, p. 11) which established that the health sector in the government spends R1200 per capita to serve 84% of South Africa's population while private sector spends R12 000 per capita to serve only 16% of South Africa's population. Royal Bafokeng Mining *Together with Department of Education (DoE) of the North West will provide early childhood development facilities to 2 000 learners by 2022 starting in 2020.* Early childhood development sets the foundation for life, relationship and educational skills (Newberry, 2017, p. 28).

Private-Private Partnerships

Private companies partnering with one another were 13% from the companies that presented information on partnership. The research also unearthed the code of private companies partnering with private companies alike. *Pick n Pay partnered with the Coca-Cola Company and Unilever to recycle 100% of the green plastic bottles, turning them into affordable reusable shopping bags.* Using reusable shopping bags save the wild life from the effects of irresponsibly disposed plastics, including marine animals who are affected the worst by plastics. Reusable bags save money since plastic bags are single use for sale (Kaplan, Gelino, & Reed, 2018, p. 25).

A.R.M Mining partnered with another private company, this quote was seen in their website: *The joint venture partnership in the ARM Ferrous division with Assore provides access to important industry initiatives such as the Life Cycle Assessment and Life Cycle Inventory studies, waste management initiatives and energy efficiency initiatives.* Also presented in the same website report is that Assore is in mining as well. Partnering with a similar business grants both parties an ability to engage in common (shared) issues and improve on tried solutions that failed and those that worked (Aghimien, Aigbavboa, Oke, Thwala, & Moripe, 2020, p. 2), this is able to contribute towards research and development initiatives to benefit the environment.

As presented in the findings of Castaldo et al. (2009, p. 13) that any form of CSR that a business chooses needs to fit ideally when balanced with its product lines, Aspen confirmed this in their CSR. Aspen is a pharmaceutical company which donated medication to underprivileged individuals that are exposed to winter's cold and become vulnerable to seasonal flu. *Wits Pharmacy school partnered with Aspen to distribute flu shots and food parcels ahead of the 2020 winter around Johannesburg to the homeless.*

Multi-sector

This code encapsulates the theory as explained by Krisnawati et al. (2014, p. 47) who listed shareholders, employees, customers, the public, government and competitors as stakeholders of a company. Stakeholders' successful interdependence was identified in this research where all these came together to address biodiversity issues in Qatar, funded by Sasol *The e-*

nature smartfone app and website has reached over 66 000 people. Through this initiative, awareness of the rich diversity of Qatar's natural environment including flora, birds, insects, mammals, reptiles and marine life.

Quoted from the website of Prosus: *We host global summits that bring together various communities of professionals from across the group. Summits such as these are informative, inspire the new generation of ideas and the engagement of different backgrounds yield diverse suggestions to social issues.*

Anglo-Gold brought government, higher education institution and a farming stakeholder to support emerging farmers. This is quoted from their website: *The project is being executed in partnership with Department of Agriculture, Merafong City Local Municipality; the North West University and Ya Rona Temo Farming Enterprise which has been recently appointed to focus efforts on supporting the farm through its three developmental phases.* In agreement with Remund and McKeever (2018, p. 3) who suggested that open communication channels encourage more key stakeholders partner in.

Private- women owned businesses or women run organisations

Companies that presented information on partnerships with women owned businesses or women run organisations were 6% within the partnerships. The code is meant to spotlight the importance of women representation in light of addressing previous inequalities and empowering women as the previously disadvantaged group. It was differentiated from the others to recognise the call that President Cyril Ramaphosa made in his 2020 SONA of women being critical to building an inclusive economy (Ramaphosa, 2020, p.7).

Barloworld Logistics *has an established partnership/support programme for T-Marc Holdings, a majority black woman owned company in the transport and warehousing sector.* The Barloworld website further reveals how T-March Holdings was able to secure a three-year contract with Anglo-American as a result of the partnership with Barloworld. This serves as a benchmark to encourage other women owned companies in male dominated spaces to work excellently and be prepared for such opportunities to expand their businesses.

Partnerships are foundational to the succeeding section. The upcoming stakeholders are constituents forming the types of partnerships listed above.

Stakeholders

There is a level of trust built when the host community benefits from a company, despite disadvantages that may result from the company's operations (Yang & Ho, 2019, p. 586). Mining companies win local communities over and make them feel like they are part of the mine when they respond to local needs (Frederiksen, 2018, p. 496). Alphamin Resources in the Democratic Republic of Congo 600 involved locals when *Mpama North residents were hired in constructing a 38km road through a dense forest*. It was 136 (89%) companies that reported on stakeholders.

Table 4.19: Stakeholders subthemes

Subtheme	Frequency	% (N=152)
Enabling	128	84
Beneficiary	122	80

Enabling stakeholders

Enabling stakeholders were evident in 84% of the companies with stakeholder information. This is owing to how reports were structured. A portion of companies clearly displayed the department or individuals responsible for developing and implementing the company's CSR goals and had detailed CSR reports, with future plans in place. Within these are companies which did not specify who was responsible for CSR oversight. Sustainability committees and volunteering employees are some of the specific stakeholders that were identified in those websites. The following table covers the codes the research found.

Table 4.20: Enabling Stakeholder codes

Code	Frequency	% (N=152)
Ad hoc initiatives	67	44
Foundation/ trust	23	15
Sustainability and social committees	21	14
Employees	17	11

Ad hoc initiatives

This code was derived from the initiatives found in websites that did not meet the other three codes in the subtheme in other words there was no committee or team in charge of CSR. As a result, CSR occurred for a specific issue as and when required. Close to half (44%) of the companies were present as enabling stakeholders. These are enablers that were focused on meeting CSR objectives set to address time-based issues. Empowering disadvantaged South Africans; ABSA occupied a scarce skills industry of information technology and taken from their website: *we empower marginalised youth to become certified cybersecurity analysts.*

Sasol volunteered at Abraham Kriel Children’s Home, Johannesburg, donating daily essentials including diapers and baby food assisting over 30 children. Children’s homes have no stable source of income and rely on sponsors to stay afloat.

Mondi Good Life Goals Campaign challenges employees on planet Mondi, to do their part and take videos including changing to a plant-based diet, cycling instead of driving to work, conserving water and making more conscious purchasing decisions such as sustainable fashion.

Foundation/ trust

Foundations and trusts combined made up 15% of companies that reported on enabling stakeholders. FNB Education programmes *cover the whole education continuum from early childhood development (ECD) to primary and secondary schooling, tertiary education and*

workplace readiness, with the aim to increase employability and productive livelihoods. Such an approach protects the children from straying before completing their basic education and higher education, this creates a disciplined system to monitor and support children manoeuvring challenges of growing up in low income communities (Bakken, Brown, & Downing, 2017, p. 265).

Quilter financial services Donated £2.2 million to charity partners since launching in 2018, enabling them to provide financial literacy, employment and wellbeing support to 23,000 young people in our local communities. It is evident from this quote that Quilter used its financial resources to boost not-for-profit organisations to reach individuals through them (charity organisations), avoiding social ills that arise from desperate frustrations of unemployment.

Currently rhinos are endangered due to poaching (Gonçalves, 2017, p. 13) and it for this reason that the following initiative focuses on saving and restoring wildlife ecosystems to secure the earth's future. Richemont's *Peace Parks Foundation is an initiative that supports sustainable economic development, the conservation of biodiversity and regional peace and stability.*

Northam is a mining company that initiated a Trust that enabled the renovation of a debilitated school, building additional classrooms and safe ablution facilities in Moruleng village. Prioritising safety in the teaching and learning process; environment *Zondereinde Community Trust Started with an upgrade to the Lerome high school buildings.*

Sustainability and social committees

This code at 14% represents companies that had sustainability and social committees within information presented in their websites. For example; on the South32 website: *The Sustainability Committee and Risk and Audit Committee of the Board assist the Board with management of climate change risk and opportunity, emissions reduction targets and disclosures.* They keep track of progress regarding climate change goals set out by South32.

Amplats has an agriculture and environment section that focuses on matters concerning land development and sustainable environmental practices. This quote shares what has been achieved: *Our agricultural projects support farmers in launching new agricultural*

businesses on their own or communal land. Emerging farmers receive support from the mining company that equips them to be self-sustainable. Growth Point Sustainability Committee led in supporting its tenants during strict lockdown levels. The 180 buskers who usually perform at the V&A Waterfront also lost their income with the lockdown and we are paying them a support stipend to enable them to feed their families until they can come back.

Employees

The Employees code was found in 11% of the enabling stakeholders, representing companies that attached the company name or specified employees to their CSR involvement. *Prosus employees to volunteer in local hospitals and charities, contributing their time and skills.*

Hammerson provided their time and human resource to a number of charities and provided this quote in their website as proof: *21 charities were supported by our volunteers.* Investec has Touch by Giving which is *An initiative that allows Investec employees to donate to listed charitable organisations directly from their salaries.*

Beneficiary stakeholders

The beneficiary stakeholders at 80% of the stakeholder theme represented the recipients of aid from corporates. Below are the codes dissecting the subtheme further to expose the variety of data in the research findings. Companies had charity work, employee volunteerism and financial or goods donations.

Table 4.21: Beneficiary stakeholder codes

Code	Frequency	% (N=152)
Local community and the general public	50	33
Charities and NGOs	34	22
Educational	29	19
The environment	9	6

Local community and the general public

This code was supported by 33% of companies within the beneficiary stakeholder subtheme. It was characterised by community groups and the public. Pepkor is a retail holding company that serves low income earners. A local librarian gathered *signatures of 1 200 residents, begging us to come and change the plight of its citizens. PEP listened, and we opened our first store in Sutherland on 15 December 2010.* The website adds that prior to having this shop; residents travelled over 150km to the neighbouring town for basic clothes, Pep store still stands in Sutherland to provide convenience and simplified shopping for farm workers and other local residents.

Siyathemba is a community accommodating the Kumba mine in the Northern Cape and Mumba *supports local suppliers and in turn created 2700 new jobs in Siyathemba* benefiting previously unemployed individuals and Kumba shortens the supply chain when awarding local suppliers with contracts. A shorter supply chain is less carbon emitted during transportation.

This quote was taken from Mondi website: *Some of our mills provide electricity generated by the plant to the local municipality and the surrounding community.* This quote means that Mondi generates its own power and the surplus is shared with the host community. This lowers the load on the national electricity grid.

Australia is highly vulnerable to wildfires due its high weather temperatures and an unknown number of wild animals get displaced seeking refuge (Bowman et al., 2020, pp. 2, 4). South 32 mine injected money to assist with this. Quoted from their website: *Over A\$1 million was donated in the 2020 financial year to Australian organisations dealing with bush fire crisis. Countless flora and faunal species has been saved.*

Charities and NGOs

In Angola, our Blue Heroes programme brings together volunteers from different walks of life, to help communities meet their basic health and education needs and thereby improve their quality of life. Standard Bank is a finance company that focuses in banking. The quoted programme benefited members of rural communities and gave the volunteers a sense of purpose and worth.

Clicks is a retail healthcare group working with *An NGO in Mpumalanga that uses naturally available and community resources to break cycles of poverty especially for women and children*. A broken cycle of poverty cuts the risk of the children affected from ending up homeless or dropping out of school (Dube, 2019, p. 67) as a result of lacking basic needs.

Spar holds an annual women's race and in 2020 despite lockdown limitations they managed to hold a virtual run. *Entry to the SPAR Women's Virtual Challenge is R50, and for every entry, SPAR will donate a food parcel to a GBV survivor*. Even during the lockdown, Spar has manoeuvred and created a safe alternative for women to still partake in the race.

Educational

The website of the MTN Group reveals that MTN developed a solar kit that starts from a capacity of charging phones and powering two lights. This has improved the quality of lives of rural families and sets an environment for new local businesses. Distributors of the ReadyPay are employed locally. This was quoted from their website: *More than 17 000 school children in Uganda and Rwanda can now study longer at night as a result of our ReadyPay solar charging solution*. This is said to be an affordable solar panel system that is supplied in what the customer can afford in varying power levels and cost; the customer is able to upgrade by adding more solar panels (Milonova, 2020, p. 18).

Redefine Real Estate was quoted from their website saying: *Six new containers given to the academy will be used as classrooms and lavatories*. This immediate relief to facility shortages cut the time of building a regular brick and mortar classroom.

First Rand sponsored Nali'bali. This is an initiative set up by The Project for the Study of Alternative Education in South Africa (PRAESA) that stimulates reading and writing by having adults read aloud to children, Nali'bali is an isiXhosa term meaning here is a story (Nali-Bali-SA, 2016, p. 1). *The Nal'bali Trust is a national reading-for-joy campaign established in 2011*. The Nali'bali website has stories accessible online and available in all but XiTsonga South African languages making their kid friendly stories accessible to the highest population.

The environment

Sasol is seeking to raise environmental awareness in Qatar. The e-Nature smartphone app and website has reached over 66 000 people. This initiative has created awareness of the rich diversity of Qatar's natural environment including flora, birds, insects, mammals, reptiles and marine life. This quote shows that Sasol has exploited the advantage of technology to reach the masses but using direct communication.

A-R-M funds the *Awareness programmes and biodiversity rehabilitation initiatives*. The website explains that the awareness programmes are run in and around host communities, the problem of overgrazing, irresponsible harvesting and polluting water sources calls for people to be more conscious of the long term consequences of their actions.

Investec extended help in reserving the *Orphaned rhinos left when their moms are poached*. It is further included in the website that these are cared for through funds donated by Investec. These finance the feed and resources to raise and train the orphans.

The beneficiary stakeholder subtheme was found in 80% of the companies that reported on stakeholders. Community projects and education-related programs were highly visible. These results mean that the majority of companies still find it easier to take responsibility in philanthropy than environmental CSR. There needs to be awareness of other CSR activities available using similar resources.

Partnerships, beneficiary stakeholders and enabling stakeholders related to Objective 2. It sums up how different stakeholders come together in partnerships to serve CSR initiatives. Private sector working with government to serve communities where there is shortage was one way that CSR was served and private companies do also come together to solve environmental issues. Evidence of what has been accomplished by stakeholders has been provided to support statistics presented in tables.

4.3.3 Objective 3: The extent to which environmental preservation and specifically IAP management were incorporated into the CSR activities.

The study was conducted on a sample of 200. 152 (76%) had CSR or related reports and 48 (24%) companies did not have any CSR reports; further discussions relate to this 152. Environmental preservation based on the prior objective findings is adequately represented

with 6 subthemes averaging 64% of the companies researched. 141 (93%) companies had environmental CSR. Environmental theme had climate change subtheme as the highest involvement with the frequency of 121 (80%). The subtheme in philanthropic CSR that had the highest involvement was skilling at 117 (77%). However only 12% of the companies with CSR information represented IAP management. IAP management had 9% when viewed within the sample of 200. Here are companies practicing environmental CSR analysed.

Table 4.22 contains the companies that had IAP eradication proof in their websites. These are listed in alphabetical order and display what sector they are in. The first IAP related initiative was identified in the 18th company of the top 200 companies in the JSE, Amplats. This is the quote substantiating their action: *As the Der Brochen project is in a biodiversity-rich area, it focuses on removing alien and invasive species while protecting indigenous and endemic fauna and flora.* It is significant to note that the first listed company specifying IAP management is in mining sector. Mining activities directly and otherwise are responsible for deterioration of biodiversity quality and statistics (Sonter, Ali, & Watson, 2018, p. 2), this is a positive reaction by an industry often opposed by environmental activists. Having initiatives addressing IAPs is an indication that companies within mining are doing what they can to restore biodiversity.

Table 4.22: Sectors of companies involved in IAP management

Company	Sector
AdvTech Ltd	Private education
Amplats	Mining
ARM	Mining
Attacq Limited	Real Estate development
Barloworld	Logistics
KAP	Industrial, chemical and logistics businesses.
Harmony	Mining

Nedbank Ltd	Retail Banking
Pan Africa	Mining
Rbplat	Mining
Redefine	Real Estate development
Sappi	Paper and pulp processing
Sanlam	Investments
South 32	Mining
Sasol	Energy and chemicals
Standard	Banking
Tsogo Sun International	Hospitality
Woolworths	Household retail

Seeing the length of the list in the table, it is perceptible the environmental preservation is widely practiced. It was confirmed in the environmental subtheme codes, partnership codes as well as stakeholders. Private companies have been conscious of the encroachment to the environment including wildlife. Within the IAP management subtheme; the highest participating industry was established to be mining at 33%, in disturbing natural land formations; IAPs are at the highest risk to invade the site since the native plants are removed and the ground left bare (Heywood, 2005, p. 54). The IAPs management subtheme in section 4.46 has full analysis of the findings relating to what companies had in their websites in relation to IAPs.

4.3.4 Objective 4: Whether the size of business or sector it is in, influenced the extent of CSR involvement directed at the IAP challenge.

4.3.4.1 Impact of Size of Company on IAP CSR involvement

The fourth objective investigated CSR behaviour discrepancies of small and large firms. In the order of their market capitalization as presented in the JSE are all the companies displaying CSR initiatives in IAP management.

Table 4.23: Size of companies active in IAP management

JSE position	Company name	Market Capitalization (in millions)
18	Amplats	332,890
20	South 32	127,310
19	Sanlam	117,500
24	Sasol	86,390
30	Harmony	59,450
33	ARM	54,990
47	Woolworths	39,200
74	Rbplat	26,469
77	Sappi	23,920
83	Barloworld	19,080
87	Redefine	19,000
94	Pan Africa	11,020
103	KAP	10,630

127	Tsogo Sun International	6,620
126	AdvTech Ltd	6,510
154	Attacq Limited	4,900
174	Nedbank Ltd	2,740

It should be recalled that 24 % of the 200 top JSE companies by market capitalisation, did not have any CSR data publicly available in their websites. The highest ranking JSE listed companies did not display IAP management CSR until number 9. To accentuate the point; Amplats at number 18 was involved in conserving biodiversity through managing IAPs. *As the Der Brochen project is in a biodiversity-rich area, it focuses on removing alien and invasive species while protecting indigenous and endemic fauna and flora.*

KAP ranking at number 103 was equally involved in the management of IAPs and had this quote: *we actively monitor and address invasive species on our properties and monitor our chemical use.* This is done to protect the richness of their forest's biodiversity. KAP is in the bottom 100 of the top 200 JSE listed companies but did have evidence of IAP management in their website. This gives an indication that market capitalisation by size does not influence company involvement in the management of IAPs.

4.3.3.2 The extent of involvement in IAP management by sector

The pattern of response has been the result of various factors, including but not limited to the sectors that companies are in. Motives for chosen CSR by companies were not clearly identifiable from the publicly available information. Companies identify CSR activities to undertake by assessing social or environmental problems within their reach (Horvath, 2018, p. 64) and below discussed are frequent sectors.

Table 4.24: The extent of involvement in IAP management by sector

Sector	Frequency	% (N=152)	Companies
Mining	6	33	Amplats, ARM, Harmony, Pan Africa, RB Plat & South 32
Banking	2	11	Nedbank, Standard
Real estate	2	11	Attacq Limited, Redefine
Energy & chemicals		5	Sasol
Hospitality	1	5	Tsogo Sun International
Industrial, chemicals & logistics	1	5	KAP
Investment	1	5	Sanlam
Logistics	1	5	Barloworld
Paper & pulp processing	1	5	Mondi
Private education	1	5	Advtech
Retail household	1	5	Woolworths

In investigating whether the business sector had any influence on the business participating in IAP management CSR; the subsequent response was found.

Within companies active in IAP management; there was 33% of mining companies involved in IAP eradication. There is a strong relationship between industries and IAP management. The cycle of a mine ends with clearing IAPs and revegetating sites that have been fully exploited (Cornelissen, Watson, Adam, & Malefetse, 2019, p. 5). This is how mines were dominant in the IAP management code. Some listed mines' rehabilitation plans were not detailed in the websites. The literature review showed that CSR image is important to an organisation because it is a mirror in which it sees itself in terms of CSR (Tata & Prasad, 2015, p. 769). Mining processes have negative impacts on biodiversity, moreover; waste management, acid mine drainage, sedimentation and metals deposition are environmental repercussions of mining and mineral processing (Farjana, Huda, Mahmud, & Saidur, 2019). It becomes a necessary obligation that mines invest in rehabilitative CSR, and the study did observe 33% of mines within companies active in IAP management CSR. Real estate and banking sectors followed at 11%, the rest of the sectors had one company representing them.

IAP management was more pronounced when analysing by company sector compared to the company size by market capitalisation. This means that the management of IAPs by the private sector still needs to be better represented. Sectors of companies in the environmental CSR are further discussed below.

Service sector companies funded mostly tertiary education and offered graduate programmes to their beneficiaries. For example, Investec enabled students to go through university and offered them graduate programmes: *103 bursary recipients are paired with 102 Investec employees who mentor them along the careers they are funded for.*

Real estate development followed (11%) mining sector at 12% of companies involved in CSR. Property investment groups whose interests are in malls and warehouses were doing more of roof solar installation, taking advantage of the large square meters to supply the structures' energy. Their architectural design inclined to include large windows increases natural light permeating buildings and LED lights are replacing traditional lighting systems as well. For example, Masrei from the United Kingdom launched a program of *Replacement of traditional lights with LED lights.*

Agriculture/ agri-processing companies have to use IAP eradication plans to protect their crops or livestock. Alcohol companies, being dependant on crops and certain fruits, were found to work closely with land and water-related causes. Distell as such is involved with

funding programs towards protection of Eerste River project. *The Eerste River supports a number of land uses that include nature conservation and commercial grazing.*

In summary, this study found no pattern in company size and its involvement in IAP management. Other factors influence the company's choice of CSR practices such as values held by company. For instance; Attacq limited emphasises sustainability in a number of the company's approaches. IAP management is a form of shielding land to be able to sustain native plants and animals (Gaskin et al., 2021, p. 9). The biggest company listed in terms of market capitalisation is Prosus; yet has no IAP management activity. In fact, none of the first 17 companies by market capitalisation were active in IAP CSR and the first active company is Amplats which is number 18 on the JSE.

This gives the view that IAP management has to do with factors other than the size of the company. It is rather the sector in which a company operates that is more likely to influence its IAP management activity. These findings may be accredited to the sampling frame chosen, although they rank differently yet none of the companies can really be considered small. So perhaps further research should look at whether really small companies are involved in CSR and particularly IAP CSR.

4.3.4: Findings and Objectives Summary

The following table aims to consolidate themes and subtheme table and the objectives they respond to.

Table 4.25: Involvement in IAP management by sector

Themes and subthemes	Frequency N=152	%		Objective
Extent of Environmental CSR.	141	93	⇒	1. The nature of their CSR activities.
Extent of Philanthropic CSR.	117	77	⇒	1.The nature of their CSR activities.
CSR involving Partnerships.	115	76	⇒	2.The type of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.
CSR indicating Stakeholders.	128	84	⇒	2.The type of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.
Sectors of companies involved in IAP management.	11	24	⇒	3.The extent of environmental preservation and specifically IAP management were incorporated into the CSR activities.
Size of companies				4.Size or business sector it is in,

with IAP management.				influenced the extent of CSR involvement directed at the IAP challenge.
The extent of involvement of IAP management by sector.				4.Size or business sector it is in, influenced the extent of CSR involvement directed at the IAP challenge.

The above table summarises how findings answer and link to objectives. Objective 1 was responded to by themes that emerged from the extent of environmental CSR which had the highest representation of climate change initiatives and least represented was IAP management. Philanthropic CSR activities ranged from skilling to initiatives involving cooperatives. The type of partnerships and stakeholders involved in implementing CSR initiatives addressed Objective 2. There were partnerships among private companies, and varied with government and non-profit organisations. Stakeholders identified were both internal and external including the natural environment. Objective 3 was addressed by sectors of companies involved in IAP management where mining companies were prominent. Size of companies active in IAP management and the extent of involvement of IAP management by sector both addressed Objective 4. The mining sector had the highest visibility at 33%.

4.4 Conclusion

The purpose of the chapter was to present study findings, commencing with describing the sample profile. Key findings were given in terms of themes, subthemes and codes due to the variety of activities that were found in the data. This approach allowed more exposure of the CSR activities.

The 4th chapter analysed data based on the size of the companies in market capitalization. The top 200 JSE listed companies sample profile was broken down to show how frequent each sector was, the sample profile of the companies by their market capitalization, number of employees, number of years in operation and countries of operation as well as country of origin. The purpose was to grant the reader a background of the companies making up data to

be analysed. Key findings were presented per objective. The first objective focused on the CSR activities done by companies as appearing in the data collection spreadsheet. In terms of Environmental CSR, extra attention within the subtheme of IAP management's codes was given for the reason that it is the core of this research. Philanthropic CSR was presented with its own subthemes as part of Objective 1. Going into the second objective, was the partnerships theme which linked with the theme of stakeholders. The last two themes showed the types of CSR initiatives resulting from different partnerships formed among stakeholders. Objective 3 sought to determine the extent that companies practicing CSR were involved in IAP management CSR. The companies were grouped by sector and the extent of IAP management CSR was analysed. The last objective gave findings to the relationship between a firm size and CSR involvement. Evidence was given to substantiate the researchers' assertion that it is the sector that is likely to influence IAP CSR rather than a high performing company in terms of market capitalisation.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

The purpose of this research was to establish the extent to which CSR is fighting against invasive alien plants according to the websites of the top 200 companies on the JSE. The state of IAP infestation in South Africa is aggravating at a concerning rate and academic stakeholders have a contribution too in establishing a solution. No stakeholder should be unconcerned when it comes to this issue because in essence; it indirectly affects all and therefore all must actively contribute in protecting the environment. Thus, all stakeholders dealing with a particular organisation, including suppliers, prospective employees, customers and possible partner organisations, should be concerned about and attracted to those organisations that are making a positive contribution to the environmental problem of IAPs. This study identified the private business sector involvement in CSR and particularly environmental CSR and IAP management. This chapter contains conclusions by objective, giving closing remarks from discussions made on findings. Recommendations were given in different segments. These were separated as recommendations for national government, municipalities, private companies, local communities and NGOs.

Limitations of study explained factors that influenced the structure and findings of the study, mainly the research methodology. Recommendations for research used limitations to provide alternative methods and study sample to yield improved results in relation to the management of IAP management. The final conclusion sums up the entire research and presents how the study has given reasons and ways to implement CSR of the management of IAPs.

5.2 Conclusions

This section contains conclusions by objective, giving closing remarks from discussions made on findings. Objective 1 concluded on the nature of CSR objectives in the top 200 JSE companies and discusses statistics from the findings of environmental and philanthropic subthemes. Objective 2 concluded on the types of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry our CSR activities, summing up the types of partnerships and stakeholders that were identified in the study. The extent to which environmental preservation and specifically IAP management are

incorporated into CSR activities was concluded in Objective 3, giving analysis of the activity types presented by companies that were involved in IAP management. The last objective concluded the investigation of whether the size of business or sector it is in, influences the extent of CSR involvement directed at the IAP challenge.

The study objectives are concluded below based on the study findings.

5.2.1 Objective 1: The nature of CSR activities in the top 200 JSE listed companies.

It is noteworthy to reemphasize that 24% of the top 200 JSE listed companies did not have reports or information about CSR in their websites. The literature review identified the CSR themes and subthemes used to analyse the nature of CSR activities evident on the websites of the top 200 companies on the JSE by market capitalisation. 152 (76%) companies had CSR reports in their website and 48 (24%) did not have any reports. Environmental CSR was presented by 141 (93%) and six subthemes while 123 (81%) companies presented philanthropic CSR which had three subthemes. These statistics mean that there is more environmental CSR within the top 200 JSE listed companies. The sample of the top 200 JSE listed companies therefore used N=152 to analyse data. Environmental CSR types showed the most activity in climate change CSR initiatives at 80% while 45% of those had evidence of more than one climate change initiative.

There was a wide variety of CSR activities across different companies in the top 200 JSE listed companies. Data on the nature of CSR activities of these companies was discussed in terms of CSR types. Of the 152 companies; 80% exhibited climate change CSR activities on the websites, 77% clean technology, 77% water management, 76% waste management, 59% nature conservation and 12% IAP management CSR activities. Each environmental CSR type was further broken down to exact initiatives or key words to identify the CSR type from the data.

The most prominent of the six types of initiatives in the climate change CSR, was cutting down emissions at 34% of the 152 companies that presented some form of CSR reports, sustainable raw materials (33%), carbon footprint reduction, rewarding targets (11%), supply chain optimization (5%), going paperless/ online transactions (2%). Climate change received the highest attention from the companies that were studied. There is high media coverage and

physical evidence that people experience as consequences of climate change, such as extreme weather patterns and loss of biodiversity (Sintayehu, 2018, p. 228). It requires minimum effort therefore to receive support from relevant authorities within the company to finance initiatives related to climate change CSR.

The clean technology CSR had the highest number of initiatives identifying this type of CSR. A total of seven kinds of initiatives was led by the “clean energy” which was evident in 19% of the 152 companies that had a form of CSR report. An example was a type of truck used by Prosus that does not require traditional fossil-based fuel. Solar energy (15%), renewable energy (14%), technology and research (9%), green buildings (8%), LED lights (7%) as well as lastly natural light and ventilation was at 4%, where the use of air-conditioning was minimised by using the sun for lighting and allowing air flow for natural ventilation. Despite landing second as a type of CSR, findings on clean technology can be concluded to have the widest variety of initiatives. This was also attributed to the visible effects of climate change and the cost and impacts of fossil fuels. The diversity of initiatives within clean technology reveal that there is a consciousness rising to reject fossil fuels for alternative sources of energy in the top 200 JSE listed companies, despite the missing 48 companies in the sample of 200.

Four kinds of initiatives to identify the CSR type emerged in the water management CSR, with water saving initiatives at the largest group of CSR initiatives at 27%, companies provided proof of the change in water used over set periods, some of these even exceeding their targets. Water-smart technology (19%) with companies applying smart meters to monitor water demands in their facilities and thereafter employ recommendable change, water recycling (16%) and lastly water harvesting (14%). The findings on water management suggest that it is within individual capacity to make a positive impact with regards to conserving and saving water. Companies at 77% of the 152 companies that presented CSR reports in the top 200 JSE listed companies prove there is stable involvement. Water management is parallel to IAP management for the latter’s excessive consumption of water (McConnachie et al., 2012, p. 128). Managing IAPs aligns with protecting catchment areas and water sources and will ensure availability of clean water in a water scarce country such as South Africa.

Waste management CSR was found in 77% of the 152 companies that presented reports on sustainability and five kinds of initiatives to identify waste management CSR emerged from the data. Recycling (41%), eco-friendly processes and products (15%), reduction to zero (14%), waste to energy (3%) and zero plastics (2%). By recycling illegally dumped waste, certain public open spaces have been restored and selling recycled items created employment in low income communities. Companies were well involved in the management of waste and the findings indicated a satisfactory inclusion of society. It can be concluded also from the study findings that recycling job opportunities can be formalised to build townships' and informal settlements' economies. The issue of landfilling and illegal dumping can also be tackled by repurposing waste to energy sources.

Nature conservation CSR was found in 59% of the 152 companies. Four codes emerged from nature conservation. The highest was reforestation at 26%; there was a reforestation project that started in the 1980's, grew into a forest and restored the indigenous wildlife. Saving the biodiversity were 13% of companies with evidence for the clearance of IAP code. Soil conservation was done through occupying bare fields with indigenous plants, in consequence limiting the spread of IAPs on site. Wildlife protection (12%), and ocean life at 6% featuring an initiative towards sustainable fishing by Pick n Pay. Reforestation had the highest representation at 32%, featuring, for example, a project in Bangladesh that planted over 100 indigenous trees since its inception. Restoring natural forests also blocks IAPs from establishing themselves in indigenous soils. There was sufficient evidence in the kinds of initiatives to identify nature conservation activities to conclude that companies can be accommodated regardless of the sector and environment they operate in. Evidence covered reforestation for degraded areas, biodiversity conservation where companies with interests in mining and property development can get involved, financial and intellectual resources can be offered to support wildlife initiatives and protection of ocean life.

IAP management CSR was only found on the websites of 12% of the 152 companies within the highest 200 JSE listed companies and had three kinds of initiatives identified. Clearance of IAPs (9%), saving water (3%) and products created from IAPs (0.7%). In products created from IAPs, cleared black wattle was processed into charcoal. Sponsored by Barloworld, a certain small company is creating employment in the process of restoring the environment. Findings revealed that companies still lack visibility within the management of CSR but also

made known through analysing company reports how IAP management can be incorporated by other companies. In analysing reports; it appeared that mining companies all implemented land rehabilitation at the end of the site's active stage. This is in addition to what was reported by Hinson and Ndhlovu (2011, pp. 333, 342) whose findings revealed that mining companies were dominant in philanthropic giving. The level of CSR involvement gives an indication that there is still a gap where the private sector can take up space in this type of CSR.

Philanthropic CSR is characterised by financial giving and giving in kind (Krohn, 2018, para. 1-4). Philanthropic CSR was further divided into 77% skilling, 41% agriculture and 13% cooperatives. Findings by Mpfu (2020, p. 11) about upliftment of the disadvantaged through philanthropic activities were discovered in these study findings as well. One company was providing free skills training to rural communities to empower themselves with alternative means of income.

Skilling had four related kinds of initiatives emerge; with business and career skill CSR initiatives the most common at 25%, Spar provided funding amounting to R7 million towards skills and training programmes for those living with disabilities. This aided in expediting economic inclusion. Women and youth at 20% and at 9%, the gardening and farming code gave evidence such as Pick n Pay funding the rural and urban gardens project feeding needy community members; these additionally function as training sites to further empower more people. Findings from the companies studied for skilling supported what Nasir (2020, p. 80) discovered in saying that Black African people with disabilities face economic exclusion. In this study; Spar was investing in training programmes that targeted Black Africans with disabilities to better equip them with being economically active. Skilling philanthropy has the ability to transform the quality of lives for unemployed people and restore their dignity in society. Providing skills can require resources that the company has already and make it economic therefore as a choice of CSR. Companies already involved in IAP management can transfer these skills to the same target group that receives their skilling programmes.

Agriculture CSR was divided to four kinds of initiatives and the most common was community upliftment through farming initiatives at 18%, as in the case of Shoprite using permaculture techniques to empower men to get rehabilitated after enduring abuse. Farmer

support through equipment or cash (13%), green/ ethical farming (7%) and the least key word was farming technologies at 7% where the AECI group showed evidence of an app that eases networking and give marketing tools to develop emerging farmers. Agriculture CSR implementation was found to enable community groups to be self-sustainable after the initial form of support. Agriculture CSR can be practiced in a wider scope by companies; to address issues of food insecurity.

The co-operative type of philanthropic CSR had three kinds of initiatives words identified including funding to generate income and commercial farming. The key word “other” was the largest (5%) and combined general types of initiatives that were not frequent enough to form a group of their own, such as a Woolworths’ group working with women cooperatives to promote ethical work conditions and A-V-I assisting a cooperative in Tanzania to reduce processing waste in coffee production. The other two kinds of initiatives; co-operative funding to generate income and co-operative for commercial farming were both evident in 4% of the 152 companies. Co-operative funding to generate income presented evidence that had co-operatives funded to expand timber production and co-operatives for commercial farming showed how Spar was buying their fresh produce locally in order to enter the formal market. Co-operatives present companies with an opportunity to expand their direct interaction with local communities and allow the co-operative to continue working towards bettering their communities. Unlike other community groups, co-operatives are made by up of people with common interests to serve a common goal (Zeuli, 2004, p. 1). There is a stronger commitment to serve in a co-operative because members are connected by a common goal.

Environmental CSR findings showed congruence with the study that was limited to Hong Kong’s businesses; that environmental CSR formed the top three types that businesses took part in (Welford et al., 2008, p. 58). This study also scored higher for environmental CSR than philanthropic CSR at 93% and 81% consecutively. Although South Africa has the King II report (to include sustainability in annual reports) that is mandatory to JSE listed companies (Agarwal, 2008, p. 102); Sri Lanka issued compulsory emission control in 2008, where companies are expected to partake in activities such as maintaining green public spaces, reducing emissions and planting indigenous plants (Tilakasiri, 2012, p. 178).

Philanthropic CSR had a code labelled 'Other' to accommodate valuable initiatives that were too few to create a specific code. Co-operative funding to generate income and co-operatives for commercial farming made 4% each. The variety and quantity of evidence for these kinds of initiatives in the findings from this CSR type give an indication that there are not many initiatives directed towards co-operative philanthropic CSR activities. Companies can utilise this gap as an opportunity to collaborate with co-operatives in IAP eradication and using the material to make furniture, coal and biofuel.

CSR findings had initiatives from various CSR types which focused on protecting the environment; these included limiting carbon emissions, clean energy sources and energy produced from waste. These surfaced from three environmental CSR types and highlight that the 152 companies in the top 200 JSE listed companies are already significantly active within CSR contributing to the cleaner environment and air. The least involvement in environmental CSR was identified in the products created from IAPs with just 0.7%. There is a vacancy for companies to occupy in the area of making products that can generate income from cleared IAPs.

Initiatives that appeared from various philanthropy subthemes in line with land cultivations included: gardening and farming skills, upliftment through farming initiatives and co-operatives towards commercial farming. There was no pattern in the sector or company size in involvement within these initiatives. The least practiced philanthropic CSR was skilling, in gardening and farming initiatives; there was evidence in other participating companies surrounding farming such as food waste used as fertiliser, eco-friendly processes and practices, supporting farmers through equipment or cash and supporting farmers to commercialise. This evidence supports the conclusion that CSR relating to land cultivation has many options for companies to get involved in.

Companies are prioritizing reusable energy and sustainable raw materials in production with regards to addressing climate change impacts. Where South Africa is not a water abundant country; it is plausible to find evidence of initiatives that suggest companies promoting water conserving initiatives. Management of waste is taking a direction that solves the problem posed by the high price of electricity and the effects of fossil fuel based electricity, in congruence with SDG number 7: Ensure access to clean, affordable, reliable, sustainable and

modern energy for all (Katila et al., 2019, p. 206). The visible inclusion of communities shows companies to be committed to being part of communities they operate within.

These observations position these companies well in the global space, and catalyse trade processes. These reveal how the companies are positioning themselves in terms of appealing to consumers who prioritise sustainability and are mindful of raw materials in products.

5.2.2 Objective 2: The types of existing partnerships between stakeholders and beneficiaries that participating companies have with local organisations to carry out CSR activities.

More than two thirds of the 152 within the top 200 JSE listed companies had evidence of CSR partnerships on their websites. Partnerships with four types appeared in 76% of the top 200 JSE listed companies. The types of partnerships evident were: 33% private/NGOs, 16% private-government, 13% private-private, 7% multi-sector partnerships and 6% private-women owned businesses or women run organisations. Companies are doing more individually than they do in partnerships with other private companies. Companies are involving locals in decision making levels to use their areas of expertise to bring solutions to societal issues as seen done by a company that talks to local foodbanks to distribute excess food to community members in deed.

An example of a private-NGO organisation partnership was the Green up with Baphumelele recycling programme that Distell supported in Khayelitsha while employing locals in identifying and sorting recyclables. Private-government partnerships showed that there are shortfalls in government's service delivery, this was attributed to the economy distribution as seen in the study by Veriava (2016, p. 11) that the private health sector spends 90% more on one patient than public health sector. Multisector partnership was at 7% combining more than two parties in implementing a CSR activity. For example, in the Merafong municipality, Anglo-American brought together farmers, Department of Agriculture and the North-West University to support local farmers improve their crop yield.

Multisector partnerships create more dynamics in management and accountability but are able to maximise benefits for the beneficiary party through aid coming from multiple sources. Private-women owned businesses or women run organisations was a partnership between

Barloworld and a women owned trucking company that subsequently secured longer contracts where it provided its service. It was through this initiative that these women could grow their trucking company.

Companies that include people from host communities in implementing social initiatives compared to bringing only external human resources when addressing with social issues enhances cooperation and success rate of the applied initiative (García et al., 2015, pp. 9, 13). The same was recognised in this study, companies working with NGOs incorporated their (NGO's) knowledge in identifying areas to direct resources to. Where Tigerbrands for instance had food parcels to donate; they approached a local NGO to identify deserving families.

The stakeholder theory is founded on the importance of internal and external company stakeholders, the study findings as presented above paralleled this principle. The conceptual framework (figure 2.1) displayed how partnering of enabling and beneficiary stakeholders can catalyse the implementation of CSR.

Stakeholders

The success of IAP management programmes is in engaging relevant stakeholders and managing arising conflicts constructively (van Wilgen et al., 2020, p. 12). Ascribable to how company reports were compiled, internal stakeholders responsible for the implementation of CSR were not always specifically identified. Identifying beneficiary stakeholders was not ambiguous as reports specified who the beneficiary was. This is interpreted to say companies rightly prioritise doing good to society than overly concerning themselves with establishing structures, especially where budgets tend to be limited. Stakeholders had 84% enabling stakeholder and 80% beneficiary stakeholder.

Enabling Stakeholder

Rawlins (2006, p. 7) findings said the enabling stakeholder is paramount in the longevity of a project, and this study echoes the same. The enabling stakeholder supplied resources for the beneficiary stakeholders' welfare. The JSE listed companies in the study often had government (16%) as an enabling stakeholder in partnerships, as presented in the partnership

section where the two stakeholders would be addressing an issue faced by the environment or community. For example, Life Healthcare assisted in complement backlogs in public health services. Patients in waiting to receive procedures in public hospitals were treated at Life hospitals. This stakeholder was expanded to four enabling stakeholder types.

Receiving evidence from 44% of companies within the 152 of 200 that had CSR reports was incident-based initiatives. These were stakeholders that represented enablers that had no identifiable responsible person or committee. ABSA's website indicated an initiative to qualify marginalised youth to become certified cybersecurity analysts. This was directed at rectifying the economical exclusion of previously disadvantaged youth. The second stakeholder group were Foundations/Trusts at 15%, companies that were using their foundations or trusts to fund initiatives as means of CSR. At 15%, it can be said that majority of companies listed in the JSE do not use on these structures for their CSR involvement.

Sustainability and social committees at 14% were beneficiary stakeholders with members whose primary or other work responsibility was CSR of the company. This percentage suggests that there needs to be improvement in the listed companies to have CSR coordination teams such as sustainability or social committees. This would give the company the advantage of a specialised team that is sensitive to the external and internal factors surrounding CSR use contemporary information to the company's benefit.

Employee stakeholders were at 11%, these initiatives were led by people working for companies. There has been research supporting the opinion saying volunteering benefits the psychological health of the volunteer (Khilnani, 2018, p. 27). Prosus employees take time during work to volunteer in hospitals and volunteer their skills in charity organisations and employees from various branches of Hammerson contributed a sum of 80 thousand actions to 21 charities. Company performance can improve from giving time to employees to volunteer. Therefore; more participation by employees is encouraged for their psychological benefit and productivity in life.

Beneficiary Stakeholder

The beneficiary stakeholder was at 80%. This was spread across four types of beneficiary stakeholders, local community and the general public was highest at 33%. The most received

benefit were initiatives that created employment opportunities, e.g. Kumba mine began to use local suppliers where the mine is located in Siyathemba community and suppliers in turn employed 2700 locals. Second one was charities and NGOs that received 22%, these beneficiaries were offered time, money and equipment to ease their operational demands. Educational beneficiaries (19%) were the schools and students that were supported in various ways featuring some storage containers were converted to classrooms and others to lavatories then donated to a school. Education has been proven to be able to break poverty cycles and contribute to adults who can make reasoned decisions (Garrity & Martin, 2018, p. 940). Education was present in a number of other CSR types as seen in chapter 4 indicating that it is a priority in the JSE listed companies that were studied. The least common beneficiary was the environment at 6%, Investec was funding the organisation caring for orphaned rhinos. This signals a welcomed concern shown companies like Investec in preserving biodiversity and endangered animals to secure the natural order in the environment.

Successful CSR implementation implores that stakeholders maintain lateral communication, where goals are common and reviews are done to maintain adherence to the goal (Spillan, Mino, & Rowles, 2002, p. 118).

5.2.3 Objective 3: The extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities.

Companies producing evidence of environmental preservation within the companies that had CSR reports were 93% with 86% climate change, 83% clean technology, 83% water management, 82% waste management, 82% nature conservation and 12% IAP management. Philanthropic CSR had 81% with 77% skilling, 41% agriculture and 13% co-operatives.

South African listed companies are required in terms of King IV code to include CSR involvement in their annual reports (Natesan, 2020, p. 158). Environmental CSR was dominant among the researched companies. There were also philanthropic and other forms of CSR present in the JSE listed companies.

In Europe; the European Commission has regulated Environmental Accounting Rules guiding the corporate financial reporting in recognising, measuring and disclosing involvement in environmental issues in the companies' accounts and annual reports (Agarwal, 2008, p. 91).

Despite reviewed literature that found no existing studies specific to IAP management CSR, this research found that 12% of the 152 companies within the top 200 JSE listed companies include such CSR activities on their websites. This was an indication that research had not yet been conducted in this area but information was available.

An overarching CSR term gives a limited exposure to the vast variety of what companies are doing and how these are specific to their values. It was then imperative for environmental and philanthropic CSR to be broken down further and further into specific initiatives to expose the variety of CSR initiatives within the study.

The nature conservation CSR at 59% linked closely to the IAP management CSR. These represented data in relation to environmental preservation. IAP management contributes to preserving services from nature. Both exposed rich information with regard to CSR practices in the study sample.

Wildlife protection as a form of nature conservation tallied 22%, was found to be of significance from the small amphibians (restoring a wetland that is a habitat of the endangered leopard toad) to protection of large animals as ABSA did in tracking suspicious money transactions leading to locating wildlife poaching.

Quantifying the value of what nature provides cannot be objectively put in money terms. Being without these services however easily reveals what is missing. Only three environmental CSR types groups of initiatives could be derived from the limited participation of the top 200 listed companies in IAP management. Clearance of IAPs achieved 12% of these. This value indicates that some companies are realising the potential harm of leaving IAPs unattended, and the returns of spending resources in the clearance activities. Reviewed literature showed the economic and health impacts of fast reproducing IAPs, reduced crop yields for farmers, higher food prices for consumers and emerging skin allergic reaction suffered by animals and humans (Abdulkerim-Ute & Legesse, 2016, p. 65).

Preserving the environment by choosing indigenous plants over imported plants has a snowball effect of restoring indigenous birds and insects due to catering for their diet in the area (Fletcher et al., 2019, p. 7). Trinity house and Redefine websites reported replacing all non-indigenous plants with endemic plants. Indigenous plant cover improves security against

IAP infestation (Hill et al., 2020, p. 215). Water saving IAP management activities were found in 22% of the companies with IAP management CSR, where evidence of initiatives targeting removal of IAPs growing in water and in catchments areas was seen. Within the IAP management, there should be more being done in protecting water sources directly. One company provided evidence of products produced from IAPs.

The climate action activities align the participating companies along the direction called for by the UN and give them a competitive advantage in competing globally as they synchronise themselves with global trends. The 59% in the nature conservation subtheme can be used to deduce that there is a level of concern in terms of nature conservation matters which incorporates IAP management, in congruence with SDG goal number 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (Katila et al., 2019, p. 2). Looking at Objective 3 (The extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities) and what these companies do, promoting themselves through reporting on the extent of IAP management can potentially position them as more environmentally sustainable than their competitors.

5.2.4 Objective 4: Whether the size of business or sector it is in, influences the extent of CSR involvement directed at the IAP challenge.

An interesting finding was not having any company in the top 10 by market capitalisation participating in IAP management CSR activities. The first active company was at number 18. Research conducted in Russia gave an indication that local oil and gas companies inclined more towards environmental reporting compared to the foreign companies in the country (Shvarts, Pakhalov, & Knizhnikov, 2016, p. 8). This was similar to what was found by this study, the mining companies were 33% visible in the eradication of IAPs. In India Bombay Stock Exchange, large listed companies tend to report more than medium sized companies on environmental preservation (Makori & Jagongo, 2013, p. 255). (Lins et al., 2019, p. 62) conducted a study to investigate the effect of CSR involvement in profitability during the 2008 to 2009 financial crisis in USA and only included companies with market capitalisation starting from \$250 million, the findings concluded that companies active in CSR were more profitable by 0.28% than those that did not have CSR as part of their marketing strategy. This

can be used as a motivation to encourage more companies to get involved in IAP management CSR.

The study findings rather link company sector to the IAP management CSR. Coming first at 33% of the 152 companies was the mining sector, confirming literature that IAPs are cleared and the site revegetated at the end of mining lifecycle (Cornelissen et al., 2019, p. 5). There was a total of 11 different types of sectors involved in the management of IAPs. This research revealed that the largest 15% by market capitalisation JSE listed companies had more than 50% environmental presence. From the 6 environmental CSR types listed under the environmental CSR, the first 15% of the top 200 listed JSE companies had evidence in at least four different environmental CSR types. As directed by Zbucnea and Pînzaru (2017, p. 425) companies are influenced by their values towards choice CSR practices, the first company to present IAP management was the 18th by market capitalisation, therefore permitting the conclusion that the type of CSR practiced by a business is not influenced by its size but to a degree, by its sector. In the IAP management specifically; this means that companies do not present involvement in IAP management based on the market capitalisation size.

5.3 Recommendations

Natesan (2020, pp. 155-156) notes that all JSE listed companies are obliged to be part of King IV code, which is a set of recommended conduct rules directing corporate governance of listed companies. This regulation ensures that companies conduct themselves as good corporate citizens. As obliged in King IV code, there are a range of social responsibility activities found within the study. Recommendations suggesting environmental CSR as an alternative, with focus on IAP management will be given based on finding only 12% with evidence on IAP management from 152 companies. Enabling stakeholders were identified in 84% of companies, this indicates visible cooperation among different parties. According to the current study findings; evidence of environmental CSR within stakeholders environmental CSR was 6% and was the lowest. There needs to be growth in stakeholders' visibility within environmental CSR and IAP management precisely.

This environmental problem which is a threat to every sphere of society. The stakeholder partnerships can simplify implementation processes of the possible IAP management

initiatives. CSR can hold a prominent role in getting businesses involved in the IAP management regardless of the size or sector it is in as the study findings discovered.

5.3.1 Recommendations for national government involvement in IAP management CSR

“It is thus in the hands of the UN member states and all societal, private, and corporate actors to focus, in addition to the 169 SDG targets, on pressures and impacts in their sustainability policies and strategies.” Baumgartner (2019, p. 2). The South African government as a UN member has a commitment and a responsibility to show progress towards achieving the Sustainability Development Goals. The study by Denno and Akuffo (2020, p. 5) attests that goals relating to ecological aspects do not appear in the immediate agenda within South Africa. The following recommendations align with the UN’s Sustainable Development Goals number 6, 7,11,13 and 14 (Clean water and sanitation, affordable and clean energy, sustainable cities and communities, life below water and climate action) (Salvia et al., 2019, p. 487) for government to appeal to businesses in getting involved in the IAP management CSR.

As only 12% of the companies in this sample were found to be involved in IAP management as part of their CSR activities, the government needs to put policies and plans in place to encourage corporate commitment to IAPs. Some specific recommendations are provided below.

The unreliable power supply has a solution in biomass derived from IAPs (Gabriel, 2008, p. 130). IAPs present an opportunity for getting involved to produce biofuel in order to supplement coal powered infrastructure and reduce the carbon emissions from that type of electricity. There needs to be more partnerships between government (within government departments), co-operatives and private sector to materialise this recommendation. Government needs to develop a marketing communications strategy to promote this partnership to businesses. The clearance programmes associated with biofuel electricity stations could also be incorporated with rehabilitation programs conducted in correctional services for people serving their time. Specific companies employing ex-convicted individuals can be developed and focus solely on the clearance of IAPs and processing to add

value to their work. There would be job creation from the clearance, replacing cleared sites with indigenous plants then transportation of IAPs to biofuel sites and the generation of power. This has potential of employment creation and reviving local ecosystem functioning and integrity. Marketed properly to businesses, they are likely to see benefits not only in terms of contributing to achieving more consistent power but also having opportunities for valuable involvement in both philanthropic (job creation and convict rehabilitation) as well as environmental (eradication of IAPs and land restoration) CSR.

- Government could adapt the basic education curriculum and incorporate into life sciences and geography-related subjects, how to identify IAPs, their impacts in the environment and on the future. Children could be taken on practical excursions to enhance their understanding. Businesses could be encouraged to get involved with these excursions, showcasing the IAP CSR activities they are involved with. This direction would ingrain consciousness and encourage future decision makers of the country to be proactive in the management of IAPs. In addition, this could build positive long-term reputations for the businesses involved.
- The clearance of IAPs subtheme within IAP management codes presents unskilled employment opportunities for rural communities and government has long-term programs relating to clearance. Businesses have an opportunity of investing further into supporting such CSR types. There are economic opportunities presented by cleared IAPs including their use in biofuel (Santos, Dos Santos, Silva, Eberlin, & Wisniewski, 2015, p. 1). IAP clearance programmes that are accounted for with formal proof or form of evidence, could give the company graded good standing credits, as it is done with green stars in buildings. Further incentives can be looked into when retailers offer shelf space for these products. Such incentives are likely to encourage business involvement in such CSR activities as in addition to what they can showcase on their websites about the CSR, the green awards or credits could also enhance their position or reputation in the minds of stakeholders such as customers, lending institutions and so on.
- A reward system where municipalities, organisations and partnerships with outstanding or innovative IAP management CSR should receive a form of recognition to challenge others to join in. Lucrative tax incentives can serve to attract IAP management CSR from private businesses.

5.3.2 Recommendations for policy making for municipalities

Municipalities need to develop policies with a stricter accountability system (Mabunda & Ndou, 2019, p. 351) so as to encourage successful clearance of IAPs over land surface, ponds and rivers. Cleared rivers remain usable for recreational activities and water supply. Traditional leaders need to be equally invited to participate in IAPs related matters, indigenous knowledge used with academic knowledge can contribute valuable solutions. Fora with business chambers can be used as a platform to raise awareness of how IAPs directly impact business and encourage partnerships with the municipality in clearance programmes as well as programmes relating to products made from cleared IAPs. Clean up campaigns need to encompass clearing streams of IAPs, this can be done through collaboration with community groups and adopting sites that a group would be responsible for maintaining.

Companies operating in the local municipality could be encouraged to fund these initiatives by giving them discounts in business tariffs on rates and services. Based on the partnership evidence, municipalities can influence what they get out of these partnerships with companies operating within their boundaries. This is what was done by Barloworld: *Equipment was donated to the Gamagara Local Municipality to develop agricultural production in the area.* This involves clearance of land for production, which clears areas affected by IAPs also. Municipalities could create special tariff policies for companies that contribute to clearing IAPs would attract more businesses to find opportunities to qualify them for the special tariffs. This would attract more investors as the municipalities market themselves as lucrative locations.

Seeds of IAPs get transported by poor weed washing from highly infested regions. Efficient wash bays and committed authorities positioned on borders need to be educated on the seriousness of IAPs consequences. Local municipalities with roads connecting to high risk regions need to develop bylaws requiring certification as evidence of receiving chemical wash from truck sized vehicles. Protecting entry points will conserve local land and prevent reactive approach expenses. Local businesses also have a role in reducing the spread of IAPs and can contribute by complying to stipulated bylaws in relation to the management of IAPs. The use of public communication platforms could be a marketing tool to get information to businesses on how they can contribute in the management of IAPs. The reason for getting involved in IAP management could present the benefits and positive outcomes of getting involved.

5.3.3 Recommendations for private companies

The Replenish Africa Initiative (RAIN) brought stakeholders together including traditional authorities, landowners, WWF-SA, local municipalities and Coca cola as a corporate (Rostorfer, Mitler, & Ledbetter, 2015). The contribution of each stakeholder was key in the greater objective of the IAP clearance projects (Creamer-Media-Reporter, 2020. para 4-7). The potential of partnerships of diverse society groups could be more fully applied as displayed in the projects funded by RAIN. This requires corporate and government commitment; with both parties mutually benefitting. Involvement in IAP management increases the sustainability and lifespan of businesses and positions the business as environmentally responsible to consumers and other stakeholders. There is value added to the brand image and competitiveness of the business, which consequently attracts investors.

Companies with IAPs management CSR were at 12%. This presents a bargaining opportunity for private companies to set the price with government. Promoting their products or services can emphasize their alignment of environmental CSR activities and specifically management of IAPs to the Sustainable Development Goals. Private companies in numbers can present their IAP management practices to government and use this as a petition to influence government to apply tax incentive benefits. If reports submitted to government present substantial motivation; then companies can propel change in government.

The private sector could take advantage of benefits of partnering with institutions of higher education for constant fresh information produced from research. CSR research can be tailored to accommodate any scale or sector of business. IAP management CSR can be then accordingly tailored for that business. For example, Mondi, a paper and pulp processor could fund research to create technologies to incorporate IAPs cleared from their forests into products similar to what they produce.

A CSR initiative in itself, human resource training and development in companies could include basic environmental courses to create awareness for staff of the impacts of IAPs. The types of plants used in landscaping for their facilities can contribute immensely to minimising infestation by IAPs. Structure in close proximity to watercourses can adopt those and take accountability for their wellbeing. Building awareness may lead to greater involvement by companies in IAP management CSR in the future. Any company can therefore take responsibility in contributing to the eradication of IAPs, regardless of size. Companies

participating clearing IAPs need to be brought on board with potential economic opportunities arising from resulting waste. Further private-private partnerships can emerge because there is an opportunity for progress to be done by companies operating in S.A in regards to the management of IAPs.

5.3.4 Recommendations for communities and NGOs

Communities and NGOs appeared as beneficiaries and partners in this study's findings. They are a dependant party in financial implications of applying certain recommendations. These however still can position themselves in terms of marketing as attractive locations or organisations for companies to partner with or support their causes in ways described below. The study findings reveal opportunities for communities and NGOs that they can contribute towards IAP eradication. Members can to adopt small infested spots on land or water streams within the immediate surrounding in groups to clear and monitor it in future. Biological control can be used to eradicate IAPs as they are cost effective and environmentally friendly. It saves them water to actively manage IAPs.

Multi-stakeholder partnerships, involving NGOs, parents, schools and businesses could save teenagers from falling into wrong habits. School going children can be mentored to manage IAP clearance programmes locally and develop leadership skills. Residents can elect ward councillors based on their level of engagement in these initiatives and that is how communities can influence local political leadership.

Greener spaces are psychologically healthy to look at keeping IAPs off their open spaces gives them recreational spaces to be social and a place to relax. Communities could choose to support companies that have IAP management initiatives and petition others to do the same.

Slots in local papers can be dedicated to reporting on the progress of IAP clearance and highlighting business partners that way lobby support for businesses that are active in the clearance of IAPs. Community social media groups can be used to drive the momentum and share positive stories arising from the community managed IAP management programs.

This study provided possible CSR ways that corporates of any size and in any sector can apply to contribute towards environmental CSR, specifically IAP management. The recommendations suggest what can be done in the area of IAP management and the following section shares and describes factors from the findings of this research that could be improved to get more information relating to IAP management in South Africa.

5.3 Limitations of study

A wider scope of study may have given different findings. What is done in international countries may differ from the South African listed companies, based on relevant social issues unique to them. The findings of this research therefore give a restricted perspective on the CSR practice.

The chosen methodology in future research in the same topic could apply a wider randomly drawn sample from the JSE to give a better range of companies by market capitalization size. A panel of researchers would have given fairer perspective in comparison to one view.

Only publicly available information was used from the companies' websites. This proved to be a limitation in that what the companies do but is not recorded in their reports available on websites could not be researched further. The study can yield richer findings where the interview method is conducted, that would require funding and longer time to interview the top 200 companies listed in the JSE. Companies would reveal other initiatives that are not captured in their annual reports and the ability to use interviews would direct questions to where useful data is. Observing the companies could resolve the possibility of false reporting, exaggeration and greenwashing what is really taking place within these companies. The 24% of companies which did not have information in their websites would have been also reached through interviews and observation. Extending this study could also look at the bottom end of the JSE listed companies and give a different perspective to the attitudes towards CSR.

The sampling frame of companies studied was only from one stock exchange for South Africa. Future research could extend to chambers of commerce within South Africa and then stock exchanges in other countries. That approach would provide various views and yield solutions that are different to what was discovered in this research.

Time to collect data was limited and data could have been of higher quality had there been funds to collect primary data. Provided there is more time available, this approach could result in a wider spectrum of findings. An approach of conducting primary data collection, such as interviewing companies in this sample would require funding and longer time; however, there were companies whose websites were outdated. Others had information that was not well compiled. An interview approach would expose rich data that cannot otherwise be obtained by using solely publically available data resources. Future research will expand from the findings of this research.

Another study could look at increased costs of farming due to loss of agricultural land to IAP infestation. The spread of IAPs result in the loss of arable land, reducing food available for livestock and farming land as a result of soil's loss of productivity. Food that would otherwise be locally available may need to be imported to meet the demands. Such research could contribute to influencing the department and councils of agriculture to sharper focus on the management of IAPs.

That could be followed with an investigation of consumers' understanding of IAPs impact on their expenses for basic needs and expenses. The aim is to inform the consumer in order to make conscious decisions in their shopping choices. Consumers are programmed to think that rising cost of living is inevitable and are generally unaware of how the spread of IAPs result in other food items to be sourced from further away because they are not being produced locally anymore where they would naturally; without the interference of IAPs. This would contribute in broadening the body of knowledge regarding the impact of IAPs in food prices and influence in consumer choices. Informed consumers can influence the companies to do more IAP CSR.

Research could also investigate the costs of sourcing indigenous plants as a result of local areas being infested by IAPs. Traditional medical practitioners' quality of treatment is associated with the pristineness of nature (Haque, Chowdhury, Shahjahan, & Harun, 2018, p. 13). Indigenous plants tend to be suffocated easily when domineering IAPs start to spread (Pratt et al., 2017, p. 292). It is an area to be looked at in terms of adjusting treatment

medication, place of practice or pricing. Findings by such a study would gain attention from the homeopathy industry as it relies on plants in treating illnesses.

The above proposed future research studies would aid in expanding the body of knowledge in IAPs are a human problem and a threat to all sectors. If the public has awareness of IAPs impacts, change of behaviour is likely to come as a result amongst consumers, businesses and government. Businesses would yield to consumer pressures as momentum is gained in pressuring businesses to get involved in the management of IAPs. As a stakeholder, business' potential in the solution is greater than its current involvement.

5.5 Final Conclusion

The chapter presented conclusions based on the study findings and discussions in relation to the objectives listed in the preceding chapters. The main contribution of this study was presenting the extent of environmental CSR in the top 200 JSE listed companies. The 93% of companies with involvement in environmental CSR were evidence that there is awareness of the need to address environmental issues by corporates. The second contribution of this study are the gaps it showed that were used to formulate recommendations for various society spheres to tackle the problem of IAPs. It thirdly suggested policy influencing recommendations using findings. The conceptual framework suggested relationships between stakeholders that can potentially catalyse partnerships to bring solutions to the problem of IAPs. Philanthropic CSR had the highest involvement of companies in skilling and companies can offer skills relating to IAP management CSR in their business and career skilling programmes.

The extent to which environmental preservation and specifically IAP management are incorporated into the CSR activities. This research found that only 12% of companies that were researched are active in the IAP management. This research investigated the extent to which JSE listed companies in South Africa are addressing the issue of IAPs in the country. It then evaluated how those companies are addressing the problem through their CSR initiatives can help both government as well as businesses in the private sector to locate the gaps that need to be populated in terms of CSR activities. The contribution of this research will assist in the strategies of government in organising communication that will motivate companies to

improve their level of involvement and may even inform policy development on dealing with IAPs. This research contributed to policy development as well for companies pursuing CSR in the management and control of IAPs.

The presence of environmental CSR in the sampled companies is evidence that businesses are gradually integrating environmental and social issues as part of their operations. Stakeholders, especially consumers are becoming more active and their views and priorities are considered in how products are promoted to achieve CSR related goals.

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Appendix 1: Data collection template

	A	B	C	D	E	F	G	H	I	J	K	M	N	O
1	Theme											Sample identifiers		
2	Subtheme													
3	Code											Climate change 1		Climate change 2
4	Data entries											Evidence	Exists	Evidence
5		JSE position no.	Company/ website name	Country of origin	Market Capitalization	Industry	No. of employees	Size of company	Year founded	Website address				
6														

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
1	Types of CSR														
2	Environmental CSR								JSE position no.	Philanthropic					
3	water management		waste management		Nature conservation		IAP Management		JSE position no.	Cooperatives		Skilling		Agriculture	
4	Exists	Evidence	Exists	Evidence	Exists	Evidence	Exists	Evidence	JSE position no.	Exists	Evidence	Exists	Evidence	Exists	Evidence
5									JSE position no.						
6															

	AJ	AK	AL	AM	AN
1	Stakeholders				
2					
3	Enabling Stakeholder		Beneficiary stakeholder		
4	Type	Evidence	Type	Evidence	
5		Enabling			
6					

Appendix 2: Term definition

Industry	Description
Alcohol beverage	An alcoholic drink is a drink that contains ethanol, a type of alcohol produced by fermentation of grains, fruits, or other sources of sugar.
Agriculture	The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.
E-commerce	The buying and selling of good or services via the internet, and the transfer of money and data to complete the sales
Consumer internet	Data services provided by ISPs that connect subscribers to the internet using either a dial-up connection over a PSTN line or over a broadband connection.
Mining	The process or industry of obtaining coal or other minerals from a mine.
Luxury jewellery-	personal ornaments, such as necklaces, rings, or bracelets, that are typically made from or contain jewels and precious metal.
Tobacco	a preparation of the nicotine-rich leaves of an American plant, which are cured by a process of drying and fermentation for smoking or chewing.
Finance/Banking	the management of large amounts of money, especially by governments or large companies. "the firm's finance department" /the business conducted or services offered by a bank.
Insurance	An arrangement by which a company or the state undertakes to provide a guarantee of compensation for specified loss, damage, illness, or death in return for payment of a specified premium.
Private Health care	Private the organized provision of medical care to individuals or a

	community.
Private education	Private process of receiving or giving systematic instruction, especially at a school or university.
Telecommunications	Communication over a distance by cable, telegraph, telephone, or broadcasting. This communication aided by technology.
Paper	Material manufactured in thin sheets from the pulp of wood or other fibrous substances, used for writing, drawing, or printing on, or as wrapping material.
Packaging	Materials used to wrap or protect goods.
Pulp processing	(pulp) a soft, wet, shapeless mass of material.
Chemicals	a distinct compound or substance, especially one which has been artificially prepared or purified.
Energy	the strength and vitality required for sustained physical or mental activity.
Renewable Energy	energy from a source that is not depleted when used, such as wind or solar power.
Hospitality	the friendly and generous reception and entertainment of guests, visitors, or strangers.
Airline	an organization providing a regular public service of air transport on one or more routes.
Retail	the sale of goods to the public in relatively small quantities for use or consumption rather than for resale.
Pharmaceuticals	relating to medicinal drugs, or their preparation, use, or sale.
Construction	the action of building something, typically a large structure.
Property development	Developing a building or buildings and the land belonging to it or them.
Communication	the imparting or exchanging of information by speaking, writing,

	or using some other medium, excluding telecommunication.
Diversified industrial	Varying goods relating to or characterized by industry.
Consumer goods	Goods used by a person who purchases goods and services for personal use.
Trading	The action or activity of buying and selling goods and services to retailers.
Distribution	The action or process of supplying goods to retailers.
Real estate	Property consisting of land or buildings.
Marine cargo	Goods carried on a ship.
Fund management	The management of sums of money saved or made available for a particular purpose.
Logistics	The detailed organization and implementation of a complex operation.
Car tracking	Electronic system used to locate a car.
multi-asset class securities exchange	cash, equity or bonds securities exchange
Automotive	relating to or concerned with motor vehicles.
Food manufacturing	Relating to processing agricultural produce.
Engineering	the branch of science and technology concerned with the design, building, and use of engines, machines, and structures.
Information Technology	the study or use of systems (especially computers and telecommunications) for storing, retrieving, and sending information.
Private Schools	an independent school supported wholly by the payment of fees.
Oil and gas exploration	the action of exploring an unfamiliar area with the intention of locating fuel.

Broiler	a young chicken suitable for roasting, grilling, or barbecuing.
Fleet management	a group of ships sailing together, engaged in the same activity, or under the same ownership. Managing
Electronic Payment System Technology	A way of making transactions or paying for goods and services through an electronic medium, without the use of checks or cash.
Seafood agri business	Processing of shellfish and sea fish, served as food.
Asset manager	One responsible for controlling or administering item of property owned by a person or company, regarded as having value and available to meet debts, commitments, or legacies

Appendix 3: List of Companies

1. Prosus	https://www.prosus.com/
2. Ab InBev	https://www.ab-inbev.com
3. British American Tobacco	http://www.batsa.co.za
4. Naspers	https://www.naspers.com/
5. BHP	https://www.bhp.com/
6. Richemont	https://www.richemont.com/
7. Anglo	https://www.angloamerican.com/
8. Glencore	https://www.glencore.com/
9. Implats	https://www.implats.co.za/
10. Vodacom	https://www.vodacom.com/company-profile.php
11. Firstrand	https://www.firstrand.co.za/
12. Anglo Gold	https://www.anglogoldashanti.com/
13. Goldfields	https://www.goldfields.com/
14. Kumba	https://www.angloamericankumba.com/
15. Standard	https://www.standardbank.co.za/
16. Mondi	https://www.mondigroup.com/
17. Sibanye	https://www.sibanyestillwater.com/
18. Amplats	https://www.angloamericanplatinum.com/
19. Sanlam	https://www.sanlam.co.za/Pages/default.aspx
20. South 32	https://www.south32.net/
21. MTN Group	https://wegotu.mtn.co.za/
22. Capitec	https://www.capitecbank.co.za/
23. BidCorp	http://www.bidcorpgroup.com/
24. Sasol	https://www.sasol.com/
25. Discovery	https://www.discovery.co.za/portal/index.jsp
26. Northam	https://www.northam.co.za/
27. Shoprite	https://www.shopriteholdings.co.za/
28. ABSA	https://www.absa.co.za/personal/
29. Quilter	https://www.quilter.com/
30. Harmony	https://www.harmony.co.za/

31. Clicks	https://www.clicksgroup.co.za/
32. MC Group	https://www.mcgroup.com/
33. ARM	https://www.arm.co.za/
34. Nedbank	https://www.nedbank.co.za/
35. Remgro	https://www.remgro.com/
36. Old Mutual	https://www.oldmutual.co.za/about
37. RMIH	https://www.rmih.co.za/
38. Aspen	https://www.aspenpharma.com/
39. Mediclinic	https://www.mediclinic.com/en/home.html
40. Tigerbrands	https://www.tigerbrands.com/
41. Nepirock	https://nepirockcastle.com/
42. Bidvest	https://www.bidvest.co.za/
43. Reinet	https://www.reinet.com/
44. Pepkorh	https://www.pepkor.co.za/
45. Comair	https://www.comair.co.za/
46. Mr Price	https://www.mrpricegroup.com/
47. Woolworths	https://www.woolworthsholdings.co.za/
48. Growpnt	https://growthpoint.co.za/
49. Spar	https://www.spar.co.za/Home
50. Santam	https://www.santam.co.za/
51. TFG	https://www.tfg.co.za/home
52. Ninety 1P	https://ninetyone.com/en/south-africa
53. INVPLC	https://www.investec.com/en_za.html
54. Pick n Pay	https://www.pnp.co.za/
55. A-V-I	https://www.avi.co.za/
56. Vivo	https://www.vivoenergy.com/
57. LifeHC	http://www.lifehealthcare.co.za
58. Capco	https://www.capco.com/
59. Mommet	https://www.momentum.co.za/momentum/home
60. Distell	https://www.distell.co.za/home/
61. Newgold	https://newgold.com/
62. Netcare	http://www.netcare.co.za/
63. Lib-hold	https://www.libertyholdings.co.za/Pages/default.aspx
64. Sirius	https://www.sirius-real-estate.com/
65. Dis-Chem	https://dischemgroup.com/
66. Truworths	https://www.truworths.co.za/
67. Itlile	https://www.italtile.com/
68. Telkom	https://www.telkom.co.za/

69. Hammerson	https://www.hammerson.com/
70. Invltd	https://www.investec.com/en_za.html
71. Fortressa	https://fortressfund.co.za/
72. GTCSA	https://gtc.com.pl/
73.	
74. Resilient	https://www.resilient.co.za/
75. Rbplat	https://www.bafokengplatinum.co.za/
76. MNTKRENEW	http://montaukenegy.com/
77. Transcap	https://www.transactioncapital.co.za/
78. Sappi	https://www.sappi.com/
79. Textainer	https://www.textainer.com/
80. Coronation	https://www.coronation.com/en-za/personal/
81. Cartrack	https://www.cartrack.co.za/
82. Ninety 1L	https://ninetyone.com/
83. Barloworld	http://www.barloworld.com/
84. PSG	https://www.psg.co.za/
85. JSE	https://www.jse.co.za/
86. IMPL CB22	http://www.implats.co.za/
87. Redefine	https://www.redefine.co.za/
88. Equites	https://www.equites.co.za/
89. Motus	https://www.motus.co.za/
90. Montauk	http://montaukenegy.com/
91. Sygmsciwd	https://www.sygnia.co.za/sygnia-itrix-range
92. AECI	https://www.aeciworld.com/
93. IAP	https://irongategroup.com.au/
94. Pan-Af	https://www.panafricanresources.com/
95. MassMart	https://www.massmart.co.za/
96. Oceana	https://oceana.co.za/
97. Newplat	https://newgold.com/
98. MAS	https://www.masrei.com/
99. SUPRGRP	http://www.supergroup.co.za/
100. Imperial	https://www.imperiallogistics.com/
101. EPP	https://www.epp-poland.com/
102. Stenprop	https://stenprop.com/
103. KAP	https://kap.co.za/
104. RCL Foods	https://rclfoods.com/

105.	Lighthouse Capital Ltd.	https://www.lighthousecapital.mu/
106.	Adcock Ingram Holdings Ltd.	https://www.adcock.co.za/
107.	Investec Property Fund	https://www.investecproperty.com/
108.	Omnia Holdings Ltd.	https://www.omnia.co.za/
109.	Hyprop Investments Ltd.	https://www.hyprop.co.za/
110.	Tharisa Plc	https://www.tharisa.com/
111.	Steinhoff International holdings	https://www.steinhoffinternational.com/
112.	Reunert Ltd	https://www.reunert.co.za/
113.	Vukile Property Fund	https://www.vukile.co.za/
114.	Cashbuild Ltd.	https://www.cashbuild.co.za/
115.	Curro Holdings Ltd.	https://www.curro.co.za/
116.	Erin Energy Corporation	http://www.camac.com/
117.	Afrimat Ltd.	https://www.afrimat.co.za/
118.	SYGMSCIUS	https://www.sygnia.co.za/fund/sygnia-itrix-msci-us
119.	Stor-Age Property REIT Ltd.	https://investor-relations.stor-age.co.za/
120.	Raven Property Group	https://www.theravenpropertygroup.com/
121.	Astral Foods Ltd.	https://www.astralfoods.com/
122.	ADvTECH Ltd	https://www.advtech.co.za/
123.	Datatec Ltd.	https://www.datatec.com/index.php
124.	Alexander Forbes Ltd.	https://www.alexanderforbes.co.za/
125.	INVESTPLD	https://Invest.co.za/
126.	Jubilee Metals Group	https://jubileemetalsgroup.com/
127.	Tsogo Sun Gaming Ltd.	https://www.tsogosun.com/
128.	Wilson Bayly Holmes Ovcon Ltd.	https://www.wbho.co.za/
129.	MiX Telematics Ltd.	https://www.mixtelematics.com/
130.	Trustco Group Holdings Ltd.	https://www.tgh.na/
131.	Allied Electronics Corporation Ltd.	https://www.altron.com/
132.	African Rainbow Capital Investments	https://africanrainbowcapital.co.za/
133.	Hosken Consolidated Investments Ltd.	https://www.hci.co.za/
134.	FamBrands	https://www.fambrands.com/services
135.	Raubex Group Ltd.	https://www.raubex.co.za/index.php
136.	Brait SE	https://brait.investoreports.com/
137.	Libstar Holdings Ltd.	https://www.libstar.co.za/
138.	Blue Label Telecoms Ltd.	https://www.bluetel.co.za/index.php
139.	Alphamin Resources Corp.	https://alphaminresources.com/
140.	Net 1 UEPS Technologies Inc.	http://www.net1.com/
141.	SA Corporate Real Estate Ltd.	https://www.sacorporatefund.co.za/
142.	Sea Harvest Group Ltd.	https://seaharvestgroup.co.za/
143.	Zeder Investments Ltd	https://www.zeder.co.za/
144.	Satrixwdm	https://satrix.co.za/
145.	Lewis Group Ltd.	https://www.lewisgroup.co.za/
146.	Acsion Ltd.	https://www.acsionsa.co.za/
147.	Metair Investments Ltd.	https://www.metair.co.za/
148.	Murray & Roberts Holdings Ltd.	http://www.murrob.com/index.asp

149.	Emira Property Fund Ltd.	https://emira.co.za/
150.	Stanbank-P	https://www.standardbank.co.za/southafrica/personal/home
151.	Liberty Two Degrees	https://www.liberty2degrees.co.za/
152.	Grindrod Ltd. (GND)	https://www.grindrod.co.za/
153.	Sun International Ltd.	https://www.suninternational.com/
154.	Attacq Limited	https://www.attacq.co.za/
155.	Long4Life Ltd.	https://www.long4life.co.za/
156.	Exemplar REIT Ltd.	http://www.exemplarreit.co.za/
157.	RFG Holdings Ltd.	https://www.rfg.com/
158.	FirstRand Ltd.	https://www.firstrand.co.za/
159.	ABSA	https://www.absa.co.za/personal/
160.	Heriot REIT Ltd.	https://www.heriotreit.com/
161.	Mpact Ltd.	https://www.mpact.co.za/
162.	Fortress REIT Ltd.	https://fortressfund.co.za/
163.	Clientèle Ltd.	https://clientele.co.za/
164.	AfroCentric Investment Corporation Ltd.	http://www.afrocentric.za.com/
165.	SYGEUR050	Not provided
166.	Sygnia Ltd.	https://www.sygnia.co.za/
167.	Hudaco Industries Ltd.	http://www.hudaco.co.za/default.htm
168.	Homechoice International plc	https://www.homechoiceinternational.com/
169.	Kaap Agri Ltd.	https://www.kaapagri.co.za/
170.	Schroder European Real Estate Investment Trust Plc	https://www.schroders.com/en/za/intermediary/fund-centre/schroder-european-real-estate-investment-trust-plc/
171.	AYO Technology Solutions Ltd.	https://ayotsl.com/
172.	PPC Ltd.	https://www.ppc.africa/welcome/
173.	NEDBANK Ltd	https://www.nedbank.co.za/
174.	NEWFNGOVI	Not provided
175.	SYGSP500	Not provided
176.	THL	Not provided
177.	Balwin Properties Ltd.	https://balwin.co.za/
178.	Caxton and CTP Publishers and Printers Ltd.	https://caxton.co.za/
179.	INVESTGLD	https://Invest.co.za/
180.	SATRIXNDQ	https://satrix.co.za/
181.	Royal Bafokeng Platinum Ltd.	https://www.bafokengplatinum.co.za/
182.	SYG4IRGE	https://www.sygnia.co.za/sygnia-itrix-range
183.	Tradehold Ltd.	http://www.tradehold.co.za/
184.	SATRIXINDI	https://satrix.co.za/
185.	INVLTDREF	https://www.investec.com/en_za.html
186.	City Lodge Hotels Ltd.	https://clhg.com/
187.	RMB Holdings Ltd.	https://www.rmh-online.co.za/
188.	Octodec Investments Ltd.	https://www.octodec.co.za/

189.	Gemfields Group Ltd.	https://www.gemfieldsgroup.com/
190.	YeboYethu Ltd.	https://www.yeboyethu.co.za/
191.	Dipula Income Fund Ltd. A	https://www.dipula.co.za/
192.	Invicta	https://www.invictaholdings.co.za/
193.	Fairvest	https://fairvest.co.za/
194.	Bytes Technology Group plc	https://www.bytes.co.uk/
195.	IVT	https://www.invictaholdings.co.za/
196.	Dipula Income Fund Ltd. B	https://www.dipula.co.za/
197.	RBP Conv	No website
198.	SYG	https://www.sygnia.co.za/
199.	ETFSWX	https://1invest.co.za/
200.	1INVESTSWX40	https://1invest.co.za/

Appendix 4: Ethical Clearance



Mrs Mapule Nomvula Mdletshe (206523473)
School Of Man Info Tech & Gov
Pietermaritzburg

22 February 2022

Dear Mrs Mapule Nomvula Mdletshe,

Original application number: 00007425

Project title: The extent to which Corporate Social Responsibility is fighting against invasive alien plants.

Amended title: The extent to which corporate social responsibility activities in South Africa address invasive alien plants

Exemption from Ethics Review

In response to your **amendment** application received on _____, your school has indicated that the amendment has been granted **EXEMPTION FROM ETHICS REVIEW**.

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:

Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,

A black rectangular box redacting the signature of the sender.

22/02/2022

Dr Vangeli Wiseman Gamede
Academic Leader Research
School Of Man Info Tech & Gov