GREEN LOGISTICS IN A SOUTH AFRICAN RETAILER: A CASE STUDY

By

MILVET KANYONGO

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DECLARATION

I declare that **GREEN LOGISTICS IN A SOUTH AFRICAN RETAILER: A CASE STUDY** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

Milvet Kanyongo
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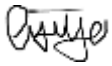
Signature: 

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ABSTRACT

The negative environmental effects being caused by logistical operational activities have raised concern about the needs of the future generations. Retailers are among those organisations whose operational activities are causing environmental damage. To find solutions towards minimising negative environmental impacts, green logistics concept under the umbrella term green supply chain management (GSCM) was developed. Green logistics developed to be a topic of interest across the globe. Green logistics implementation is now at an advanced stage in developed countries such as the United States compared to countries in Africa. In developing nations such as South Africa, GL is still minimal but quite noticeable compared to the rest of the African countries.

Retailers, among other organisations, are facing immense pressure to minimise environmental damage and implement processes that promote environmental protection. This study explored the implementation of GL practices in a large retail organisation of South Africa. The study followed a qualitative research design and implemented semi-structured interviews to collect the data. A thematic analysis was used to analyse the data. The evidence from the study showed that there has been ongoing emphasis and implementation of GL in the retail industry of South Africa. The study concluded that retailers need to invest more in the adoption of technology to enhance the implementation of GL.

Key Words: Sustainable development; Green Logistics; Environment; Green Supply Chain Management.

OPSOMMING

Die negatiewe omgewingseffekte wat deur logistiese operasionele aktiwiteite veroorsaak word, het kommer laat ontstaan oor die behoeftes van die toekomstige generasies. Kleinhandelaars is van die organisasies wie se operasionele aktiwiteite omgewingskade aanrig. Om oplossings vir die minimalisering van die omgewingsimpak te vind, is die konsep groen logistiek (GL) onder die oorkoepelende term groen voorsieningskettingbestuur ontwikkel. Groen logistiek het in 'n onderwerp van belangstelling oor die wêreld ontwikkel. Die implementering van groen logistiek is reeds in 'n gevorderde stadium in ontwikkelde lande soos die Verenigde State, vergeleke met lande in Afrika. In ontwikkelende lande soos Suid-Afrika, is groen logistiek steeds minimaal, maar tog merkwaardig vergeleke met die res van die Afrika-lande.

Benewens ander organisasies, staar kleinhandelaars groot druk in die gesig om omgewingskade te minimaliseer en prosesse te implementeer wat omgewingsbeskerming bevorder. Hierdie studie het die implementering van GL-praktyke in 'n groot kleinhandelsorganisasie in Suid-Afrika ondersoek. Die studie het 'n kwalitatiewe navorsingsontwerp gevolg, en semi-gestruktureerde onderhoude is gebruik om data te versamel. 'n Tematiese analise is gebruik om die data te analiseer. Die uitslae van die studie het getoon dat daar voortdurende klem op en implementering van GL in die kleinhandelbedryf in Suid-Afrika is. Die studie het tot die gevolgtrekking gekom dat kleinhandelaars meer moet belê in die aanvaarding van tegnologie om die implementering van GL te verbeter.

Sleutelwoorde: Volhoubare ontwikkeling; Groen Logistiek; Omgewing; Groen Voorsieningskettingbestuur.

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LIST OF ACRONYMS AND ABBREVIATIONS

CSR	Corporate social responsibility
ECR	Efficient consumer response
EDI	Electronic data interchange
ETS	Emission trade systems
EU	European Union
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GHRM	Green human resource management
GL	Green logistics
GSCM	Green supply chain management
IT	Information Technology
JIT	Just-in-time
JSE	Johannesburg Stock Exchange
KPI	Key Performance Indicator
LRS	Labour Research Services
LSP	Logistics service provider
NGO	Non-governmental organisation
QR	Quick response
SARS	South African Revenue Service
SCM	Supply chain management

SD	Sustainable development
SDG	Sustainable development goal
SME	Small and Medium Enterprises
SP	Sustainability performance
SPI	Sustainability performance indicator
TBL	Triple bottom line
TQM	Total quality management
UN	United Nations
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
VAT	Value-added Tax
WEEE	Waste from Electrical and Electronic Equipment

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 BACKGROUND AND INTRODUCTION TO THE STUDY

Problems within the environment, such as a rapid reduction in natural resources, pollution, global warming, and a decrease in biological diversity, are some of the reasons mentioned by Çankaya and Sezen (2019:98) to be causing the ecological imbalance. This has posed a continuous challenge for the world to produce many goods from the few and depleting available resources to meet the increasing demand (Nara *et al.*, 2021:102) due to the continuously increasing population (Bhatia & Gangwani, 2020). This has resulted in organisations shifting their focus and paying attention to climate change, the efficient use of resources, and to being more environmentally conscious than ever (Iqbal, Nisha, Rifat & Panda, 2018:14). An article by Barry Kukkuk (2020) points out that there are at least eight million pieces of plastics that are deposited into the sea every year and millions of water inhabitants, such as fish, are being killed. Due to the increasing environmental problems and scarcity of natural resources, organisations are required to produce and distribute healthy, reliable products and have a less negative effect on the environment (Gulmez & Rad, 2017:604).

Recently, factors such as financial, regulatory, and competitive pressures, environmental regulations and increased demand from customers have given rise to the realisation of the importance of sustainability (Chen, Ngniatedema & Li, 2018:1008; Luthra, Garg & Haleem, 2016:142). Unsustainable urban logistics are adding more damage incrementally to the environment, calling for an urgent greening of logistics processes (Ren *et al.*, 2020:277). This has given rise to many organisations introducing green logistics practices in their operations to fulfil the environmental demands of the stakeholders, such as consumers (Saha, Nielsen & Sana, 2020:1; Wang, Mathiyazhagani, Xu & Diabat, 2016:24) Acknowledging the problem has brought together people from different areas, inclusive of academics, researchers, government officials and scientists to determine the way forward to ensure sustainability by decreasing the waste and conserving the natural resources (Mardani *et al.*, 2020:2; Tseng, Islam, Karia, Fauzi & Afrin, 2019:145). Bhatia and Gangwani

(2020:125) point out that green practices are enabling supply chains to achieve environmental needs and conform to the stipulated sustainability rules and regulations.

Some organisations approached environmental sustainability management as a good business practice and voluntarily adopted green practices into their operations (Maditati, Munim, Schramm & Kummer, 2018:150). However, some organisations adopt green practices only to be compliant with the environmental regulations (Singjai, Winata & Kummer, 2018:131). A study by Chuang and Huang (2018:992) stated that, despite the international environmental regulations growing stricter by the day and having a positive influence on the environment, the main solution is for organisations to realise the importance of reducing their impact on the environment. One question arises, how can society achieve sustainability? An article by Barry Kukkuk (2020) indicated that sustainability can be achieved through minimising the use of raw materials and promoting the reusing, recycling, and remanufacturing of products.

Sarkis, Gonzalez-Torre and Adenso-Diaz (2010:163) also agree that, among other things, economic, social and political pressures have led to organisations paying greater attention to the environmental issues that have risen. However, the increased awareness of green practices has received considerable attention during the 21st century (Cosimato & Troisi, 2014:97; Jaggernath & Khan, 2015:37). Both developed and developing nations are recognising the importance of environmental sustainability (Esfahbodi, Zhang & Watson, 2016:350). In developing nations, South Africa has made notable progress in environmental management by implementing laws, regulations, and strategies that focus on sustainable development (SD) and green logistics (GL) (Engel, 2010, in Smith & Perks, 2010:3).

As the ecological imbalance continues to grow, retailers and other supply chain participants are facing difficulties with producing products and services that are environmentally friendly (Končar, Vučenović & Marić, 2020:184). Such challenges include the elimination of harmful products, the large investments required, the exploitation of raw materials such as oil and fossil fuels, effective and efficient placement, promotion and advertising ecological goods and services (Cinar, Gakis & Pardalos, 2017; Končar *et al*., 2020:184). GL provide retailers and all the supply chain

participants with the opportunity to provide consumers with the right products, at the right price, at the correct location, in the right quantities and at the right time, whilst being environmentally sustainable (Cinar *et al*., 2017). It is important to provide clarity on the overall aspects of GL (Esfahbodi *et al*., 2016:351) and this may motivate both large and small retailers to implement green practices in their operations (Niemann, Kotze & Adamo, 2016:980). It is evident that organisations are more concerned with sustainability and have realised that it is the key strategic issue that has an impact on their operational performance and retailers are progressively implementing sustainability strategies to enhance their sustainability performance (Naidoo & Gasparatos, 2018:127). A study by Končar *et al*. (2020:184) revealed that being environmentally and socially responsible is important for retailers if they want to achieve a good reputation and competitiveness in the market, because modern consumers are more conscious of the environmental damage being caused by retail activities than before.

Logistics is a key element in the retail supply chains and contributes to the prosperity and welfare of countries (Cinar *et al*., 2017). Currently, the logistical systems are causing serious damage to the environment, and this calls for the implementation of efficient sustainable logistics (Cinar *et al*., 2017). Logistics systems have gradually moved from traditional logistics to GL (Cinar *et al*., 2017). Logistics is defined as the process of managing the flow of products and services from the point of production to the point of consumption in order to meet the consumers' requirements effectively and efficiently (Cinar *et al*., 2017). The GL concept is aimed at improving logistical activities and systems, such as warehousing, transportation, purchasing, reverse logistics, packaging and materials handling (Cinar *et al*., 2017). GL has become the most important path leading to sustainability (Gulmez & Rad, 2017:606). Previous studies by Zhang, Lee, Chan Choy and Wu (2015:156) also agree that GL was developed to focus mainly on the production and distribution of goods and services in a sustainable way, thus considering social and environmental factors. Organisations that are implementing GL are mainly characterised by (1) less energy expenditure, (2) less waste into the system, (3) collaboration with other companies to achieve GL goals, (4) promoting the use of reusable containers instead of disposable types of packages, and (5) producing durable and recyclable products (Gulmez & Rad, 2017:606).

Vanpoucke, Quintens and Engelshoven (2016:732) are of the opinion that GL is discussed more in the literature than it is implemented practically. Jaggernath and Khan (2015:38) point out that the reason may be a lack of knowledge of the tangible benefits that have been attained by organisations that have incorporated GL into their operations. However, to obtain the full effect of GL, all organisations that are involved directly or indirectly in the supply chain should commit to adopting green practices (Jaggernath & Khan, 2015:38). The authors also point out that supply chains can be regarded as green when the GL is incorporated fully into every aspect of the supply chain. However, most researchers have pointed out that there have been problems with implementing GL in practice, the reason being the contradiction between the need to maximise profits, increase economic growth and the need to be environmentally responsible (Rakhmangulov, Sladkowski, Osintsev & Murarev, 2018:49).

Retailers are playing a vital role in the value chain, although they are traditionally regarded as mere distributors of goods and services, adding little value to consumers and suppliers (Lai, Cheng & Tang, 2010:6). However, retailers can be regarded as the gatekeepers of sustainability as they link suppliers, producers and customers (Schramm-Klein, Morschett & Swoboda, 2015:405; Wiese, Zielke & Toporowski, 2015:297; Youn *et al*., 2017:386). In addition, retailers play an irreplaceable role as end customer contacts which cannot be achieved by any other participants in the supply chain (Končar *et al.*, 2020:184; Lehner, 2015). Despite the importance of retailers in the supply chain, there has been less empirical research focusing on retail green operations (Petljak, Zulauf, Štulex, Seuring & Wagner, 2018:1), and a lack of green training on the effective implementation of GL in retail organisations (Mardani *et al*., 2020:129) has led to retail organisations finding it difficult to understand and adopt GL. Esfahbodi *et al*. (2016:351) have pointed out that there has been little environmental research that explores the role of the retail sector in the implementation of GL practices.

Environmental sustainability is regarded as one of the most important operation management issues facing retailers today (Tang, Lai & Cheng, 2016:394) and retailers play a vital role in ensuring environmental sustainability because they are positioned

between the suppliers and the consumers (Sallnäs & Björklund, 2020:1178). According to Naidoo and Gasparatos (2018:127), retailers are in a better position to address sustainability issues. Any negative behaviour towards sustainability by suppliers can affect retailers' image adversely and affect the retail performance in the marketplace negatively (Schramm-Klein *et al*., 2015:405).

Macharis, Melo, Woxenius and Van Lier (2014) state that an efficient way of improving environmental sustainability is for retailers to include GL performance measurements in their contracts with their logistics service providers (LSPs). A study by Sällnas and Björklund (2020:1178) agrees that retailers cannot work in isolation regarding GL but must involve parties like the LSPs in their operational decision-making. Lai *et al.* (2010:18) aver that if there is a lack of coordination between the supplier and consumers' involvement, retailers' environmental efforts will be compromised. An article by Kukkuk (2020) indicates some commendable initiatives by retailers in promoting environmental sustainability. For example, retailers in New Zealand are getting involved with the "food in nude" campaign by focusing on selling all fresh produce without packaging. Also, in South Africa, Pick n Pay stores are driving the initiative of "packing-free shopping zones" by encouraging shoppers to bring their reusable containers when shopping for dry goods such as cereals, pasta, rice and grains, to mention but a few (BusinessTech, 2021).

Although there are efforts to reduce carbon emissions such as emissions trade systems (ETS), emission deals and carbon taxes (Gulmez & Rad, 2017:606), these efforts have not managed to stabilise the environmental problems. Studies focusing on and exploring these problems are still limited or rather have received little attention (Bhatia & Gangwani, 2020:126). ETS are instruments developed by governments to promote the reduction of carbon emissions by setting a cap or allowable amount of carbon emissions by each organisation over a period, and those organisations that achieve low carbon emissions are allowed to sell their extra allowances to large carbon emitters (Bayer & Aklin, 2020:8804; The World Bank, 2020). Carbon tax aims to reduce carbon emissions by defining a tax rate on greenhouse gas emissions and by setting a price on carbon directly (The World Bank, 2020). The aim of a carbon tax is to ensure that organisations and consumers are held accountable for the negative

effects of their actions on the climate and environment at large through their production, consumption, and investment decisions (South African Revenue Authority [SARS], 2021).

1.2 PROBLEM STATEMENT

Developing countries are regarded as a threat to the environment because they lack efficient and sustainable GL practices (Tumpa *et al.*, 2019:121). In addition, Rakhmangulov *et al*. (2018) highlight that humanity is at the crossroads of the ecological and socio-economic eras where the development of sustainable policies is crucial and there is a need to manage the use of natural resources. Consumers in developing countries lack information on green purchasing and their shopping experience of green products is limited, leading to the lack of enthusiasm on the part of organisations to implement green initiatives (Kumar & Polonsky, 2019:24; Tumpa *et al*., 2019:125). In other words, consumers' purchasing or shopping behaviour is not influenced by how environmentally sustainable the product, is but rather influenced by its quality, price and durability. However, Bhatia and Gangwani (2020:133) argue that sharing information about the implementation of green practices will have a positive effect on consumers' purchase behaviour and intentions. Therefore, there is a need for efficient strategies to increase awareness of green practices through campaigns (Huang *et al.*, 2020:132). These campaigns provide consumers with information on environmental effects. Hence, the subject of the environmental sustainability of GL has gained considerable attention across the world (Gulmez & Rad, 2017:603).

Previous studies have pointed out that retailers are contributing substantially to environmental damage through their extensive logistics activities (Tumpa *et al*., 2019:120). Furthermore, there is an increased interest in studying and understanding the impact of retail supply chains on the environment (Petljak *et al.*, 2017:1). Logistics activities are accountable for at least 13.1% of carbon emissions, which is one of the main causes of climate change (Gulmez & Rad, 2017:606). The production and consumption of food occur every day around the world, while simultaneously resources are required, and gas emissions are produced (Helo & Ala-Harja, 2018). There is therefore a need to evaluate the environmental sustainability of retail supply chains (Helo & Ala-Harja, 2018:466; Tumpa *et al*., 2020:125). GL has come to the fore

as a key component in the achievement of environmental sustainability in the retail sector (Gulmez & Rad, 2017:604), hence the increased interest in the research topic of GL by academics, the government and by private organisations (Wang, Dong, Peng, Khan & Tarasov, 2018:23). All the above points support the need for implementing efficient GL practices in the retail supply chains (Končar *et al*., 2020:185).

Most environmental studies have focused on the implementation of green practices in developed countries (Singjai *et al*., 2018:132), while few studies have been carried out in developing countries (Mkhize & Ellis, 2018:132). The implementation of environmental strategies in developing countries differs from those of developed nations for several reasons (Singjai *et al*., 2018:132). In developing countries, the efforts to mitigate environmental damage are being hampered by a lack of efficient environmental protection plans, underdeveloped pollution control systems, as well as poor environmental standards (Asif, Lau, Nakandala, Fan & Hurriyet, 2020:124). Researchers have found this to be an obstacle that hampers the effective implementation of GL (Rakhmangulov *et al*., 2018:49).

Hazen, Wu, Cegielski, Jones-Farmer and Hall (2012:417) also point out that GL encompasses a wide range of activities, and this may be one of the reasons why green practices have not received enough attention and have not been researched extensively.

Tang *et al*. (2016:394) state that it is apparent that more research is done on green practices in the manufacturing sector than in the retail sector. Bhatia and Gangwani (2020:132) agree that the manufacturing sector has received more attention with regard to its green operational practices in comparison to other sectors involved in the supply chain. More specifically, studies relating to the issues of GL in developing countries are being represented poorly in the world of literature and are limited in scope and nature (Niemann *et al.*, 2016:979). This led to the researcher's interest in engaging in research on GL in the retail industry, specifically in developing nations such as South Africa.

Rakhmangulov *et al*. (2018) postulate that the only way of achieving success in the development of sustainable environmental goals is to have international, regional, and local organisations working together in prioritising the implementation of sustainable green activities. Clarity is needed in all aspects of GL, including strategies that can be used, challenges that are likely to be faced, advantages and disadvantages, as well as its relationship to the overall performance of the organisation (Esfahbodi *et al*., 2016:351). A study conducted by Aldakhil, Nassani, Awan, Abro and Zaman (2018:862) concluded that environmental policies must be formulated in order to reduce the negative impacts that logistics activities have on the environment. In addition, developing go-for-green financial development strategies across countries can help to manage the environmental damage (Aldakhil *et al*., 2018). Mardani *et al*. (2020:122) aver that a gap still exists in the research field of green and sustainable supply chains. A recent study by Ren *et al*. (2020:268) found that most of the GL research studies are carried out in the Western and Asian countries, and this confirms that African nations, such as South Africa, still lack research on this subject. Table 1.1 below illustrates few examples supporting this finding by Ren et al. (2020). Hence, this study focused on the impact of GL in retail operations in a developing country such as South Africa. Given the lack of understanding and implementation of GL in developing countries such as South Africa, the following problem statement was formulated.

"The lack of knowledge and information about the implementation of GL in the retail industry is a huge concern in the overall achievement of GL and sustainability at large especially in developing countries such as South Africa."

Table 1.1. Summaries of countries actively involved in GL research.

Territory	Countries	No of papers published	Average Year Published
Asia	China India Hong Kong Taiwan Singapore	49 16 10 10 9	2017 2018 2018 2017 2017
North America	United States Canada	41 14	2012 2014
Europe	England Sweden	24 19	2014 2014

	Spain	16	2014
	Italy	15	2017
	Netherlands	13	2011
	France	12	2014

Source: Ren et al. 2020

1.3 RESEARCH OBJECTIVES

This section discusses the primary and secondary research objectives of this study.

1.3.1 Primary research objective

The primary objective of this study was to investigate and explore the implementation of GL in a large retail organisation in South Africa. The main objective of this study was derived from the problem statement.

1.3.2 Secondary research objectives

The secondary objectives of this study were as follows:

- To explore ways of incorporating GL practices across retail supply chains.
- To identify the challenges and obstacles associated with implementing GL practices in retail supply chains.
- To explore the benefits of implementing GL in retail supply chains.
- To determine the awareness of the importance of GL in the supply chains.
- To explore how technology can assist in facilitating the implementation of GL practices.
- To explore the impact of Green Human Resource Management (GHRM) in the implementation of GL practices in retail supply chains.
- To identify future opportunities for GL in retail supply chains.

1.4 RESEARCH METHODOLOGY

This section briefly illustrates the research methodology adopted by the researcher.

1.4.1 Introduction

Research has been defined in different ways, but all the definitions pertain to one common aspect, which is investigating or inquiring about something in a

methodological manner (Merriam & Tisdell, 2015:3). There are mainly three types of research used to carry out an investigation, namely descriptive, explanatory, and predictive research (Adams, Khan & Raeside, 2014:2). Significantly, there is no method that is specifically meant to investigate a particular research problem and researchers can use different methods to explore the same problem (Adams *et al*., 2013:2). As explained by Yin (2011:8), any method chosen depends on three questions: (1) the type of research question posed, (2) the extent of control the researcher has over actual behavioural events, and (3) the degree of contemporary as opposed to entirely historical events.

The main aim of this study was to explore GL practices in a prominent retail organisation in South Africa, by looking specifically into the GL practices being implemented, and the benefits, challenges and opportunities for implementing these green practices. To attain extensive knowledge, insights and develop a literature review on the current status of green logistics in the retail organisations, the researcher consulted accredited journals on research databases such as ScienceDirect, EBSCOhost, Sage Publications, Google Scholar, Elsevier, and Wiley Online accessed via the UNISA online library. The key words used were as follows: (1) green logistics, (2) sustainability in retail organisations, (3) green logistics practices, (4) green supply chain management, and (5) environmental sustainability. The researcher also consulted other sources, such as online reports, including government gazettes, logistics magazines such as Inbound Logistics, and publications by retail organisations such as Pick n Pay, the Shoprite Group, and Woolworths.

1.4.2 Research design

For the purpose of this study, a qualitative research approach was used to conduct the research. According to Merriam and Tisdell (2015:6), qualitative research aims to understand the reactions to and interpretations of people's experiences of a situation or phenomenon. The study was conducted through in-depth semi-structured interviews. In addition, the researcher chose to focus on a particular organisation in this research and it can therefore be regarded as a case study. Accordingly, a case study can be defined as a research method that is based on the observations and measurements of a phenomenon within its real-life context (Yin, 2011:16). In another

study, case study research was described as a “well-defined aspect of historical episodes that the investigator selects for analysis, rather than a historical event itself” (George & Bennett, 2005:18). In this regard, an interview guide was used as a research instrument.

1.4.3 Sampling population

The study population consisted of the senior, medium and front-line management of the retailer, which is one of the major retailing groups in South Africa. The preferred participants were the top and mid-level management and personnel directly involved in the formulation and implementation of GL initiatives. The researcher chose the specific retailing group to carry out the study because it is one of the largest retail organisations in South Africa and it specialises in both food and clothing retailing. The researcher believed that better information was to be obtained and insights gained as the retailer is already involved in environmental sustainability activities and is one of the retail pioneers to implement GL practices.

This study followed a non-probability sampling method, specifically using a purposive sampling technique. Purposive sampling is a technique where a researcher deliberately chooses certain participants because of the qualities they possess (Etikan, Musa & Alkassim, 2016). Purposive sampling is a sampling technique that is used in qualitative research to recruit participants who can provide in-depth and detailed information about the phenomenon under investigation. This technique does not use any underlying theories or a set number of participants (Etikan *et al*., 2016).

The main advantage of using purposive sampling is that it allows the researcher to identify participants who have knowledge or experience of the subject being investigated, giving an opportunity for rich information to be gained (Etikan *et al*., 2016), thus allowing the researcher to pay attention to participants who have the right qualities for and knowledge of a given subject. Each participant will share their unique experience towards the subject, thus allowing the researcher to gain valuable insights into the study from different angles (Etikan *et al*., 2016).

1.4.4 Data collection

It is important to use the correct data collection method to ensure that the research questions are answered, or that the research objectives are achieved. For this study, data collection was done by means of interview questions, specifically using open-ended questions. Zull (2016:1) describes open-ended questions as questions that require the respondents to formulate a response in their own words and express it verbally or in writing.

The interviews were done using Microsoft Teams (Warren & Karner, 2015:119) and mainly depended on interviewee schedule and availability. The interviews lasted a minimum of 45 minutes per session. The interview covered the following aspects:

- The GL practices being implemented.
- The challenges and obstacles being encountered.
- The strategies that can be explored.
- The benefits and costs associated with the implementation of GL practices.

1.4.5 Research questions

The research questions used were as follows:

- What is your understanding of green logistics?
- What areas are part of your green logistics drive?
- What green logistics practices do you implement in your part of the organisation?
- Is there a specific framework, programme, or process that you can follow to incorporate GL in your organisation?
- What challenges or obstacles does your organisation face in the implementation of green logistics?
- What benefits do you think can be accrued by implementing green logistics?
- How does your organisation create awareness of the importance of green logistics in the organisation?
- How does your organisation create awareness or require suppliers to consider/implement green logistics?
- Does your organisation use technology to assist in implementing and improving green logistics? If yes, what technologies do you use? To what extent have these technologies assisted in achieving or improving green logistics objectives?

- What techniques or activities could be recommended to consolidate green practices in the existing structures of your organisation?
- How and how often do you report on progress in green logistics and what is your experience and opinion about green logistics reporting (benefits, drawbacks, and importance)?

1.4.6 Data analysis

To ensure the validity and reliability of the data collected, a thematic analysis was used. According to Riger and Sigurvinsdottir (2016:33), "thematic analysis is a method for analysing qualitative data that involves searching for recurring ideas (referred to as themes) in a data set".

1.5 SHORT OVERVIEW OF KEY CONCEPTS

This section outlines the definitions of the key terms used in this study.

1.5.1 Green logistics

Green logistics (GL) is one part of the sustainability concepts that aim to eliminate or reduce the environmental externalities mainly related to greenhouse gas emissions, noise, and accidents with regard to logistics operations to develop a sustainable balance between economic, environmental and social objectives (Dekker, Bloemhof-Ruwaard & Mallidis, 2011:671).

1.5.2 Green supply chain management

Sundakarani *et al*. (2010) in Younis, Sundakarani and Vel (2016:217) explain that "green supply chain management can be defined as the integration of environmental thinking into supply chain management (SCM), including product design, supplier selection, and material sourcing, manufacturing processes, product packaging, delivery of the product to the consumers, and end-of-life management of the product after its use".

1.5.3 Sustainability development

Sustainable development is a concept that entails “meeting the needs of the present without compromising the ability of the future generations to meet their own needs” (Sauvé, Bernard & Sloan, 2016:49).

1.5.4 Environment

An environment is a precondition for the existence of all creatures, economic and other processes, and consists of living and non-living nature. Non-living nature includes water, minerals, and air, whilst living nature includes bacteria, plants, and animals (Ivanovic, 2019:16).

1.6 OUTLINE OF THIS STUDY

This study comprises seven chapters as described below.

Chapter 1: Introduction to the study

This chapter provided the introduction to the study and included the background of the study, followed by the problem statement and research objectives. A brief overview of the research methodology and a short overview of the key concepts were given.

Chapter 2: The sustainability

In this chapter a closer look into sustainability was outlined. A detailed discussion of the key areas and concepts, such as sustainability development, and the dimensions of sustainability were given.

Chapter 3: An overview of the retail supply chain

In this chapter, a literature review on the retail supply chain in general, and in South Africa in particular, was given. Included in this chapter was an in-depth look into the retail organisation on which the researcher was focusing, including its marketing positioning, history, vision, mission statements, operations and logistics processes.

Chapter 4: Green Logistics and Green Supply Chain Management

In this chapter, a literature review on GL was given. The chapter began with an introduction and a short overview of green supply chain management (GSCM) as a broader aspect of the green concept. The GSCM section was followed by an in-depth understanding of GL practices, including the definition, benefits, costs, challenges, and the importance of implementing GL.

Chapter 5: Research methodology

In this chapter, the research methodology was discussed. The research methodology started with an overview of the research approach, followed by the research method. Included in the research method was a discussion of the sampling population and sampling technique, the data collection method and research instrument, as well as the data analysis. This chapter concluded by addressing the ethical issues pertaining to and the limitations of this study.

Chapter 6: Analysis of the findings

In this chapter, the findings from the interviews were discussed and were based on the themes identified.

Chapter 7: Conclusions and recommendations

This chapter concluded with a summary of the findings. In addition, the chapter also provided an overview of how the research objectives were achieved. The chapter then concluded with some recommendations and future research opportunities.

1.7 CONCLUSION

This chapter provided an overview of the overall study. The introduction and background highlighted the problems facing the environment and how these problems are affecting both developed and developing nations. The researcher pointed out the need to adopt processes that minimise environmental damage and capitalise on practices that support green initiatives. This chapter also reflected on the pressure being faced by retail organisations and other supply chain participants to incorporate green practices into their processes. In addition, stakeholders that are putting pressure on organisations to implement green practices were outlined. In addition, the key concepts and definitions that are related to this study were given, together with a short

description of how they fit into the overall topic. Furthermore, the researcher highlighted the importance of green logistical activities in the supply chain and how these activities would positively impact on the environment.

The introduction was followed by the problem statement that was formulated and supported through an extensive literature review on studies that focused on the sustainability of retail supply chains and other related topics. In turn, the problem statement highlighted the problems and research gaps that still exist. In addition, the lack of consumer awareness of green products was observed in previous studies and the literature shows that consumers' demand for environmentally friendly products motivated the suppliers and services providers to produce green products. The research objectives were identified in line with the problem statement. To achieve the objectives, the research methodology was outlined, and the research processes were also explained. This chapter concluded by defining the key terms of the study.

CHAPTER 2: SUSTAINABILITY IN RETAIL SUPPLY CHAINS

2.1 INTRODUCTION

Sustainability as a term has become a topic of interest, importance, and discussion in major global forums, and in organisations around the globe (Govindan, Rajeev, Padhi & Pati, 2020:102; Saeed & Kersten, 2017:1; Wiese *et al*., 2015:294). The main objectives of these forum discussions are to educate organisations on the importance of sustainability in their organisational activities (Govindan *et al*., 2020:102) because sustainability is affecting both small and large organisations throughout the world (Singh & Trivedi, 2016:266). The implementation of sustainability in the economy begins with individual organisations, which will represent the formation of a sustainable supply chain (Hristov & Chirico, 2019:5743). Retail supply chains, among other organisations, have long realised the importance of sustainability and have listed it as one of the most important topics on their agendas (Soysal & Bloemhof-Ruwaard, 2017:9). Importantly, organisations have started implementing sustainability practices and this shows their commitment to protecting the environment (Hamdan & Alheet, 2021:1). The obligation or responsibility for organisations to cater for the environmental needs is referred to as corporate social responsibility (CSR) (Alvarez Jaramillo, Zartha Sossa & Orozco Mendoza, 2019:513). On the other hand, consumers have also responded to sustainability by paying attention to the social conditions and environmental quality of the products and services they are purchasing (Saeed & Kersten, 2017:1). The awareness of environmental protection by consumers has pushed organisations to move away from their conventional practices such as cutting trees, burning of fossil fuels and dumping of toxic waste in oceans and land (Hamdan & Alheet, 2021:1). According to Wijethilake and Upadhaya (2020:2297), this consumer awareness highlights the critical importance of sustainable organisation practices in this continuously changing environment.

Issues such as environmental contamination, global climate change, environmental justice challenges, and economic globalisation were identified as the main challenges facing the world (Garren & Brinkmann, 2018). According to The Sustainable Development Goals (2020), the global material footprint has increased from 73.2 billion metric tonnes to 85.9 billion metric tonnes between 2010 and 2017. This shows

the amount of pressure the world exerts on the environment to support our needs and economic growth. Emissions in developing countries are continuing to rise as compared to developed countries, mainly due to pressure on economic growth and industrialisation. Figure 2.1 illustrates the global footprint with regard to material and greenhouse gas emissions in developing countries compared to developed countries respectively. In Africa, the effects of climate change have been extremely challenging, as have been witnessed in natural disasters, such as the cyclone Idai in Mozambique, which also affected some parts of Zimbabwe, claiming many lives and leaving people homeless (United Nations Economic Commission for Africa (UNECA, 2021). In addition, South Africa also experienced floods in KwaZulu-Natal (2022), which destroyed properties, claimed human lives and left thousands of people jobless. Strategies are required to limit the world's reliance on raw materials and promote reducing, reusing and recycling, also known as the 3Rs (United Nations [UN], 2020) The alarming irresponsible exploitation of the environment has led to the concept of sustainability gaining popularity and acceptance by organisations around the globe (Agarwal, Giraud-Carrier & Li, 2018:342; UN, 2020). Organisations have realised that the global economic conditions of today require them to implement sustainability management (Nguyen, Phan & Matsui, 2018). Energy supply, water supply and transport sectors pose the main sustainability challenges and limiting the consumption of these resources and damage to the environment remain a challenge to society (Sharma, Chandna & Bhardwaj, 2017:1194).

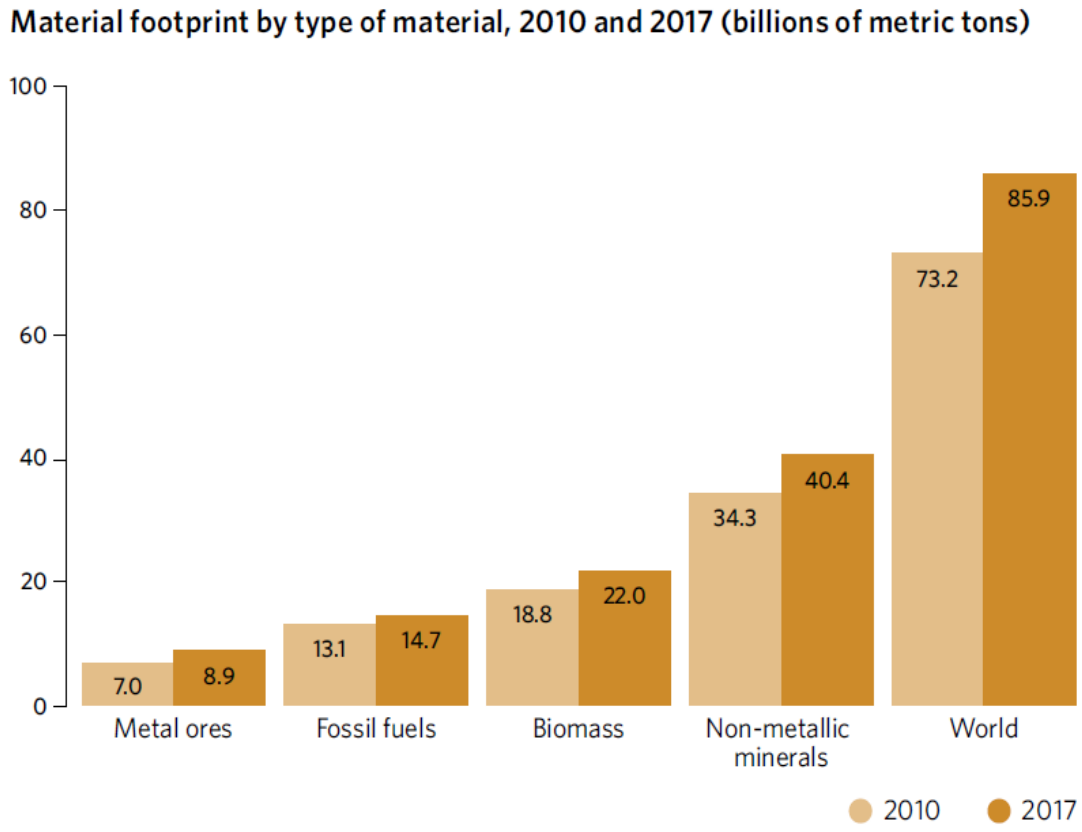

Figure 2.1: Material footprint by type of material

Source: UN, 2020

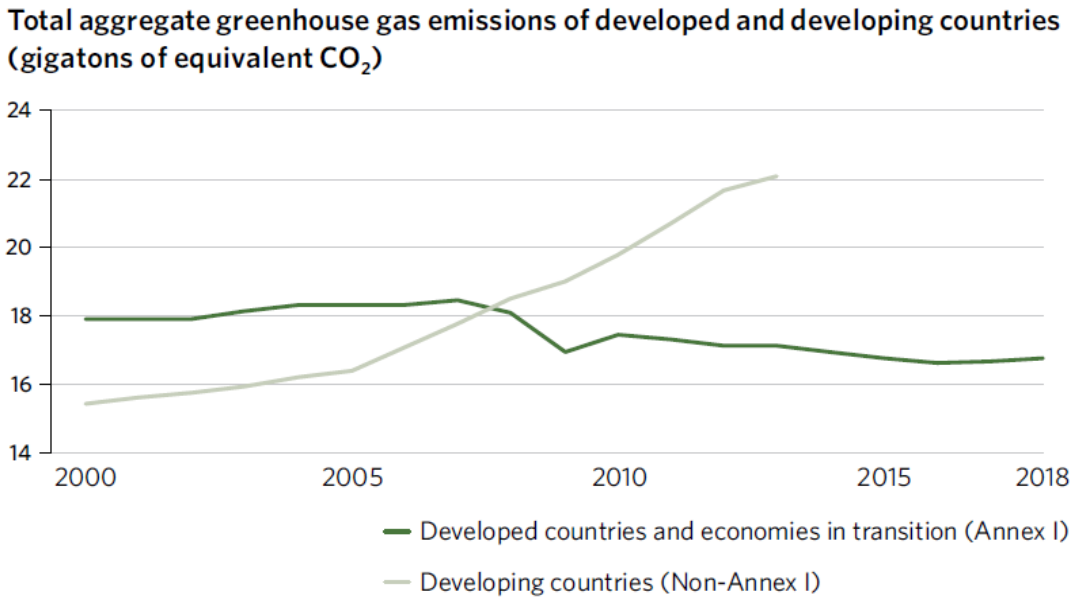

Figure 2.2: Illustration of greenhouse gas emissions between developed and developing countries

Source: UN, 2020

Previous research has shown that sustainability considerations in business management practices can have an impact on the profitability and economic success of an organisation, directly or indirectly (Schaltegger & Synnestvedt, 2002:340; Youn *et al*., 2017:387). Sustainability itself is regarded as a long-term objective rather than a short-term objective (Kushwaha & Sharma, 2016:117). Hence, organisations should rather see sustainability as an investment that will generate benefits for the business in the future. Ghosh (2019:462) points out that profit maximisation is no longer the main objective for organisations to continue operating, but they are rather concerned with the social, environmental, and economic impacts of their businesses.

2.2 DEFINING SUSTAINABILITY

Sustainability can be defined as the ability to meet the needs of today without compromising the needs of the future (University of Alberta, n.d.). Heinberg and Lerch (2010:13) state that a society that does not cater for sustainability is bound not to live long. Sustainability comprises three elements, namely economy, society and the environment (Mardani *et al*., 2020:124) refer to it as the triple bottom line with three objectives: profit (economic sustainability), people (social sustainability), and planet (environmental sustainability) (Bhavsar, Diallo & Ülkü, 2021:126; Nguyen *et al.*, 2018:375). Sustainability can only be achieved if the above-mentioned elements are integrated, harmonised, and balanced effectively rather than being treated individually (Gulmez & Rad, 2017:604; Nguyen *et al*., 2018:375). Tang *et al*. (2016:394) point out that the continuous demand for environmentally friendly operations has led to the full integration of the three sustainability dimensions.

Although sustainability has three dimensions, as indicated above, this study will mainly focus on the environmental issues, and particularly on logistics and the environment.

2.3 DRIVERS AND ENABLERS OF SUSTAINABILITY

The implementation of sustainability measures by organisations has been due to pressure from the stakeholders concerned about the environment. Drivers are those elements that put pressure on organisations to implement GL, whilst enablers are factors that assist organisations with the implementation of GL practices (Girisaballa & Bhattacharya, 2016). According to Girisaballa and Bhattacharya (2016),

organisations in different sectors require different sustainability enablers, meaning that some organisations require more environmental enablers, whilst other organisations need more economic enablers. The existence of these drivers and enablers increases the chance of achieving sustainability (Girisaballa & Bhattacharya, 2016). In this regard, Wijethilake and Upadhaya (2020:2297) have identified competitors, consumers, shareholders, and consumers as the market drivers of sustainability.

2.4 BARRIERS TO SUSTAINABILITY

Barriers to sustainability can be defined as factors that hinder the effective and efficient implementation of processes that promote environmental protection (Laurett & Paço, 2019). To minimise these barriers, a proper understanding of how they are interrelated and the formulation of solutions that fit all is essential (Maher, Maher, McAlpine, Mann & Seabrook, 2018:1360). The process involved in achieving a more progressive sustainable future has been slow (Maher *et al*., 2018:1357). Álvarez-Jaramillo *et al.* (2019:522) reviewed a number of published journals on the barriers to sustainability and identified barriers that are common across the publications. According to the authors, a lack of resources appeared the most, followed by high capital costs required to implement sustainability measures and a lack of knowledge and expertise on the topic. Maher *et al*. (2018:1358) point out that the way sustainability is understood and communicated is interrelated and the inability to communicate effectively hampers the efficient implementation of sustainability measures that promote environmental protection.

2.5 THE TRIPLE BOTTOM LINE [TBL] (SUSTAINABILITY DIMENSIONS)

As previously indicated, sustainability has three dimensions, also known as the three pillars of sustainability, which include social, economic, and environmental issues (Garren & Brinkmann, 2018; Rajeev, Pati, Padhi & Govindan, 2017:300). The concept of the triple bottom line (TBL) was initiated to maintain a balance among the three dimensions (Pattnaik & Pattnaik, 2019:198). A study by Pattnaik and Pattnaik (2019:207) confirmed that the three pillars of sustainability are concepts that cannot operate in isolation. However, integrating these three dimensions is a complex process and remains a challenge to organisations (Pattnaik & Pattnaik, 2019:198). Achieving

a balance is critical if organisations want to achieve sustainability (Girisaballa & Bhattacharya, 2016).

2.5.1 Social sustainability

Initially, the social sustainability dimension was regarded as a non-profit generating responsibility within organisations' functions (Girisiballa & Bhattacharya, 2016). However, the continued effects of climate change and other environmental concerns have posed a threat to the social well-being of workers and the community at large (Bhavsar *et al*., 2021:126). The demand to include social sustainability in operations and supply chain management has increased significantly in the past decade (Bhavsar *et al*., 2021:126). Organisations are implementing social sustainability strategies in their processes and regard them as factors that enhance organisation success (Dixon-Fowler, O'Leary-Kelly, Johnson & Waite, 2020:104). CSR emerged as a solution to achieving social sustainability by providing or setting guidelines and policies for organisations (Girisaballa & Bhattacharya, 2016). According to Pattnaik and Pattnaik (2019:206), organisations can be socially responsible through the adoption of eco-designed or eco-friendly production processes that produce less harmful or non-hazardous materials that could compromise employees' health.

Social sustainability represents the capacity of organisations to provide and cater for citizens' welfare through equal distribution of products and services among different groups of people (Hristov & Chirico, 2019:5748). Social sustainability practices cater for issues such as working environment for employees, child exploitation and fair trade of products (Wiese *et al*., 2015:296; Mardani *et al*., 2020:129), employee and community support (Tofighi & Bodur, 2015:302), ethics and human rights (Govindan *et al*., 2020:103), and medical care and employee development (Lavorata & Sparks, 2018). According to Nguyen *et al*. (2018), practising an internal policy that supports employee training and development enhances the achievement of social sustainability. This in turn increases the morale and loyalty (regarded as soft aspects) of employees that have a positive impact on the operational performance of an organisation (Pattnaik & Pattnaik, 2019:207).

South African retailers, such as Pick n Pay, are being socially responsible by supporting charity organisations with food, and at the same time are achieving environmental protection through the reduction of the amount of waste food that could have gone to landfills (Pick n Pay, 2021). Similarly, retailers in developed countries are supporting the communities through the collection and distribution of food parcels (Lavorata & Sparks, 2018).

Bhavsar *et al*. (2021:125) state that social sustainability enables the society to have the strength to be able to achieve good social well-being continuously and persistently. However, to be able to harness continuous strength within the society, organisations in society are required to develop and operate a supply chain around a social business framework that promotes both profit and the alleviation of poverty (Bhavsar *et al*., 2021:128). For example, a study by Singjai *et al.* (2018:139) suggests that organisations can attend to their employees' social well-being by choosing to use more eco-friendly cleaning products, instead of chemically based cleaning products, and at the same time minimising the environmental damage. Similarly, a study by Zaid, Jaaron and Bon (2018:967) advises that human resources must invest in protective clothing and accessories that protect employees from contacting or inhaling dangerous gas emissions that are detrimental to their health and safety.

Furthermore, Tofighi and Bodur (2015:302) point out that it is important for retailers to understand components that offer success in social responsibility initiatives and their role in achieving competitive advantage. For example, the Shoprite Group is committed to sustainability in the community through its efforts to keep essential goods affordable for customers (Shoprite Holding – Sustainability report 2020). Similarly, Bhavsar *et al*. (2021:130) point out that it is a basic human right to be able to access the necessities. However, achieving social sustainability goals has been affected heavily for the past two years due to the COVID-19 pandemic (UNDP, 2021).

2.5.2 Economic sustainability

Economic sustainability relates to the efficient and responsible use of resources by organisations consistently making economical gains (Bhavsar *et al*., 2021:125; RMIT University, 2017). The economic dimension of sustainability seeks to increase

economic growth, a return on investments and organisations' revenue through the efficient use of resources (Girisaballa & Bhattacharya, 2016). Economic sustainability is aimed at improving the standard of living and keeping society's capital intact (RMIT University, 2017). Economic sustainability is also viewed as a form of improved consumer satisfaction, improved productivity, increased financial performance and good stakeholder relationship management (Kumar, 2015).

The issues of sustainability and social disparity have a considerable impact on organisations' economic sustainability in both emerging and developed countries (Rajeev *et al*., 2017:301). Some organisations still believe that managing the impact of economic activities on the environment decreases their earnings (Zhang & Ma, 2021:126). To keep their earnings high, most organisations prioritise economic sustainability at the expense of environmental sustainability (Nguyen *et al*., 2018:375). However, the awareness of sustainability development has allowed organisations to maintain a balance among the economic, environmental, and social aspects (Nguyen *et al*., 2018:375).

2.5.3 Environmental sustainability

The environment is the core element of sustainability and entails the need to protect and preserve the use of natural resources during the production and consumption process (Hristov & Chirico, 2019:148). The environment is increasingly being affected by the rapid growth in the use of primary energy, fertilisers, water, and increasing population and transportation (Ögmundarson, Herrgård, Forster, Hauschild & Fanteke, 2020). These socio-economic aspects are expanding the effects of global warming, ocean contamination and their impact on ecosystems and humans (Ögmundarson *et al*., 2020).

A study by Bhavsar *et al*. (2021:125) point out that environmental sustainability entails the need to consume natural resources at a rate that allows their replenishment. Environmental sustainability is focused on improving human welfare by preserving natural capital such as minerals, water, and land (RMIT University, 2017). Environmental sustainability attempts to find perspicacious ways of using the natural resources and protecting the physical environment to ensure that the most favourable

conditions for all existing lives are met (Agyekum, Botchway, Adinyira & Opoku, 2021). Green practices are designed and executed to achieve environmental sustainability goals, such as the reduction of waste and pollution elimination (Fang & Zhang, 2018:1066). The main contributor to greenhouse gas emissions is the world's dependence on fossil fuels, which is the main driver of global warming (Ögmundarson *et al*., 2020). A study by Rossi, Pozzi, Pirovano, Cigolini and Pero (2020:3) has found three determinants of environmental sustainability, which are the point of production, the point of consumption and the mode of transport used.

To achieve environmental sustainability, investments in the production of bio-based products are essential to fight global warming and fossil fuel resource depletion (Ögmundarson *et al.*, 2020). However, the use of bio-based chemical products comes with its own challenges to the environment, and to minimise these challenges, it is important to identify and analyse the environmental performance of each bio-based chemical production system (Ögmundarson *et al.*, 2020). There is also a need for environmental regulations and management, and continuous measurement of environmental performance. Environmental management includes the development of policies and guidelines, the application process of environmental assessment tools, the establishment of environmental performance objectives, and training employees regarding environmental protection (Zhang & Ma, 2021:127). Improvements in environmental management have a positive effect on social sustainability aspects (Govindan *et al*., 2020:113). The environmental performance of an organisation relates to its ability to minimise the number of emissions and waste and decrease the purchase of hazardous materials (Micheli, Cagno, Mustillo & Trianni, 2020:123). Epoh and Mafini (2018:4) note that environmental performance is a measurement of the reduction of emissions and materials that cause environmental damage. According to Wang *et al*. (2018:23), environmental sustainability is being used as a non-tariff barrier to international trade through the restrictions of hazardous substances.

2.6 SUSTAINABLE DEVELOPMENT

Sustainable development is a concept that entails "meeting the needs of the present without compromising the ability of the future generations to meet their own needs" (Sauvé *et al.,* 2016:49). The National Environmental Management Act (NEMA) defines

sustainability development as “the integration of social, economic, and environmental factors into planning, implementation and decision- making so as to ensure that development serves present and future generations” (South African Government, 107 of 1998) According to Ivanovic (2019:11), the core effect of sustainable development is that it strives to promote the equal distribution of natural resources to all generations, minimise the emission of pollutants and greenhouse gases that cause global warming, and actively monitor any threats to environmental health.

In line with the above definitions, Pazirandeh and Jafari (2013:890) aver that development can only be sustainable if environmental and social development is pursued alongside economic development. Kushwaha and Sharma (2016:118) contend that sustainable development is an environmental and social issue that focuses on consuming differently and consuming efficiently. A study by Lai *et al*. (2010:14) indicates that sustainable development requires organisations to commit fully and consider long-term orientation aimed at reducing their environmental damage in conjunction with the objective of attaining growth and development in a sustainable way. Prior to sustainable development awareness, organisations used to prioritise financial benefits at the expense of environmental and social needs (Nguyen *et al.*, 2018). However, organisations have now realised that sustainability development allows them to maintain a balance among the three dimensions (Nguyen *et al*., 2018).

Singjai *et al.* (2018:133) explain that “sustainable development” is a concept relating to the organisation's long-term investment in and commitment to developing a sustainable market that minimises the environmental impacts and simultaneously maximises long-term organisational performance. A complete and clear understanding of sustainable development is a necessity to attain an efficient retail supply chain (Mardani *et al*., 2020:120).

Sustainability development, just as indicated in the discussion of sustainability in the previous section, contains three pillars, which are the economy, environment, and society (Bhavsar *et al.*, 2021:125; Ivanovic, 2019:11; Kushwaha & Sharma, 2016:118). Traditionally, sustainability focused mainly on environmental problems, but recently the focus has shifted to the TBL strategy, which includes social, economic and

environmental aspects (Singh & Trivedi, 2016). From an organisation's point of view, social and environmental dimensions were often disconnected from the economic dimensions, making it difficult to measure sustainability properly in organisations (Hristov & Chirico, 2019:5743). Integrating social, economic, and environmental performances to achieve sustainability development is still a challenge for both large and small organisations (Singh & Trivedi, 2016). According to Hristov and Chirico (2019:5742), the main challenge lies in the need to improve the social dimension through the eradication of extreme poverty around the globe. Reducing poverty in the world is regarded as a prerequisite for sustainable development. A study by Cheng (2020:394), which focused on a sustainability orientation, points out that new organisations that adopt a sustainable orientation are entering the green innovation circle to acquire adequate resources and adopt more efficient sustainability strategies that will lead to better green innovation performances. In sustainable development, supply chains and, specifically GSCM, play an important role (Mardani *et al*., 2020:120). GSCM is discussed in detail in the next chapter.

2.7 SUSTAINABILITY PERFORMANCE

Measuring the sustainability performance (SP) of an organisation has become an important aspect of setting goals and determining future directions for the organisation's sustainability endeavours (Saeed & Kersten, 2017). Choosing the right and appropriate set of SP indicators still remains a challenge to measure performance properly (Saeed & Kersten, 2017:3). There is therefore a need for standardised methods and the key performance indicator (KPI) was established to measure SP correctly (Saeed & Kertsten, 2017:2). According to Saeed and Kersten (2017:2), the lack of proper standardised methods to measure SP may lead to a lack of transparency and the presentation of conflicting information.

SP is measured in terms of environmental, economic, and social performance, but how can one quantify sustainability (Girisaballa & Bhattacharya, 2016)? According to Hristov and Chirico (2019:5744), the best way of measuring SP is to pay attention to the selection of appropriate SP indicators (SPIs) relating to each sustainability dimension. According to Saeed and Kersten (2017:3), SPIs are defined as criteria that are used to measure the performance of an organisation within the three elements of

sustainability. Having a well-defined set of SPIs helps organisations to evaluate and track their efforts towards sustainability projects and determine areas where improvement is required (Saeed & Kersten, 2017:4). In addition, SPIs allow organisations to communicate and provide transparent information about their SP. Among the important factors mentioned for having SPIs, they facilitate an easy decision-making process on operational, tactical and strategic levels (Saeed & Kersten, 2017:4). The key element is to have an appropriate set of KPIs relevant for each organisation (Hristov & Chirico, 2019:5743). The diagram below depicts a compilation of KPIs identified by different authors that can be used to measure SP.

Table 2.1: Sustainability Performance

Pillars	Key Performance Indicators	Goals
1. Environment	– Energy use and conversation (energy efficiency) – Water use and conservation (water management) – Air pollution (air quality)/ emissions – Environmental compliance and management – Waste management	– Reduce gas emissions – Improve renewable resources – Minimise the utilisation of natural resources – Reducing waste promotes the efforts to address the "green concept"
2. Social	– Quality of work conditions (Health and safety) – Respect for human rights – Employee satisfaction – Work against child labour – Community initiatives and developments – Social compliance – Consumer issues	– Improve and maintain high-quality working conditions – Guarantee respect for human rights – To participate in social development and initiatives such as charity donations, etc.
3. Economic	– Growth margin and revenue – Sustainability innovations – Cost consumption – Environmental protection – Environmental penalties	– Increase the return on investments and revenue – Embrace technology innovations and developments – Increase and maintain quality processes

Source: Agyekum *et al.*, 2021; Hristov & Chirico, 2019; Saeed & Kersten, 2017

2.8 CONCLUSION

This chapter provided an overview of the "sustainability" concept and began with an introduction to sustainability, its origins and how important it is for organisations to cater for sustainability goals in their operations. Factors causing a sustainability imbalance were outlined and measures that could be taken to maintain environmental sustainability were given. The introduction section was followed by a definition of sustainability and a detailed description of the TBL concept. Drivers of sustainability were provided, followed by barriers affecting environmental sustainability. The chapter

concludes with SP and its key indicators. The next chapter focuses on the retail industry, looking into the South African retail industry specifically.

CHAPTER 3: AN OVERVIEW OF THE RETAIL INDUSTRY

3.1 INTRODUCTION

Since this study of GL was conducted in the retail industry, this chapter discusses various aspects of the retail industry.

Retail supply chains play an important role in both the global economy and the global ecology (Helo & Ala-Harja, 2018). Retailers are regarded as some of the most important drivers contributing to changes in the consumption and production patterns of consumers and suppliers respectively (Lehner, 2015:386). In addition, the intermediary position that retailers hold in the supply chain gives them some power to influence sustainable production and consumption through their collective actions, and daily collaboration with suppliers and interactions with consumers (Naidoo & Gasparatos, 2018:127). Retailers' intention to adopt and implement green practices has put pressure on suppliers to consider sustainability in their operations (Bhatia & Gangwani, 2020:133).

Retail management is being faced with environmental sustainability requirements that are growing spontaneously (Tang *et al*., 2016:394). Lehner (2015:387) points out that retailers are in a difficult position where they are facing the challenge of satisfying the expectations of society and the government while wanting to maintain higher levels of internal performance, such as profitability and competitive advantage. Despite the challenges retailers are facing, Sitkin (2019) observes that most major retail chains responded to the demands of sustainability by offering green products. Naidoo and Gasparatos (2018:127) comment that the retail sector has resources, and they are economically in a better position to tackle the sustainability problems despite the challenges they face.

The adoption of green practices in the retail sector helps retail organisations to attract customers who are environmentally conscious and explore new markets, thereby increasing their market share (Adhikari, Biswas & Avittathur, 2019:1491). A positive reaction to environmental needs has been noticed in the retail industry and not only for gaining a good reputation and being compliant, but also for increasing business

efficiency (Huang *et al*., 2020:136). Organisations have shown an interest in protecting the environment through the adoption of green initiatives such as the implementation of ISO, environmentally friendly production and green purchasing (Adhikari *et al*., 2019:1491; Mangla, Govindan & Luthra, 2017:510). For example, Woolworths has positioned itself as a supporter of the green practices, whilst maintaining quality standards (Mkhize & Ellis, 2018).

Importantly, retailers are uniquely positioned within the supply chain to influence the reduction of negative impacts on the environment (Shewmake, Siegel & Hiatt, 2020:248). Wiese *et al*. (2015:294) aver that retailers can influence social and environmental sustainability in various ways, such as offering sustainable products and services, implementing more sustainable business processes, as well as influencing the behaviour of their suppliers and customers. From the consumer perspective, retailers are able to educate consumers on the impact of their buying behaviour and convey the consumers' desirability to purchase green products back to the supply chain (Shewmake *et al*., 2018:248).

Food retailers contribute to carbon emissions, particularly through transportation, hence the need to evaluate and improve transport solutions (Rossi *et al.*, 2020:2). According to the United Nations (2021), food retailers are accountable for at least 22% of greenhouse gas emissions. Hence, retailers are being challenged to increase their efforts in the assessment of policies and standards, especially relating to transport, because of the high negative impact on the environment (Bloemhof, Van der Vorst, Bastl & Allaoui, 2015:103). Sitkin (2019) states that retailers are greening their processes through the development of distinctive distribution channels. A study by Tang *et al*. (2018:397) has reported that retailers in Japan are actively involved in the sustainability initiatives, such as a green service called "My Basket", whereby consumers are given a full refund if they return the empty baskets after shopping.

Tang *et al*. (2016:396) point out that retail operations have two important green practices: store operations and transportation. The authors defined green store operations as the operations of systems or devices that enable the conservation of resources whilst reducing waste materials and promoting recycling at the same time.

“Green transportation involves the movement of goods with reduced materials and energy consumption and with increased efficiency” (Tang *et al*., 2016:396).

3.2 DEFINING RETAIL ORGANISATIONS AND GREEN RETAILING

“Retailing includes all the activities involved in selling products or services directly to the final consumer for their personal and non-business use” (Edelhart, 2010, in Mandal, 2020:1). Retail is defined as “the activity of selling goods to the public, usually in small amounts, for their own use, including the resale (sale without transformation) of new and used goods and products to the general public for household use” (Masojada, 2021:87). The retail store allows consumers to select different types of products from fresh produce, and cleaning products to gardening equipment (to mention but a few) from a wide range of manufacturers’ brands in one shopping trip (Masojada, 2021:89). The retail industry consists of different segments, which include wholesalers, food retailers, department stores and clothing retailers (Statistics South Africa [Stats SA], 2021). Retailers are regarded as sales agents for their suppliers as well as purchasing agents for consumers (Masojada, 2021:88).

Green retailing entails a retail management process that incorporates green practices in day-to-day operations with the objective of protecting the environment (Adhikari *et al*., 2019:1491). Green retailing refers to the application of strategies that minimise environmental waste in every organisational department using a management-led approach (Bennett, 2020). Bhasin (2021) describes green retailing as a present-time concept in which retail organisations are managed under the philosophy of utilising the advantages of environmentally friendly processes. Green retailing entails not only selling organic products, but also adopting green practices in the stores (Bhasin, 2021).

A further understanding of the green retailing management concept is shown below in Figure 3.1. As the diagram shows, the green retail process is classified into four categories which are green drivers, functional areas, industry practices and policy level initiatives. Green drivers are those factors that are exerting pressure on retail organisations to adopt green practices. Functional or operational areas are the areas which management has to focus on within the organisation to be able to achieve a

positive environmental impact. Industry practices relate to the processes that organisations adopt to enable the achievement of set goals. Policy level initiatives represent the set goals that organisations intend to achieve.

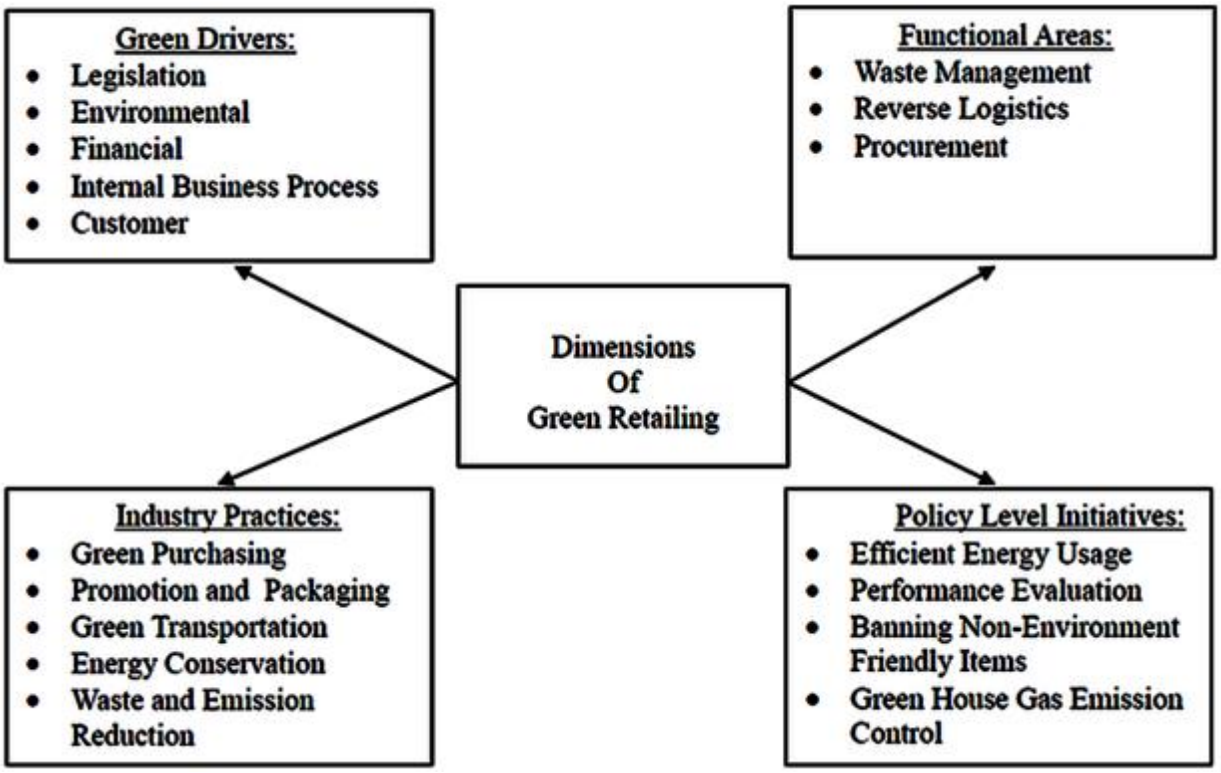

Figure 3.1: The green retailing management process

Source: Adhikari *et al.,* 2019

3.3 THE SOUTH AFRICAN RETAIL SECTOR

South Africa consists of over 60 million people with different cultures, from varying races and different income levels (Masojada, 2021:89). These differences have brought about different retail structures and set-ups, that is, from formal food retail stores such as Checkers, Pick n Pay and Woolworths, mostly serving the middle to upper-income group, to informal spaza shops selling goods in townships, mostly serving the lower income group (Masojada, 2021:89). Spaza shops also known as tuck shops are those informal convenience stores that are operated within individuals' home (Netwerk24, 2022). Despite South Africa being a developing country, its retail industry structure is more mature and developed than other developing countries (Malgas, Khatle & Mason, 2017).

The retail market had an estimated value of R900 billion in 2021, with the formal market holding 60% of the share and the informal market holding 40% of the share, as shown on figure 3.2 (Pick n Pay Report, 2021). Despite the differences in structure and set-ups, these retail groups across the country are serving consumers and are playing a big role in growing the South African economy (Masojada, 2021:89).

The South African retail industry is ranked number 20 in the world, and it is the largest in the African continent (African Business, 2020; Nazir, 2021). A report in the Labour Research Services (LRS) report (Teuteberg, 2021) reported that the retail sector is one of the largest employers in South Africa. A brief description of each retail sector follows.

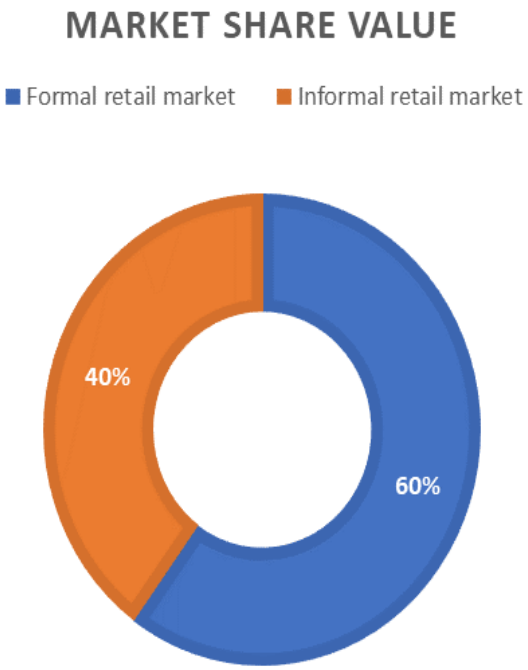

Figure 3.2: Formal vs Informal total market value share

Source: Pick n Pay Report, 2021

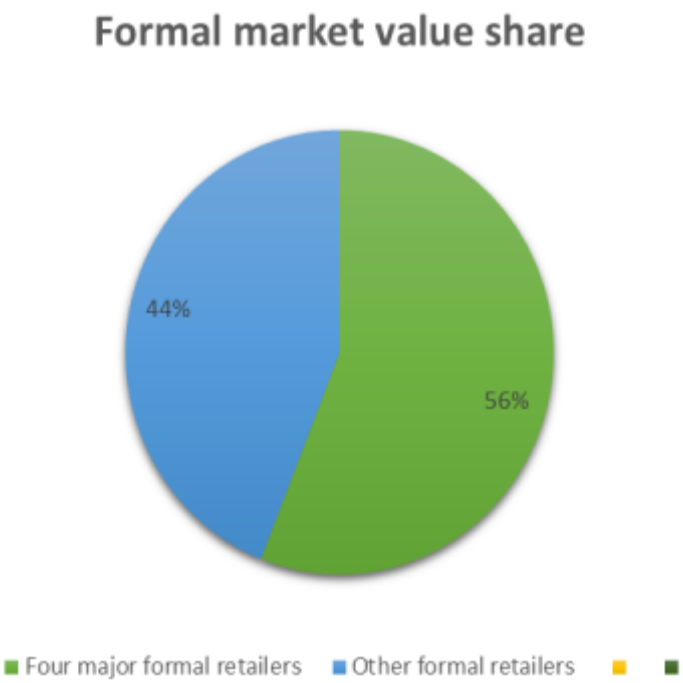

Figure 3.3: Formal market value share

Source: Pick n Pay Report, 2021

3.3.1 History of the South African retail sector

The retail industry has evolved rapidly over the years. Corporate stores such as Pick n Pay, before 1994, were only found in suburbs, servicing only the higher income group. Low-income group consumers were buying their groceries from spaza shops which mainly sold a limited range of necessity products. These spaza shops operated from individuals' homes or on roadsides. These types of stores are still operating to date, but they are more advanced in terms of physical space and variety of products being sold. Retail stores, such as Shoprite and Pick n Pay, only opened their first stores in townships between 1994 and 2008 and this caused the sales of spaza shops to drop significantly.

The continued growth in Gross Domestic Product (GDP) and rise of income of the majority of South African consumers after 2001 led Pick n Pay and other retailers to open more stores across the country. Retail competition became intense, and each retailer started looking for ways to differentiate its products and services from the competitors. For example, Shoprite introduced the Money Market, where consumers

are able to do transactions such as money transfers and accounts payment. Pick n Pay introduced the Smart Shopper card in 2011, giving the consumers the opportunity to earn points on their purchases (Pick n Pay, 2021). Introducing the Smart Shopper card was a way of thanking their consumers for choosing Pick n Pay stores as their shopping destinations (Pick n Pay, 2021). The Shoprite group also followed suit and introduced the Xtra savings card in October 2019, giving their consumers instant cash savings on products (Shoprite Holdings, 2020).

The retailers ventured into new store formats to increase value and shopping experiences for their consumers. Woolworths was one of the first retailers to open a convenient store at Engen garages in 2000, which was named Woolworths Foodstop. This was followed by Pick n Pay, which opened their first Express store in 2008 at BP garages. Online retail format has also gained popularity in South Africa, with the big retailers such as Checkers (Checkers Sixty60), Woolworths (Woolies Dash) and Pick n Pay (Asap!) adapting to the new format (Businesstech, 2022). Online retailing recorded its highest sales from 2020 with COVID-19 having rapidly accelerated the increase in online shopping (Businesstech, 2022).

The South African retail sector continued to transform, with some retailers such as Shoprite and Pick n Pay expanding their brands beyond the South African borders. Retailers increased their product portfolio by offering liquor, clothing, building materials and pharmaceutical products. In the same vein of creating value to their consumers, the South African retail sector adopted the concept of Black Friday in 2014, which gives consumers the opportunity to shop goods at highly discounted prices on the last Friday of November (Bureau of Market Research, 2021). This concept originated in the United State of America in 1952 and has gained popularity in South Africa.

3.3.2 Retail statistics

The South Africa retail market is competitive in both local and international brands (Nazir, 2021). The sector consists of small and big organisations that are dominant in the environment (Malgas *et al.*, 2017). These organisations include Shoprite Holdings, the Pick n Pay Group, Spar Group and Woolworths. The South African retail sector has been experiencing steady growth from year to year, with January 2020 recording

an increase of 1.2% growth (Nazir, 2021). However, in the later months of 2020 retail growth was disrupted with the COVID-19 pandemic which took the whole world by surprise. Figure 3.4 shows the retail trade results from 2013 to 2020, with the year 2020 showing a decrease in sales due to the pandemic. The diagram shows consistent increase in sales from 2013 to 2019, with sales dropping in 2020. The latest retail trade results for May 2022 show that the industry has regained its momentum and that sales are increasing despite the challenges that retailers are currently facing, such as inflation. According to the figures provided by Stats SA (2022), the retailers in clothing, textiles, leather goods, footwear and hardware had a negative increase on the total trade sales compared to the same period in 2021. General dealers recorded the highest contribution to the total retail trade sales. Figure 3.5 illustrates the results as of May 2022 compared to the same period in 2021.

The retail sector, like any other, has been hit by inflation which has increased from 5.7% in 2021 to 5.9% in 2022, being ascribed COVID-19 and the outbreak of the Russia-Ukraine war (Bizcommunity, 2022). The prices for necessity products. such as cooking oil, among other products, have increased significantly (NielsenIQ, 2022). The increase in cooking oil price was contributed by Indonesia’s decision to cut off exports of palm oil due to the shortages they have been facing domestically (Bizcommunity, 2022).

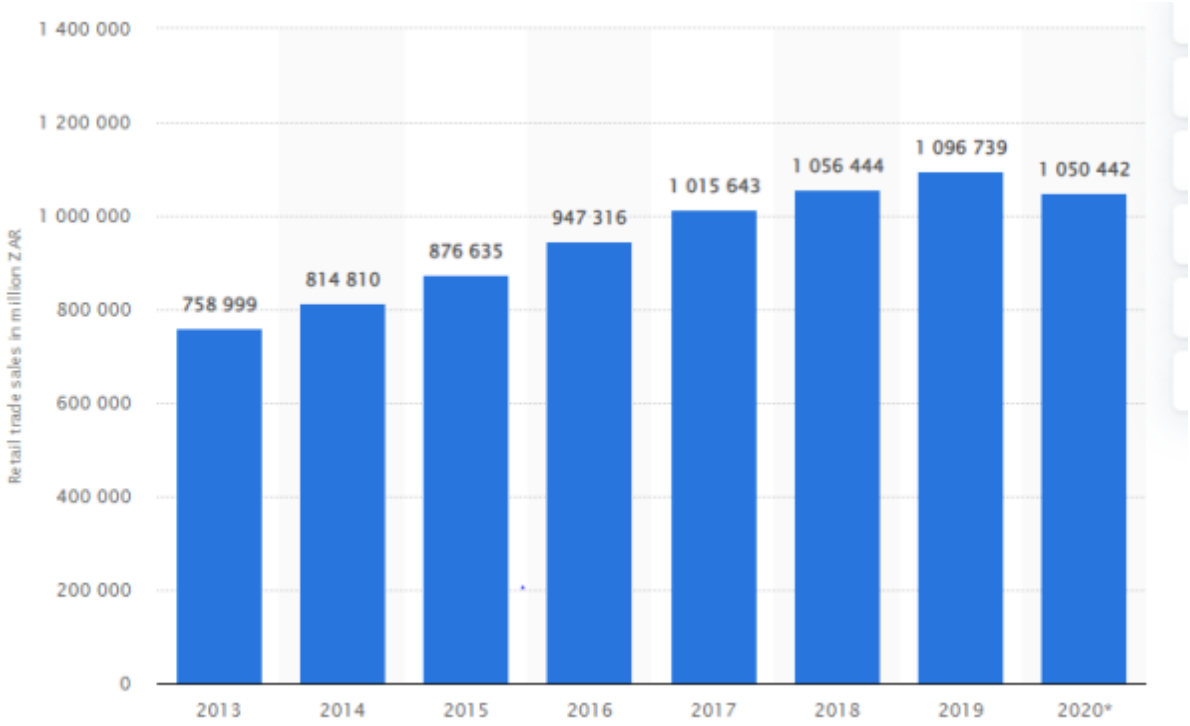

Figure 3.4: Retail trade sales in South Africa from 2013 to 2020

Source: Stats SA, 2021

Figure 3.5: A comparison of retail trade sales between Mar-May 2021 and Mar-May 2022

Source: Stats SA, 2022

3.3.3 The role of the retailing in the economy

The retail sector plays an important role in the economy. According to African Business (2020), retail organisations have managed to expand markets for local producers, introduced new retail technology in the country, built infrastructure, created jobs and training. The South African retail sector contributes significantly to GDP growth and employment creation (Malgas *et al*., 2017).

Mostaghel, Oghazi, Panda and Sohrabpour (2022:134) point out that the retail sector largely contributes to the adoption of new technologies and accelerates innovation. Retailers act as catalysts in eliminating poverty in the economy through providing educational funding, supplying food to the poor and creating employment (Themba, Makgosa, Phambuka-Nsimbi & Iyanda, 2014). For example, Shoprite provides students with scholarships every year and Pick n Pay supports the Mandela Day initiative, “making a difference in the communities” by donating groceries that will be distributed to the less fortunate population of South Africa.

Retailers provide consumer convenience by bringing goods to the doorstep and creating place, time and possession of utilities. Another role of retailers is that of providing accessibility of products to consumers. Goods and services are of no value if they cannot be accessed by consumers, hence retailers increase the value of products by making them accessible. Retailers also act as intermediaries in the distribution of information across the supply chain. Retailers play an important role in driving the green initiatives of protecting the environment and its surroundings. For example, Pick n Pay has been mobilising the cleaning of beaches across the country and the need to protect water inhabitants (Pick n Pay, 2021).

3.3.4 Retail trends

The current status and future for the retail sector is no longer a “one size fits all” scenario (Broll Property Intel, 2019). The retail industry has faced and is still undergoing mass changes (Tighe, 2022). Advancements in technology and digitalisation have and are still driving massive innovation in the retail sector (Mostaghel *et al.*, 2022:134). Hence retailers have changed their way of delivering

goods and services due to these technological advancements (Grewal, Motyka & Levy, 2018:86).

The major feature in the retail food industry for the past two years has been that of rapid increases in online food purchases and delivery (Businesswire, 2021). The purchase of goods on the internet is also known as internet-based retailing (Grewal *et al*., 2018:85). The rapid increase in innovation and technological advancement have forced retail organisations to change their traditional way of operating and it is the key success factor for survival (Broll Property Intel, 2019). Multi-channel retailing has developed rapidly since the penetration of the internet in the retail market (Bhasin, 2021). The introduction of multi-channelling presented many opportunities for retailers; however, many challenges also came along with this expansion (Grewal *et al*., 2018:87).

Online retailing has gained popularity across the world and continues to grow. South African recorded a 66% growth in online retailing in 2020; the boost was accelerated by the COVID-19 pandemic with the majority of people avoiding shopping malls (Thukwana, 2020; Mostaghel *et al*., 2022:134). The popularity of online retailing posed competitive threats to brick-and-mortar retailers through offering convenience shopping to consumers in the comfort of their homes (Gauri *et al.*, 2021:43). However, online retailers need to keep up with the trends and changes in consumer needs to maintain stability and remain competitive in the market (NielsenIQ, 2022). Despite the increase in online retailing, there has been an increase in in-store shopping after the relaxation of the COVID-19 regulations as consumers were itching to get out of their homes after such a long stay indoors (Shopify.com, 2021). This also put pressure on online retailers to remain competitive in the market (Shopify.com).

Retailers are also making use of social media platforms that are enhanced by technology to track and trace consumers' shopping habits and preferences (Malgas *et al*., 2017). These media platforms provide retailers with purchasing and location data, enabling the retailers to design personalised products and services, thereby creating value for consumers (Grewal *et al.*, 2018). According to Mostaghel *et al*. (2022:135), digital technologies have an impact on all dimensions of business models, which are

value capture, value creation and value delivery in a number of ways. Value creation relates to what organisations offer to their clients in terms of products and services (Parida, Sjödin & Reim, 2019). Value delivery relates to how digital technology can be implemented to deliver the promised value (Parida *et al*., 2019). Value capture stresses the organisation's revenue model and its financial viability, paying attention to cost structure and revenue streams (Parida *et al*., 2019). For example, value delivery is enhanced in the sense that the use of robotic-generated responses and online chat boxes allows retailers to respond to consumer queries and questions in a fast manner (Mostaghel *et al.*, 2022). Value creation is enhanced in the sense that the content retailers gather from all social platforms enables them to acquire more accurate information regarding consumers' buying behaviour and be in a position to make more informed decisions. Value capture is enhanced with the use of blockchain technologies that will continue to have a long-term impact on revenue models used in the retail industry.

Convenience store formats is another trend being embraced by the South African retailers such as Woolworths and Pick n Pay. This type of store format is usually located at convenient places such as garages and they operate for long hours. For example, Woolworths food outlets are located at Engen garages and Pick n Pay express stores are located at BP garages. It is because of the changing consumer lifestyles that brought about the convenience store format which is regarded as time-saving and safer shopping experiences (Malgas *et al*., 2017).

3.3.5 Formal and informal retailers

The retail industry consists of different retail set-ups and operations. The main distinguishing factor is whether a retailer is formal or informal.

3.3.5.1 Formal retailers

These are organisations operating within the official South African legal framework that are registered with the South African Revenue Service (SARS) authority (Masojada, 2021:90). Within this sector, different organisation structures can be identified, ranging from corporate to independent retail organisations (Masojada, 2021:90). Corporate retailers are listed on the JSE; examples include the Pick n Pay

Group and the Shoprite Group (Masojada, 2021:90). This research study was conducted in a formal, corporate retailer and the discussion in this and other chapters is mostly applicable to this type of retailer.

3.3.5.2 Informal retail organisations

Informal retail organisations comprise small and unregistered organisations that operate in the street or in-house, commonly known as tuck shops (Masojada, 2021:90). Organisations within this sector operate without licences or permits and they are not registered for Value-Added Tax (VAT).

3.3.6 Types of formal retail stores

Retailers are also classified according to their structures and how they strategize their business (Lumen, n.d.). For example, retail stores vary in size, assortment of merchandise, ownership, kinds of services offered and management structures. Table 3.1 below shows different classifications of retail stores.

Table 3.1: A classification of retail stores

Type of stores	Main characteristics
Department stores	– Offer a wide range of products in one store. For example, clothes, hardware and appliances. – Each product is displayed in a different section within the store.
Supermarkets	– Offer an extensive line of food and non-foods consumer products. Examples of non-foods are maintenance and cleaning products. – Self-service stores with central checkouts. – Offer a large assortment of products at low prices. – The size of the store varies from small to large supermarkets.
Discount stores	– Sell products at a discount. – They stock a wide variety of products. For example, sporting goods, clothing, toys and auto parts. – Focus on price `as their main selling strategy. – Merchandise assortment is limited to the high demand products. – Self-service and operate for long hours.

Specialty Stores	– Specialise in large volumes of a particular line of products. For example, bookstores, pet supplies, cell phone stores and women's lingerie stores. – Sell products at higher prices compared to other retailers. – Are usually small and have high costs because they operate on lower volumes.
Non-store retailing	– Include retailers that sell products through online forums, catalogues or e-mails. – Transactions are done online. – Slowly gained popularity in the South African retail industry. – Spend a huge budget on advertising in order to attract consumers, marketing plays a big role.

Source: Combined from Lumen, n.d.; Suttle, 2019.

3.3.7 The grocery retail sector

The South African grocery retail sector consists of many retail organisations, with five main players accounting for the majority of sales. As mentioned above, these players include Pick n Pay, Shoprite, Checkers, Woolworths, and Spar. Food Lovers Market is progressively becoming an important player in the market. Below is a short profile of the five main players.

3.3.7.1 Shoprite Holdings

Shoprite Holdings is made up of Checkers, Shoprite and USave.

Table 3.2: The extent and nature of Shoprite Holdings' operations

Turnover (Year-end December 2021)	R127.9 billion
Number of employees	149,000 employees
Ownership and store type	Shoprite owns a total of 2,943 stores. The group has the following store formats across South Africa, all brands combined: - Shoprite: 523 stores - Checkers: 230 stores - Checkers Hyper: 38 stores - Usave: 398 stores

	- LiquorShop: 537 stores - OK Furniture: 301 stores - House and Home: 39 stores - Medirite: 145 stores - K'net and others: 8 stores
International footprint	The Shoprite Group has - Uganda: 5 stores - DRC: 3 stores - Angola: 36 stores - Zambia: 51 stores - Malawi: 6 stores - Namibia: 95 stores - Botswana: 33 stores - Mozambique: 27 stores - Madagascar: 10 stores - Swaziland: 26 stores - Lesotho: 27 stores - Ghana: 7 stores
Product range	Food, pharmaceuticals, furniture, hospitality, financial, ticketing, digital commerce and cellular services
Brands	**Shoprite**: It is a supermarket serving the mass middle-income group and it offers a variety of services such as shopping for groceries, bill payments, government grant pay-outs agent and sale of medicine. Shoprite has the largest pool of employees (75,895) compared to the rest of the brands. **Usave**: This supermarket caters for the low-income consumers that are situated mostly in non-urban areas giving access to food and necessities to the communities. They are characterised by small-format stores. The supermarket employed 5,046 employees as of the 2021 integrated report. **Checkers and Checkers Hyper**: The supermarket serves the middle-upper income group that prioritises convenience, quality and fresh products. The group has been focusing on growing the brand. It has employed a total of 40,519 employees as of the 2021 financial report, ranking 2nd in the group. **LiquorShop**: The Liquorshop stores are usually located near the brands, serving the mass consumers for both Shoprite and Checkers. They offer a variety of both local and international alcoholic and non-alcoholics drinks at affordable prices.

	Medirite: It is the brand that is specialising in healthcare products, serving all income level groups. They are well known for meeting the needs of communities through selling medicines at affordable prices and located at easily accessible areas. The 2021 report showed that the brand has 730 employees across South Africa.
Sustainability Goals	- Investing in communities (2021 the group invested R274 million) - Donating surplus goods and food - Reducing carbon emissions - Reduce water usage by 5.1% - Increasing investment in energy efficient processes - Continue with recycling initiatives
Procurement strategy	Shoprite group procures their products from a wide range of suppliers from within and outside South Africa. The group has a dedicated team that engages with suppliers and make regular visits to identify challenges and opportunities facing suppliers.

Source: Shoprite Holdings Report 2021

3.3.7.2 Pick n Pay

Pick n Pay is one of the largest retailers in South Africa, operating through multiple formats under three brands, which are Pick n Pay, Boxer and TM supermarkets (Pick n Pay Report, 2021).

Table 3.3: The extent and nature of Pick n Pay Group's operations

Turnover (Year-end February 2021)	R93 billion
Number of employees	90,000 employees
Market share	16% (of the total formal market share); 10% (of the total formal and informal share)
Ownership and store type	Comprises 830 company owned stores and 761 franchise stores across South Africa in the following formats combined. - Hypermarkets: 21 - Supermarkets: 594 - Clothing: 255

	- Liquor: 506 - Pharmacy: 3 - Express stores: 174 - Market: 38
International footprint	There are 163 stores in six countries outside South Africa. - Botswana: 11 stores - Lesotho: 4 stores - Namibia: 36 stores - Swaziland: 27 stores - Zambia: 24 stores - Zimbabwe: 61 stores
Product range	Clothing, food and beverages goods, wine and liquor, health and beauty products, general household merchandise and a limited range of furniture
Brands	**Pick n Pay:** It is the core brand of the group serving as the retailer for all. It is the brand that has more in both company-owned and franchised stores. It serves the mass population of South Africans, from low income to higher income earners. **Boxer**: Boxer stores offer a limited range of products at discounted prices. It is one of the leading discount stores in South Africa. In 2021 the brand recorded industry-leading sales despite focusing on a limited range of goods boosting the sales volume for the group. The brand is located in South Africa and Eswatini (formerly Swaziland). **TM Supermarkets:** The Pick n Pay Group has invested a 49% share in the TM Supermarkets in Zimbabwe. The Group has 33 stores operating under the TM brand and 28 stores operating under the Pick n Pay brand. Despite the economic hardship in the country, TM has kept the shelves full and won a sustainable market growth share.
Sustainability Goals	The Pick n Pay Group is one of the pioneers of sustainability drive in the South African retail sector. The group launched People n Planet as a way of showing commitment towards environmental sustainability to their stakeholders and increasing positive impact.
Procurement strategy	Pick n Pay procures its goods and services from a range of 10,000 suppliers and service providers, mostly procuring from small to medium-sized suppliers that have been involved in the mentorship programme for enterprise development.

Source: Pick n Pay Report 2021

3.3.7.3 Spar Group

The Spar Group is a wholesale warehousing and distribution retail organisation listed on the Johannesburg Stock Exchange (JSE) specialising in food and drug products (Spar Report, 2021). The group operates in South Africa, Switzerland, Poland, and Ireland.

Table 3.4: The extent and nature of Spar Group's operations

Turnover (Year-end December 2021)	R127.9 billion
Number of employees	4,476 (Southern Africa); 3,251 (Ireland & Southwest England); 1,712 (Spar Switzerland); 842 (Poland); Total employees across the group: 10,281
Ownership and store type	In Southern Africa, the Spar Group has a total of 2,440 retail stores selling food, liquor, building materials and pharmaceuticals. The group operates a total of 227 retail stores in Poland, 386 retail stores in Switzerland, and 1,406 retail stores in Ireland and West England.
Product range	Fresh food, groceries, building materials, liquor, and pharmaceutical products.
Brands in Southern Africa	**Superspar**: A brand that offers competitive pricing and offers one-stop bulk buying. **Spar**: The stores are located around the neighbourhood for ease of access to the community. **Kwikspar**: Designed and located to offer everyday convenience. **Spar Express:** These stores are designed for forecourt convenience. **Tops**: This is the brand that specialises in selling alcoholic and non-alcoholic beverages. It offers all types and brands of liquors. **Savemor**: The stores are located in rural and peri-urban areas, giving access and convenience to these communities. **Build IT**: The brand specialises in home-building materials. **Pharmacy at Spar**: This brand specialises in pharmaceutical products.

Sustainability Goals	- Carbon neutral by 2050 - Reducing carbon and water footprints - Promote sustainable procurement - To halve food waste across all operations by 2020 - To ensure 100% packaging to be reusable, recyclable, and compostable by 2025 - Source all electricity from renewable sources
Procurement strategy	Procurement is done at distribution centres with few products sourced from local suppliers at store level. In 2017, Spar introduced a rural hub initiative for small farmers to help them grow and build their capacity so that they can compete with commercial farmers for market access.

Source: Spar Annual IR 2021

3.3.7.4 Woolworths Group

Woolworth is one of the leading retailers in South Africa, offering high-quality private labelled products (Woolworths Report, 2021). The group operates under three brands, which are Woolworths South Africa, and David Jones and Country Road Group operating in Australia.

Table 3.5: The extent and nature of Woolworths Group's operations

Turnover (Year-end June 2021)	R85.9 billion
Number of employees	44,708 employees across the group
Brands	The Group trades under three divisions **Woolworths SA**: This brand operates in South Africa and 12 other African countries. **David Jones**: This brand is based in Australia and New Zealand with a few brand collections being sold in Woolworths SA stores. **Country Road Group**: This brand is based in Australia, and it is regarded as one of the leading specialty retailers.
Product range	Woolworths offers selected high-quality homeware, fashion, food products and beauty. The group also caters for financial services through Woolworth financial services.
Sustainability Goals	- Working with suppliers and all stakeholders to create a net positive water impact by 2050 - At least halve and limit food loss by 2030

	- Using 100% energy from renewable sources by 2030 - Achieve zero carbon impact by 2030 - Using only reusable and recyclable packaging
Procurement strategy	The procurement structure is centralised, and it is done at the two distribution centres located in Cape Town and the second one between Johannesburg and Pretoria, both in South Africa.

Source: Woolworths Integrated Report 2021

3.4 ENVIRONMENTAL IMPACT OF RETAIL SUPPLY CHAINS' LOGISTICS ACTIVITIES

The logistics activities of retail supply chains are adding to the environmental damage, with transportation being the main contributor through the emission of gases such as carbon monoxide and sulphur dioxide (Sarkis & Dou, 2017:95). Many vehicles used for transporting goods use diesel as the main fuel and this type of fuel produces air pollutants such as nitrogen oxides, carbon monoxides and hydrocarbons which are bad for the environment (Sarkis & Dou, 2017:95). Logistics activities require the highly intensive use of energy and the high use of energy, such as fossil fuels, increases greenhouse gas emissions (Sarkis & Dou, 2017:97). Retailers can mitigate this negative effect through the use of green transport modes (Sarkis & Dou, 2017:98). In addition, warehousing and other distribution facilities need to be designed in such a way that they use less energy (Sarkis & Dou, 2017:98). Figure 3.6 illustrates how retailers can evaluate different green transport modes efficiently depending on the time demands, product type, financial requirements and transport tools accessibility (Sarkis & Dou, 2017:99).

The retail logistical activities undoubtedly have a negative environmental impact on the environment (Saada, 2020). Figure 3.6 shows that adopting green practices in the top three logistical activities in retail operations, namely green transportation, green inventory, and green facility can contribute to an alleviation of the impact on the environment. Adopting green transportation practices in retail operations benefits not only the environment in the form of reduced emissions, but also benefits retail organisations in the form of a reduction in operational costs through route optimisation and the selection of suitable transport modes (Saada, 2020). Managing the storage

facilities and inventory is crucial in retail operations because these activities require high energy consumption. Green inventory practices allow organisations to manage the inventory levels efficiently and eliminate the negative impact, such as waste of materials or goods due to excessive high inventory levels. Green inventory also allows organisations to design packaging materials that are less harmful to the environment. Green facility location practices help management to make efficient location decisions that reduce transport needs, hence minimising gas emissions and transport costs incurred.

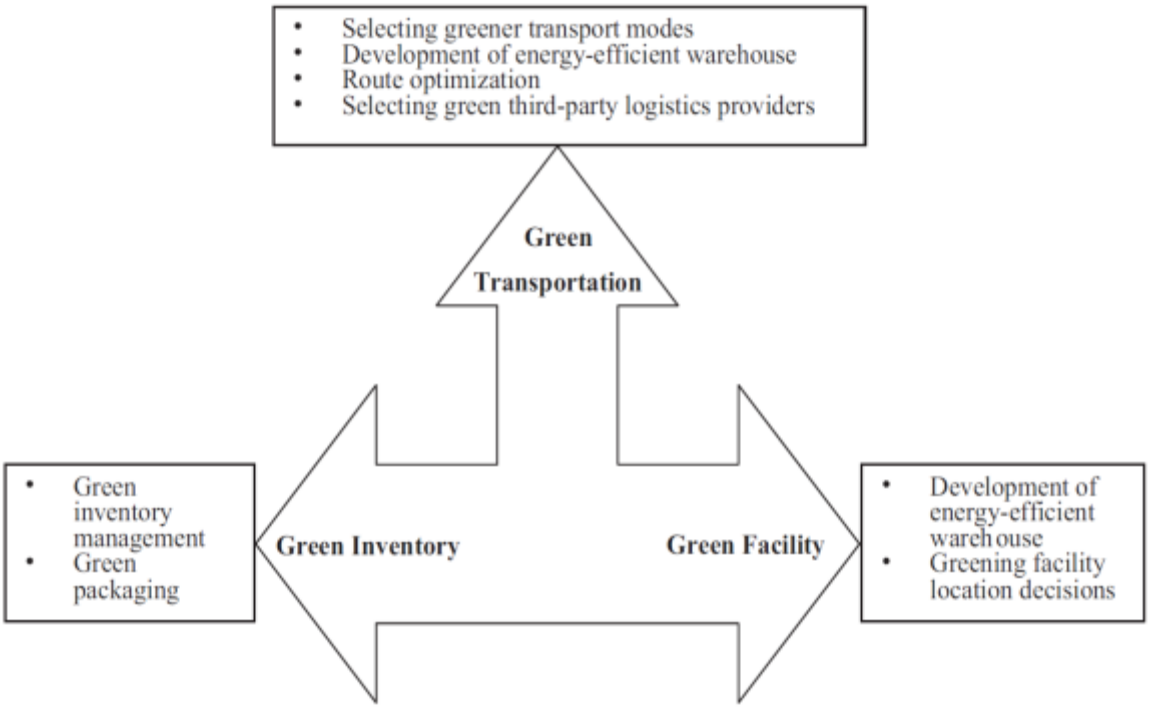

Figure 3.6: Green transportation and logistics practices

Source: Sarkis and Dou, 2017

As listed in Soysal and Bloemhof-Ruwaard (2017:5), the main environmental impact of logistics activities is air pollution, energy use, climate change, waste, and noise pollution. According to UN, food loss and waste along the food retail supply chain is another factor causing negative environmental impact; therefore, organisations are required to find ways to minimise these losses and waste at all the critical stages of the value chain (UN, 2020).

3.5 MOTIVATION TO IMPLEMENT GREEN LOGISTICS IN RETAIL SUPPLY CHAIN

Several reasons have motivated retail organisations to implement GL practices. According to the study by Naidoo and Gasparatos (2018:139), retailers are mainly motivated to adopt green practices because of (1) financial benefits through cost savings and increased profitability, (2) stakeholder pressure, and (3) environmental policies. Consumers' purchasing behaviour and their perceptions towards environmentally friendly products have the potential to drive organisations towards implementing green practices (Ehgartner, 2018:154). According to NielsenIQ (2022), consumers are increasingly expecting a lot more commitment from their retailers to make a positive impact on environmental sustainability and the community. Table 3.6 below indicates some of the motivators for implementing GL.

Table 3.6: Drivers to the adoption of GL in retail supply chain

MOTIVATOR/DRIVE	FACTORS CONTRIBUTING
1. Legislative/Environmental policy	Compelling firms to integrate environmental policies in their day-to-day operations. Contributes to sustainable development through: – Enhanced traceability – Emission reduction
2. Social attitudes/customer demands	– Increased awareness impacting on purchasing decisions and consumer choices – Health and safety of employees – Equal treatment and respect
3. Corporate commitment	Business leaders' awareness of the sustainability era
4. Brand value	Being socially and environmentally responsible influences consumer perceptions of and behaviour regarding a brand

5. Competitive advantage/ financial gains	Harnessing the benefits of being environmentally, socially, and economically responsible such as: – Avoiding fines and penalties – Better control over organisational activities – Reduction in waste – Increased operational efficiency – Increased profitability through improved financial performance

Source: Compiled from Adhikari *et al.*, 2019; Naidoo & Gasparatos, 2018; Soysal & Bloemhof-Ruwaard, 2017

3.6 POLICIES AND TECHNOLOGY TO SUPPORT GREEN PRACTICES IN RETAIL ORGANISATIONS

The retail environment is constantly changing, technology is advancing, and so too are consumers' demographics, spending patterns and lifestyles, and retail organisations are required to keep pace if they are to remain competitive (Mandal, 2020:1). To keep up with the changing shopping styles of consumers, most major retailers in South Africa have no choice but to offer both online and bricks-and-mortar retailing (Johnson & Iyamu, 2019; Masojada, 2021:87). The continuously improving technology, information technology (IT) systems and processes are smoothing the path of online retailing, hence we have witnessed the growth of Internet retail in South Africa (Masojada, 2021:87). For example, for the past number of years, Checkers and Pick n Pay ventured into online shopping applications ("apps") called Checkers *sixty60* and *bottles by* Pick n Pay. Instead of every consumer driving to do their shopping, the orders from different consumers are combined and delivered in one trip using one vehicle; this has a considerable and positive impact on gas emissions caused by vehicle movement. Cinar *et al*. (2017) argue that the rapid advancement of e-commerce has a positive impact on the logistics systems and its goals to achieve sustainability.

Traditionally, retailers stock-piled products to fulfil future customer demand which resulted in an increase in inventory costs (Tang *et al*., 2018:395). Using this kind of replenishing policy has been extremely costly to retail operations and the environment at large, through higher energy consumption and increased chances of product waste (Wild, 2017). With the new approaches retailers are now using technologies such as

electronic data interchange (EDI), which allows them to share information with suppliers (Tang *et al*., 2018:395). Improved communication with suppliers can lead to lower inventory levels. In addition, EDI can impact positively on the environment through fewer paperwork being printed and distributed to different suppliers, which will later be reduced to waste, thus reducing the number of trees being cut to produce printing paper.

The introduction of the just-in-time (JIT) concept in manufacturing and the quick response (QR) and efficient consumer response (ECR) in retailing have allowed organisations to order the correct quantities of inventory at a time, leaving a smaller or no space for extra inventories, which in turn not only reduced inventory holding or storage costs, but also helps to mitigate environmental damage caused by wasted inventory (Tang *et al*., 2018:395). Bai and Sarkis (2020:2142) mention that organisations, such as IBM, have experienced an improved sustainable supply chain performance since they started using blockchain technology in their operations. An organisation that possesses a quality information system can integrate its existing systems with other documents needed for green management (Singjai *et al*., 2018:134), including GL.

Rossi *et al*. (2020:2) support the development of technological solutions that are fundamental in the implementation of green practices, including GL in retail organisations. For example, Hart *et al.* (2020:123) have studied refrigerant leakage and its effect on carbon emissions. The study showed that refrigerant leakage contributes to at least 19% of the total carbon emissions. The authors suggest an innovative optimisation framework that can assist retailers to move to more sustainable refrigeration systems. In 2012, the European Union (EU) launched the Waste from Electrical and Electronic Equipment (WEEE), a regulation programme on the proper disposal and treatment of electronic waste materials (EU, n.d.). Retailers are being encouraged to become involved in recycling activities with extra help from the WEEE (Adhikari *et al*., 2019:1499).

3.7 GREEN LOGISTICS STRATEGIES IN THE RETAIL SECTOR

Retailers have a high rate of energy consumption and the use of paper, chemicals, and plastics in servicing their customers (Singjai *et al*., 2018:135). Implementing green strategies can help them to identify inefficiencies in their systems operations relating to environmental sustainability (Singjai *et al*., 2018:135). Bennett (2020) suggests that retail organisations can use strategies such as offering recycling or buying-back schemes for their product packaging and making use of fair-trade suppliers.

Blanco and Sheffi (2017) identify five main logistics variables that, when put together, can help to drive the logistics' impact on the environment. These include distance to be travelled by the product, load being conveyed, mode of transport being used, equipment being used to carry out the logistics operation, and the operational skills of the operator (Blanco & Sheffi, 2017:171). These variables can be used as initiatives towards designing the GL strategies that can help to mitigate the negative impacts of logistics activities (Blanco & Sheffi, 2017:171). The table below shows these variables and the respective strategies at different operational levels that can be implemented within a retail organisation.

Table 3.7: Green logistics strategies across the three decision-making levels

Strategy	Strategic	Tactical	Operational
Reduce distances	Incorporate environmental impacts in network design	Flexible territories/ services contracts that allow for increased density pickup/delivery networks	Advanced vehicle routing that includes congestion, fuel consumption modelling, and flexible time windows
	Source locally	Identify cross-industry partnerships to reduce empty miles	

Modal shift	Evaluate network design incorporating facilities alongside intermodal terminals Design networks to support flexible inventory and service levels to allow various network speeds	Collaborate with customers/ suppliers to adjust order quantities, inventory levels, lead times and service levels to allow multiple modes in lanes Develop multi-modal third-party logistics providers	Define a clear hierarchy of preferred modes by lane Develop multimodal experience by operating lanes across multiple modes
Cleaner equipment	Joint investment in cleaner technologies, including early trials to foster equipment innovation	Incentivize capital investments to regularly upgrade/ replace ageing equipment Pilot new technologies to obtain real operational environmental performance	Track equipment performance (fuel consumption, emissions, noise) Develop environmentally aware preventive maintenance plans
Load planning	Redesign product packaging to improve conveyance utilisation	Add environmental metrics to logistics planning reports Review green scenarios in loading planning	Track and report the environmental impact of every move Optimise conveyance load using analytical approaches

Operational excellence	Develop an environmentally aware logistics culture	Benchmark environmental operational performance Recognise top environmental performers regularly	Develop operational environmental dashboards (e.g. fuel consumption idling) Establish targets and incentives

Source: Blanco & Sheffi, 2017

Retail organisations can use both reactive and proactive environmental strategies to minimise the impact of their operations on the environment (Singjai *et al*., 2018:132). The authors point out that a reactive approach is a short-term solution designed and implemented to respond to regulations, whilst a proactive approach is a solution that organisations design voluntarily to reduce environmental pollution, minimise water and energy use. The idea is obviously that organisations take a proactive approach instead of a reactive approach (Bag, Anand & Pandey, 2017). Proactive approaches are vital so that organisations can learn and generate knowledge about the implementation of GL practices and be able to integrate with the organisation and stakeholders' requirements (Wijethilake & Upadhaya, 2020:2298).

3.7.1 Proactive environmental strategies

Organisations can combat environmental challenges internally through the development of organisation capabilities such as dynamic and operational capabilities (Yook, Choi & Suresh, 2018:332). Continuous improvement through quality management is one of the proactive strategies that organisations can use to achieve a sustainable environment (Singjai *et al*., 2018:134). Continuous improvement in GL focuses on eliminating all the waste that does not add value to logistics processes whilst using minimal resources (IndustryWeek, n.d.). Total quality management (TQM) is the continuous consolidation of an organisation’s functions and processes to achieve high-quality goods and services (Ross, 2017:1). The main goals for TQM are similar to the goals of GL practices (Nguyen *et al*., 2018:377). Firstly, TQM is associated with the zero defects goal or waste reduction (Nguyen *et al*., 2018:376).

Reducing the amount of waste will simultaneously lead to the reduction in pollution and resource consumption, which in turn improves the environment (Nguyen *et al*., 2018:376). Secondly, from a social dimension perspective, TQM recommends employee empowerment and training, consumer focus, relationships and supplier management (Nguyen *et al*., 2018:377). Thirdly, TQM focuses on improving quality, strengthening processes and reducing avoidable costs that tend to increase economic sustainability (Nguyen, *et al*., 2018:377). Organisations that comply with the process and product quality can use the knowledge acquired through quality management to deal with environmental problems and implement green practices successfully, which in turn result in cost savings (Singjai *et al*., 2018:134).

Retailers are encouraged to proactively develop their own products and processes that support environmental sustainability (Lavorata & Sparks, 2018). The use of plastic bags in the retail shops was quite high before the introduction of easily disposable bags. It is well known that plastics have a serious environmental impact worldwide and using them has become an undesirable practice (Gulseven & Mostert, 2017:94). In response to the reduction of plastics, retailers, for example, are using eco-friendly shopping bags that can be disposed of easily (Nadda, Dadwal & Rahimi, 2017:72). For example, retailers in South Africa, such as Food Lovers Market, have phased out the use of plastic bags in their stores completely and have introduced the use of bags that are eco-friendly and easily dissolve in nature. Woolworths introduced reusable bags. Another example of retailers' green initiatives is that of Pick n Pay and Milady's that introduced digital receipts whereby clients are given the option of having their shopping receipts e-mailed to them instead of receiving printed receipts, thereby sustaining the environment through less paper usage (IOL Business Report, 2020).

Retail organisations promote the implementation of GL through the management of internal operations, supply chain management and stakeholder engagement strategies (Naidoo & Gasparatos, 2018:129-132). In food retailing, for example, to promote sustainability and minimise waste of food, retailers have been engaging in activities such as prevention (reduce practices), reuse, recycling, recovery of energy and disposal (Huang *et al*., 2020:129). Reduce practices (prevention) include both internal and external strategies that are implemented in an attempt to minimise

environmental damage caused by food waste in the retail environment. Strategic internal measures are taken by retailers to reduce waste internally, whilst external measures involve both retailers and suppliers in mitigating the effect of food waste on the environment.

Retailers have been engaging in the initiation of third-party sustainability certifications such as GlobalGAP (Good Agricultural Practices) (Bhavsar *et al*., 2021:130). A GlobalGAP is a trademark and a set of standards for good agriculture practices, and it stipulates integrated requirements for global suppliers covering sustainability practices for all on farm agricultural products (Bhavsar *et al*., 2021:131). Retailers benefit from GlobalGAP through procuring high-quality products with a longer shelf life and guaranteed food safety (GlobalGAP, 2017). The availability of certifications simplifies the process organisations adopt to select or deselect sustainable products instead of engaging in collaborations that are expensive and risky (Chkanikova & Sroufe, 2021:124). European retailers have formulated a multi-stakeholder platform called The Retail Forum, whereby stakeholders share best practices on promoting the implementation of GL practices, identifying future opportunities, and identifying barriers that may deter the retail supply chains to achieve sustainability goals (EU, 2021).

Retailers, such as Pick n Pay and Checkers in South Africa, are using renewable resources such as solar or wind power, geothermal heating or cooling and efficient energy-saving electronics, including refrigerators, light bulbs, air conditioners and washing machines (Nadda *et al*., 2017:70). Similarly, a study by Lavorata and Sparks (2018) has confirmed that retailers in Poland are designing shops that are eco-friendly and are promoting lower electricity, energy, and water usage.

3.7.2 Reactive environmental strategies

Reactive environmental strategies are those strategies that are implemented to manage or counter the negative externalities already generated from an organisation's activities (Kaur, 2021). In an attempt to limit the amount of plastics being disposed of in the environment, some retailers are buying plastics back from consumers and reselling them to manufacturers for reuse (Ramaswani, 2020).

3.8 BARRIERS TO THE IMPLEMENTATION OF GREEN PRACTICES IN THE RETAIL SECTOR

Barriers can be defined as any factor (such as policies, laws or rules) that hinders the progress of an activity or stops something from happening (Shah *et al.*, 2021). Several factors have been noted in reducing the progress of implementing green practices in the retail sector. Firstly, consumers perceive products made of recycled materials as inferior in terms of quality and this consumer attitude towards these products does not present an optimistic picture to the retail organisations (Adhikari *et al*., 2019:1500). Secondly, some organisational stakeholders show less interest in implementing green practices within their operations due to the costs that come with the process (Adhikari *et al*., 2019:1500). Thirdly, looking at the smaller retailers' perspective, this group lacks sufficient resources and information to implement green practices in contrast with large retailers, thus interrupting the efficient and effective adoption of green practices across the whole supply chain (Adhikari *et al*., 2019:1500). Lastly, a lack of strict legal and regulatory measures can act as a barrier to the proper implementation of green practices, meaning strict legal action must be taken for any organisation causing environmental problems (Adhikari *et al*., 2019:1500).

A study by Mangla *et al*. (2017:510) found that organisations in developing countries, such as South Africa, lack effective ways of implementing cleaner technologies that help to limit pollution levels. In addition, these organisations lack proper measures to reduce the number of emissions caused by their operational activities (Mangla *et al*., 2017:510). Developing countries mostly do not have surplus finance that can be used to support innovation activities and adoption of the latest technologies. Financial implications cannot be underestimated as they include not only acquiring costs, but also the costs of hiring a skilled workforce, maintaining the green technology equipment and the construction of compatible infrastructure (Kaur, 2021).

Dixon-O'Mara and Ryan (2018:453) investigated the barriers to energy efficiency adoption in the retail sector. Their results showed a lack of finance availability and higher costs of equipment as the highest ranked barriers, and reluctance to replace

existing technology ranked lowest. A graphical presentation of their findings is shown in Figure 3.7 below.

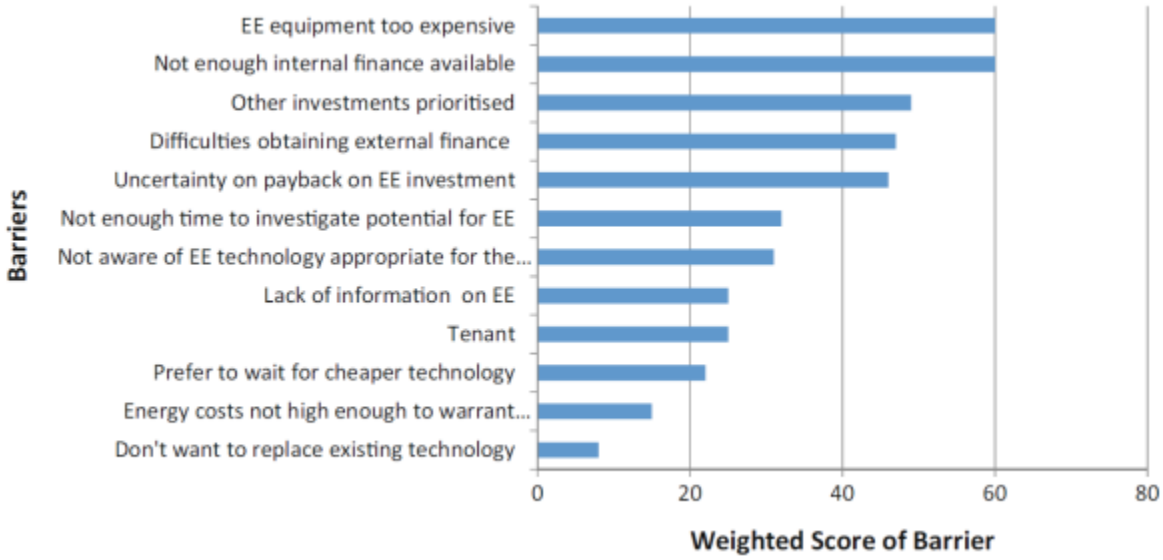

Figure 3.7: Barriers to investment in energy efficiency in the retail sector

Source: Dixon-O'Mara & Ryan, 2018

Organisations need to accurately recognise and analyse all the barriers related to the implementation of green practices associated with their organisations and develop a framework on how to tackle these hurdles (Mangla *et al*., 2017:510). Table 3.8 below indicates the main barriers associated with the implementation of green practices according to Mangla *et al*.'s (2017:516) research findings.

Table 3.8: Barriers to the implementation of GL practices

Main barrier	**Sub-barrier**
1. Organisational barrier	– Lack of appropriate methods, tools, techniques, indicators of cleaner production and consumption – Lack of financial support/resources/ financial constraints – Lack of technological advancement/ upgrades – Lack of skills, knowledge, and expertise
2. Strategic barriers	– Lack of a coordinated approach in communicating sustainable consumption and production – Lack of strategic actions by managers

	– Uncertainty about market demand – Lack of supply chain design flexibility
3. Governmental regulation and policies	– Lack of integrated systems to develop policies – Lack of directive and regulatory frameworks – Lack of community engagement and moral appeals
4. Behavioural barriers	– Lack of support from top/middle managers – Lack of positive customer behaviour and attitude – Lack of interest and unified efforts from stakeholders – Lack of interference and involvement of NGOs and local bodies
5. Supply chain-related barriers	– Lack of collaboration among supply chain participants – Communication and coordination problems in the supply chain – Lack of integration between supplier management and sustainable practices – Lack of customer awareness of green products or environmental protection
6. Green practice-related barriers	– Lack of understanding of the concept of GL – Lack of balance among the sustainability dimensions (economic, social and environmental dimensions) – Lack of sufficient attention given to the concept of GL

Source: Mangla *et al.*, 2017:520-523

3.9 CONCLUSION

This chapter aimed at providing a detailed discussion of the retail industry landscape from the sustainability point of view, also looking into the South African retail industry. Accordingly, an overview of both the formal and informal retail sectors was given. A brief description of retail and green retailing was outlined. Furthermore, the strategies being implemented by retail organisations were outlined, as well as the challenges facing retailers. Like any other organisation, retailers are also facing barriers that are hampering the efficient implementation of GL practices and these barriers were outlined in detail. Despite these challenges and barriers, it is evident that the retail sector is vital to the growth of the South African economy and the drive for environmental protection across the globe. By providing a detailed discussion of the

retail sector, it is clear that retail organisations play an important role in driving the implementation of GL practices and achievement of environmental sustainability as a whole.

CHAPTER 4: GREEN SUPPLY CHAIN MANAGEMENT AND GREEN LOGISTICS

4.1 GREEN SUPPLY CHAIN MANAGEMENT

This study focussed on GL in the retail sector. GL is an element of Green Supply Chain Management (GSCM). The purpose of this chapter is to provide an overview of GSCM as well as GL.

4.1.1 Defining GSCM

Tseng *et al.* (2019:146) state that the concept of GSCM is a broad topic that has no universal or clear definition to describe it. Furthermore, the authors point out that different researchers or authors provide different definitions and different terms, such as GL, green procurement and sustainable supply chain management, which all relate to environmental sustainability. According to Mardani *et al*. (2020:122), GSCM definitions may differ depending on the researcher's focus and objectives. GSCM has been introduced as a tool that organisations can use to manage environmental issues (Lamba & Thareja, 2021:15). In addition, GSCM can be regarded as a tool by means sustainability can be accomplished, leading to organisational competitiveness (Bag *et al.*, 2017).

Dubey, Gunasekaran and Papadopoulos (2017:187) define GSCM as "an organisational philosophy which integrates environmental dimensions with the traditional supply chain network, which includes procurement, logistics, manufacturing, distribution and disposal or reuse/recycling". Hsu, Tan, Zailani and Jayaraman (2013:658) explain that a GSCM takes into consideration the environmental impact caused by the production process and the process of the flow of goods through the supply chain. The main goal of GSCM is to ensure efficient environmental activities by reducing environmental damage and at the same time increasing production efficiency. As indicated in Mardani *et al*. (2020:125), GSCM is a guiding principle that can increase performance in conditions that are not favourable. Importantly, GSCM practices are categorised as internal and external practices, whereby internal GSCM practices are the reflection of the organisation's resolution to take measures to protect the environment, while external GSCM practices require

collaboration with the environmental supply chain stakeholders to protect the environment (Micheli *et al*., 2020:123).

Examples of the main activities of GSCM are green marketing, green transportation, green production, GL, green design, green management, reverse logistics, supplier and customer environmental collaboration and green purchasing (Luthra *et al.*, 2016:145; Mafini & Loury-Okoumba, 2018:9; Mardani *et al*., 2020:123; Sharma *et al.*, 2017:1195). As indicated previously, this study focused on GL.

4.1.2 Pressure to implement GSCM

Internal and external pressures have forced organisations to prioritise GSCM in their operations (Kushwaha & Sharma, 2016:118). GSCM has been regarded as a step towards the achievement of environmental sustainability (Sharma *et al.*, 2017:1195; Tseng *et al*., 2016:146). According to Sari (2017:338), the implementation of GSCM necessitates the re-arrangement of business operations, particularly purchasing, production and distribution (thus logistics) operations.

4.1.2.1 External pressures

The existence of external pressures plays a critical role and affects the achievement of GSCM goals (Girisaballa & Bhattacharya, 2016). Accordingly, organisations have acknowledged, understood, and accepted the existence of external factors and are working towards providing for such needs (Girisaballa & Bhattacharya, 2016).

In this regard, regulatory and market pressures were identified by Bag *et al.* (2017) as the key drivers of the adoption of GSCM. External stakeholders, such as the government and consumers, have been the main drivers for organisations to adopt green practices. Retailers are close to consumers and particularly feel the pressure from consumers (Jia, Zuluaga-Cardona, Bailey & Rueda, 2018:265). In addition to government regulations and customers or consumers, pressure is also felt from other external stakeholders, such as community and suppliers (Bag *et al*., 2017). An example of external pressure on packaging organisations in India is environmental regulations due to global warming, which forced the packing industry to implement GSCM (Wang *et al*., 2016:21).

Organisations are adopting GSCM because of industry competition that has become intense and threatening to survival (Wahab, Sayuti & Talib, 2018). This pressure has forced organisations to self-regulate and proactively implement green practices (Wahab *et al*., 2018). On the other hand, consumer awareness and preference for green products is also adding pressure on organisations to adopt green practices (Wahab *et al*., 2018).

Environmental incidents, such as global warming, affect organisations' image, leading to increasing pressure to mitigate the effect of negative incidents on the environment (Jia *et al*., 2018:265). On the other hand, Sari (2017:338) has revealed that some organisations are adopting GSCM practices to satisfy customer demands for sustainable products and services, whilst others implement GL practices to be compliant with the environmental regulations. Initially, GSCM practices were designed to achieve the goal of environmental performance; however, organisations came to realise that a single objective (focusing on green issues) cannot achieve sustainability (Dubey *et al.*, 2017:186). The implementation of GSCM requires the full integration and coordination of all organisational departments to ensure its successful operation (Tumpa *et al*., 2019:118). In addition, Kazancoglu, Kazancoglu and Sagnak (2018:1284) indicate that GSCM covers a wide range of inter-relationships among organisations in the supply chain that are designed to reduce the impact of materials flow on the environment and achieve more environmental information sharing.

4.1.2.2 Internal pressures

Internal pressure is driven by internal stakeholders which are the primary assets of an organisation (Wahab *et al*., 2018). Internal stakeholders are the individuals within an organisation responsible for sustaining the organisation’s operations (Wahab *et al*., 2018). Internal drivers in organisations can pertain to individual beliefs and values (Jia *et al.*, 2018:269). The authors observe that internal leadership is commonly identified as a driver of the adoption of GSCM practices. In turn, Yu, Chavez, Feng and Wiengarten (2014:686) point out that integrating environmental concerns into the supply chain has become increasingly important if an organisation wants to achieve a competitive advantage, as well as superior organisational performance. It was also

highlighted in Kushwaha and Sharma (2016:116) and Roehrich, Hoejmose and Overland (2017:490) that organisations are no longer just thinking about managing risks, such as boycotts, media's negativity, and the organisation's financial performance. They are also adopting green initiatives, such as GSCM, to ensure that environmental sustainability is achieved.

It has been noted that apart from reducing waste and other green efforts, GSCM also encourages organisational performance (Kushwaha & Sharma, 2016:117). Increased customer satisfaction, profit maximisation, reduction in manufacturing, logistics and overall business costs are among the benefits of GSCM mentioned in Kazancoglu *et al*. (2018:1285). The authors also point out that the implementation of GSCM is not an easy task, as there are barriers such as uncertainty, market competition and a lack of top management commitment. However, such challenges have not stopped organisations from investigating strategies and ideas that can help in minimising the negative impact of their activities on the environment and improve environmental sustainability (Girisaballa & Bhattacharya, 2016).

4.1.3 The scope of GSCM

GSCM emerged as an important topic that is being explored by both academia and in practice, being widely used by organisations to integrate environmental sustainability into the entire supply chain (Fang & Zhang, 2018:1064). This topic has obtained integrating significance for organisations to manage their operational practices with the environmental requirements (Saada, 2020). The scope of GSCM begins with the green purchasing of inputs, incorporating green design, and culminates in the sale of the final product (Adhikari *et al*., 2019:1491).

Jaggernath and Khan (2015:40) state that it is ideal for GSCM to be implemented from the origin of the supply chain, that is from the procurement of raw materials until after the life cycle of the product use and discarding by the final consumer, thus supply chain wide. Environmental, economic, logistics, organisational and marketing performance are identified as the main areas of concern that can be positively affected by the implementation of GSCM in Kazancoglu *et al*. (2018:1283), whilst Sari (2017:340) has identified inbound operations, production operations, outbound

operations and reverse logistics as the main criteria for measuring GSCM performance.

This study focused on GL as part of GSCM. In the next section attention is given to GL.

4.2 AN OVERVIEW OF THE NATURE OF GREEN LOGISTICS

In this section a definition of GL, elements of GL, benefits of GL, challenges of implementing GL practices and ways of improving GL practices are discussed.

4.2.1 Introduction

Logistics plays an important role in the supply chain. However, the way logistics activities operate creates problems for the environment and human health (Agyabeng-Mensah, Ahenkorah, Afum, Dacosta & Tian, 2020). Logistics activities, such as transportation and warehousing, consume a large amount of fossil fuels and energy which are regarded as the main causes of global warming and environmental pollution (Zhang, Zhang, Zhang, Zhou & Zhang, 2020). Therefore, there is a need to improve the logistics activities so that negative effects can be eliminated or minimised (Agyabeng-Mensah *et al*., 2020). The pressure mounts to purify the logistics activities (Wahab *et al.*, 2018:382), hence the concept of GL was introduced (Zhang *et al*., 2020).

GL is a focused view of the broader environment (green) dimension of sustainability, which was the focus of this study. Green logistics emerged as one of the solutions to minimise environmental damage and establish a balance between the three pillars of sustainability, which are economic, social and environmental sustainability (Wang *et al*., 2018:2249). Green logistics is the key element and prerequisite for achieving a sustainable economy (Seroka-Stolka & Ociepa-Kubicka, 2019:472). Understanding the implications and opportunities of implementing GL is beneficial for both the environment and the economy (Sarkis & Dou, 2017:111).

The need to improve environmental sustainability through greening logistical processes has been the centre of research by practitioners and academics (Soysal &

Bloemhof-Ruwaard, 2017:2). Research in and the practice of GL has experienced rapid growth for the past decade (Sarkis & Dou, 2017:92). Government sectors, practitioners, international organisations, and scholars have given increasing consideration and attention to the concept of GL (Ren *et al*., 2020:279).

4.2.2 Defining green logistics

"Green logistics is the development of traditional logistics, which emphasises the performance of logistics activities in an ecologically friendly way to realise the development of logistics and economy while conserving resources and protecting the environment (Zhang *et al*., 2020:137). Gong and Kong (2014:11) define GL as the practice of reducing environmental pollution and decreasing the consumption of resources, especially the natural resources in the logistics channel. GL refers to the process of systematically analysing, measuring, and mitigating the negative impact of logistical activities (Blanco & Sheffi, 2017:147). The authors state that the processes include less consumption of non-renewable resources, reduction in air emissions and waste. An article by Panacea Logistics Network (2020) defines GL as "a philosophy based on transforming logistics systems and processes through innovation to achieve a more environmentally friendly strategy".

The main goal of GL is to minimise the negative environmental effects caused by logistics operations or activities such as waste, noise and greenhouse gas emissions, whilst maintaining a balanced development of society, economy, and the environment (Seroka-Stolka & Ociepa-Kubicka, 2019:473; Wang *et al*., 2018:2237), thus enabling the achievement of sustainable development (Zhang *et al*., 2020). Sarkis and Dou (2017:91) mention that GL takes the needs of the environment into consideration and aims to limit the negative effects of traditional logistics activities across all stages.

GL can be viewed from two perspectives, which are the strategic and operational points of view (Fahimnia, 2015 in Sarkis & Dou, 2017:92). The strategic level involves decisions, such as the selection of green distribution channels, green service providers and green transport providers, whilst the operational level involves in-house day-to-day decisions that include the scheduling and selecting of optimal routings, as well as the efficient and effective management of the inventory (Sarkis & Dou, 2017:92).

Elements of GL include green purchasing, green manufacturing, green packaging, green distribution, green marketing, green warehousing, and recycling, also known as reverse logistics (Liu, Zhu & Seuring, 2017:182; Wang *et al*., 2018:2238). The parties involved in a GL channel include all the parties in the internal logistics processes, indicated above as the elements of GL, but also the external supply chain parties involved in the movement and storage of goods, such as customers, manufacturers, distribution centres and suppliers (Zhang *et al*., 2015:156). GL includes the logistics flows in forward and reverse directions (Zhang *et al*., 2015:156).

4.2.3 Elements of Green Logistics

As indicated above, GL includes the elements of green purchasing, green manufacturing, green packaging, green distribution, green marketing, green warehousing, and reverse logistics.

4.2.3.1 Green purchasing

Green purchasing encompasses all environmental concerns regarding the decisions made by supply management in conjunction with traditional purchasing elements, such as supplier location and product price (Yook *et al.*, 2018:326). According to Adhikari *et al*. (2019:1496), green purchasing or green procurement entails a cooperative relationship strategy between an organisation and its suppliers to implement green policies in the upstream supply chain activities. For example, Walmart is in partnership with its suppliers, such as Royal Phillips, to address the environmental problems (Adhikari *et al*., 2019:1497). Gulmez and Rad (2017:607) define green purchasing as the practice of purchasing goods and services that have fewer negative effects on the environment and human health. Unlike traditional purchasing, which focuses on the economic aspect of operations, green purchasing goals are aimed at minimising the negative effects of products from manufacturing to their final disposal (Sarkis & Dou, 2017:47). Green purchasing illustrates the significance of raw material suppliers and their adherence to green practices (Adhikari *et al*., 2019:1491). The idea is to procure resources that will impose minimal environmental damage through a reduction in pollution and waste (Adhikari *et al*., 2019:1491; Saada, 2020). However, a balance must be maintained between the

environmental and economic aspects of an organisation's operations (Sarkis & Dou, 2017:48).

Traditionally, purchasing had an objective of obtaining raw materials of high quality at the lowest price (Rodrigue, Slack & Comtois, 2017). However, organisations have realised the importance of green purchasing with the achievement of GL goals in mind, and they have started incorporating green purchasing strategies (Sarkis & Dou, 2017:47). Saada (2020) points out that it is important for the procurement department to ensure that all raw materials procured meet the environmental goals. Purchasing departments are considered as the critical point towards the achievement of GL (Rodrigue *et al*., 2017). According to Pattnaik and Pattnaik (2019), green or environmental purchasing improves the economic performance of organisations, among other things, through the use of recyclable or reusable materials. Using recyclable or reusable materials means that organisations cut the costs associated with the disposal of used materials, thereby adding to the financial benefits of green purchasing (Pattnaik & Pattnaik, 2019:207). An organisation's impact on the environment is as good as its purchasing department (Yook *et al*., 2018:326), hence the need for purchasing managers to revise their purchasing strategies and incorporate green purchasing to help their organisations to reap benefits, such as enhancing the organisation's image, minimising liability and disposal costs and protecting natural resources (Pattnaik & Pattnaik, 2019:206). It is advisable for organisations to encourage green purchasing within their internal team, as well as to encourage their suppliers to be environmentally responsible (Adhikari *et al*., 2019:1496).

4.2.3.2 Green marketing

"Green marketing" became noticeable during the late 1980s and early 1990s and since then it has been regarded as a strategy to facilitate green development (Garg & Sharma, 2017:180). Green marketing is a concept that incorporates the planning, development, and promotion of goods and services that satisfy consumer needs in terms of quality, accessibility, and prices without impacting negatively on the environment resources such as raw materials and energy (Shukla, 2019:183). According to Saada (2020), consumers have shown interest in organisations' products

that are practising green marketing. Three pillars for green marketing were identified in Papadas, Avlonitis and Carrigan (2017), and these are strategic, tactical, and internal green marketing. Strategic green marketing is the long-term organisation strategies, policies and actions, particularly focusing on corporate level, external relations, and the environment. Tactical green marketing is the short-term actions that focus on converting the regular marketing mix to a greener marketing mix. Internal green marketing is all about instilling the environmental values to all employees across the organisation to create a green culture.

Making use of green promotional activities increases consumers' awareness of green products (Adhakari *et al*., 2019:1497). According to Dangelico and Vocalelli (2017:1264), green marketing is important in creating a green market through increasing awareness and benefits of a sustainable environment to the consumers. Making use of green marketing strategies and practices can be an important factor that influences consumers' behavioural intentions (Chang, Hsu, Hsu & Chen, 2019:337). Green marketing encourages consumers to practise green consumption behaviour through purchasing environmentally sustainable products and services (Tsai *et al.*, 2020:102). Bennett (2020) points out that displaying influential signage in the stores helps retail organisations to inform their consumers about the environmental impact of their products. A study by Mahmoud (2018:133) concluded that the four aspects of a green marketing mix (the 4Ps - green product, green price, green place, and green promotion) have a positive impact on consumers' purchase intentions.

From the organisation's perspective, green marketing helps organisations to transform its sustainability efforts into a core part of their brand identity (Nicasio, 2022). It can also be used as a technique to gain competitive advantage through satisfying consumers' needs whilst achieving their set goals (Garg & Sharma, 2017:183). However, achieving this is not an easy task as marketing managers are faced with the challenges of choosing the best marketing mix and use of the 4Ps (Garg & Sharma, 2017:181). Green promotion plays an important role in increasing consumer awareness as it is responsible for providing accurate and genuine information on green products (Adhakari *et al*., 2019:1497; Mahmoud, 2018:129). Green promotion also communicates information on the environmental efforts and commitments by

organisations to maintain environmental protection (Mahmoud, 2018:129). Therefore, it is important for managers to pay attention to how marketing mix strategies are used and how they respond to the needs of and messages from consumers (Chang *et al*., 2019:343).

4.2.3.3 Green packaging

The increase in solid waste is affecting the environment negatively (Saada, 2020), which gave rise to the concept of green packaging. Green packaging is quite a new concept that has drawn the attention of academics, organisations, and governments in the past few years (Wandosell, Parra-Meroño, Alcayde & Baños, 2021). The implementation of the green packaging concept helps to eliminate the negative impacts of packaging on the environment (Saada, 2020).

Green packaging, also referred to as “ecological packaging”, is a type of packaging that considers environmental needs, human and animal life by using reusable and recyclable materials that are environmentally friendly throughout the lifecycle (Gulmez & Rad, 2017:609). The packaging itself comes in two forms, firstly one that is in direct contact with the product, and secondly, one that is used to protect the product during its delivery or transfer (Sarkis & Dou, 2017:108). Green packaging goals must include the three aspects of reuse, reduce, and recycle, also known as the 3Rs, while making use of lightweight and fewer materials (Sarkis & Dou, 2017:108). Retail organisations in South Africa, such as Pick n Pay, have reduced their plastic usage by 1,566 tonnes annually (Pick n Pay Annual Report, 2021). The need to reduce food waste in the retail industry is driving retailers to look for ways to invest in green packaging initiatives and to continuously improve it (Wandosell *et al*., 2021). Packaging is one of the logistical functions that require continuous improvement and innovation as its impacts are seen to still cause negative environmental impacts in the future (Rodrigue *et al*., 2017).

4.2.3.4 Green transportation

The movement of goods and materials across the value chain has negative effects on the environment (Gulmez & Rad, 2017:609). Among all logistical activities, transport is at the top of the list for contributing to gas emissions, health hazards and global warming (Saada, 2020). The demand for transportation has increased over the years

due to the continuous production and consumption of goods and services to meet the increased population demands, leading to extensive pollution and greenhouse gas emissions (Wang *et al*., 2018:2236). The need for service reliability has increased the utilisation of transport modes that are more polluting, whilst modes that are less polluting are regarded as inefficient and unreliable. For example, air and road transport modes are regarded as efficient whilst rail and shipping modes are regarded as less efficient (Rodrigue *et al*., 2017).

Transport managers are experiencing pressure to minimise greenhouse gas emissions produced by their vehicles (Blanco & Sheffi, 2017:147). The emissions being produced have been found to cause human health problems such as asthma attacks, heart attacks and cardiac arrhythmias (Shah *et al*., 2021). Apart from emissions being produced, the overwhelming transport needs today are making it difficult to plan and manage operations (Besbes, Dhouib, Wassan & Marrekchi, 2019). Green transportation emerged as a solution to mitigate these negative impacts being caused by transport activities and for the transport sector to present a more environmentally friendly picture (Rodrigue *et al.*, 2017). In other words, green transport is centred on meeting the mobility requirements for people and goods without causing damage to human health and the environment and producing less gas emissions into the air (Shah *et al*., 2021).

The transport industry consists of passenger and cargo or freight transport, the latter accounting for more than half of the emissions recorded daily (Klumpp, 2016:442). Promoting the use of clean energy and improving transport structures are ways of achieving green transportation (Lu, Xie, Chen, Zou & Tang, 2019). Organisations can adopt different methods and approaches, such as network design and route planning that can help to achieve green transportation (Gruchmann, 2019:668). Blanco and Sheffi (2017:176) point out that vehicle scheduling and routing poses the most intensive environmental activity from the perspective of air emission and energy consumption because it is during the movement of goods when lots of gas emissions and energy consumption happen. Route planning and load optimisation help to reduce environmental pollution and energy consumption by means of choosing the best route and maximising vehicle loads (Gruchmann, 2019:670). The use or promotion of

combined transport models such as ship-road-rail contributes to a considerable reduction in truck-driven kilometres (Gruchmann, 2019:671).

Transport plays an important role in the retail sector (Naidoo & Gasparatos, 2018). Therefore, retailers' efforts to improve their transportation practices can alleviate the environmental impact of their activities (Naidoo & Gasparatos, 2018:131). According to Adhikari *et al*. (2019:1497), organisations such as Tesco have been emphasising the need to shift from transportation modes that cause more pollution to modes that have lesser emissions, such as from road to water shipments. Similarly, Ikea and DHL have since committed to green transportation by, for example, (1) encouraging employees to use bicycles, public buses and sharing cars, and (2) using loading shelves instead of wooden pallets to maximise space required for transporting goods (Saada, 2020). Shah *et al*. (2021) list areas and aspects that can be achieved through an effective green transportation system. These include (1) minimised pollution and reduction in accidents reports, (2) improved energy and resource sustainability, (3) reduction in traffic congestion, (4) enhanced security and safety assurance, and (5) reduced risks (Shah *et al.*, 2021).

4.2.3.5 Reverse logistics

As defined in Rogers and Tibben-Lembke (1999:2), reverse logistics refers to “the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal”. Reverse logistics focuses on the backward flow of used or unused goods or materials from consumers to the manufactures or distribution centres for the purpose of repairing, remanufacturing, reuse, recycling or for safe disposal of hazardous products (Diabat, Khodaverdi & Olfat, 2013; Hesse & Rodrigue, 2009). In other words, reverse logistics manages the return flow of goods from the consumer back to the manufacturer (Andrade, Lucato, Vanalle & Vieira, 2013). Furthermore, reverse logistics encompasses processes, such as waste management and the proper disposal of waste products (Adhikari *et al*., 2019:1491). Reverse logistics or reverse distribution involves the movement of used material and waste (Rodrigue *et al*., 2017).

Figure 4.1 illustrates how products are reintroduced into the supply chain through the implementation of reverse logistics.

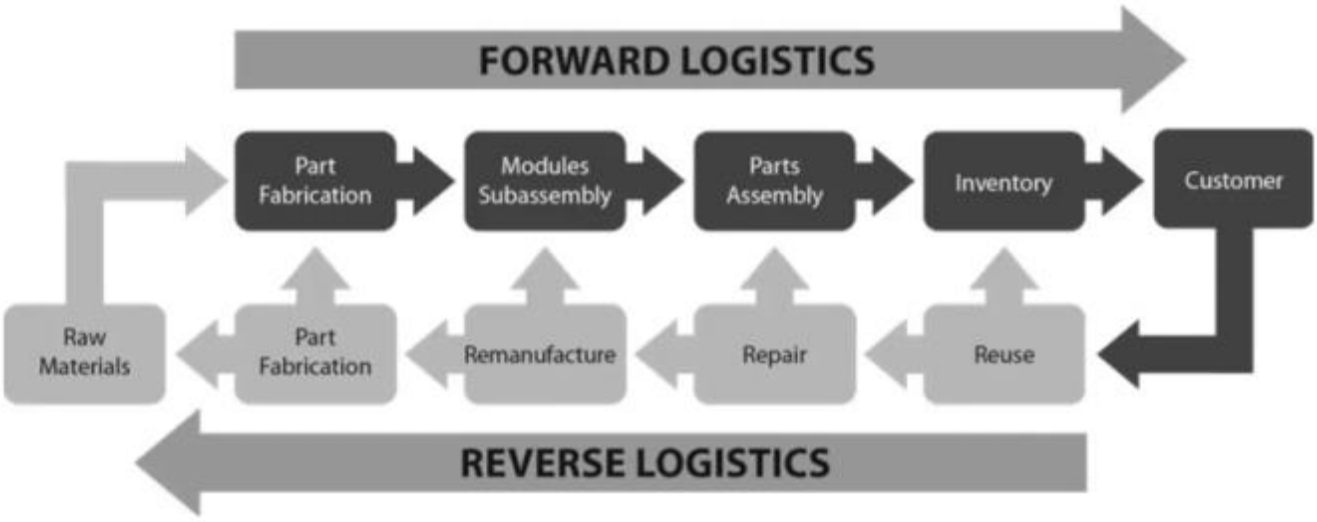

Figure 4.1: Reverse logistics process

Source: C3controls, n.d.

E-commerce in retail organisations has increased rapidly and this has led to pressure on organisations regarding both delivery of the goods and the collection of unwanted items (Soysal & Bloemhof-Ruwaard, 2017:4). Retail organisations are relying on reverse logistics systems to ensure that the return process is effective and efficient (Antel Solutions, 2020). Hence, retail logistic systems are under pressure for the forward movement of goods and to ensure that they implement the proper collection methods effectively for unwanted goods (Cinar *et al*., 2017). However, to practise this is not cheap. A study by Sarkis and Dou (2017:48) mentioned that the cost of reverse logistics channels is often higher compared to the procurement of new materials, leaving purchasing managers with a difficult decision regarding whether to utilise the recycled materials or rather to use new materials which they presume to be cheaper to acquire. In some organisations reverse logistics is regarded as an unnecessary activity adding costs to operations rather than an opportunity to increase economic performance (Ibrahim, Jamil & Halin, 2018). The authors point out that it is important for organisations to look into reverse logistics processes and tools such as green enterprise resource planning to assist with reverse logistics challenges, so that they can benefit from the reduction of costs and competitive advantage. Reverse logistics

add to competitive advantage in the sense that easy and quick product returns is regarded as a key influence of consumer buying behaviour and improving customer loyalty, therefore an efficient reverse flow of products can add to enhanced competitive advantage (Antel Solutions, 2020). In addition, consumers prefer to shop their goods at stores that utilise processes that are environmentally friendly and the adoption of reverse logistics shows organisational commitment to protect the environment (Andrade *et al*., 2013). Antel Solutions (2020) point out that reverse logistics is a pillar of achieving organisational GL goals. Despite the negative image the reverse logistics has, the public has shown their support through the increased noticeable domestic recycling (Rodrigue *et al*., 2017).

4.2.3.6 Green warehousing

Warehousing infrastructure and its functions play an important part in the inbound and outbound logistics and distribution (Agyabeng-Mensah *et al*., 2020; Wahab *et al*., 2018). The location of warehouses has a significant impact on the two levers of GL, which are mode of transport and distance (Blanco & Sheffi, 2017:172). The movement of goods from one warehouse to the other or to the final destination increases gas emissions (Agyabeng-Mensah *et al*., 2020). The location of products also has a huge impact on consumers in terms of accessibility (Mahmoud, 2018:128). In addition, the rapid increase in online retailing has also increased the storage space requirements, leading to the extension or building of new warehouses in order to meet consumer demand efficiently (Bartolini, Bottani & Grosse, 2019). The authors point out that the impact of warehousing activities cannot be ignored anymore as they are contributing significantly to environmental damage. There is a need to refine the warehousing functions so that a green environment can be achieved and potentially increase the efficiency of the logistics system (Wahab *et al*., 2018). Therefore, location and planning of warehouses play an important role in the achievement of green practices and overall economic performance for an organisation (Gruchmann, 2019:668).

According to Bartolini *et al*. (2019), green warehousing is a concept that manages the integration and implementation of environmentally friendly operations in the warehouses in an attempt to achieve low greenhouse gas emissions (GHG), low energy consumptions and to minimise the associated costs. Green warehousing is

considered as a tool to minimise the negative impacts caused by its functions (Wahab *et al*., 2018).

Warehouses are used to store hazardous chemicals which pose a threat to human life if not stored properly. Hence, it is important for organisations to take proper measures in storing (proper labelling and documentation) such substances to avoid health damage (Agyabeng-Mensah *et al*., 2020). Bartolini *et al.* (2019) suggest that warehouse management can use storage assignment tools to minimise these risks.

Warehouses and facilities require energy for cooling, material handling, lighting and heating products (Helo & Ala-Harja, 2018; Sarkis & Dou, 2017:108). Saving energy is one of the most important and significant goals for many organisations and the government at large (Dixon-O'Mara & Ryan, 2018:445). Reducing energy consumption can help alleviate the achievement of environmental goals such as the reduction of greenhouse gas emissions (Dixon-O'Mara & Ryan, 2018:445). It is important for warehouse managers to reduce energy consumption and waste through implementing strategies such as recycling and reuse (Blanco & Sheffi, 2017:147). Using natural ventilation and lighting were identified as ways of saving energy in warehouses (Bartolini *et al*., 2019).

4.2.4 Benefits of green logistics practices

According to Jaggernath and Khan (2015:41), there are several benefits that can be attained through the adoption of green practices in logistics. The authors state that the benefits of GL practices include environmental and business benefits. The environmental benefits include reduction in waste, improvement in energy use, reduction in toxic chemicals disposed of in water and reduction in air pollution emissions. Business benefits include increased profitability, better competitive advantages, the greater distribution of goods and services, a reduction in costs as well as the increased product and service differentiation. For example, the Pick n Pay retail organisation confirmed in their annual report that they have managed to save over R2 billion in electricity costs as a result of energy management programmes (Pick n Pay Annual Report, 2021).

An article by Kuźniak-Król (2017) points out that organisations can benefit by promoting green development projects and sustainable supply chains. The author states that such benefits include reducing legal, financial, and reputational risks to which they are often exposed in supply chains. Bhavsar *et al*. (2021:141) mention that products designed to be green render organisations double benefits, such as more profit and a lower environmental carbon footprint, leading to the achievement of both economic and environmental performance. Research by Chuang and Huang (2018:992) has found that complying with environmental needs adds costs to operations, but it can also produce corresponding cost reductions in other operational areas.

Bag *et al*. (2017) argue that GL practices increase the profitability of organisations. The authors point out that profitability can be achieved firstly through the increased quality of products and reduction in wasted materials, which bring about important operational savings. Secondly, switching to low carbon energy consumption reduces carbon emissions, lowering market and government pressures. Lastly, a favourable brand image helps organisations to increase sales with lower input costs. According to Končar *et al*. (2020:185), implementing GL practices can help retailers to achieve competitiveness not by non-price forms of competitions, but by being environmentally and socially responsible, which has become an increasing demand of consumers. GL practices such as green warehousing use processes that eliminate the cost of pollution control through the implementation of zero production of waste and emission and this will contribute to the economic performance of an organisation (Agyabeng-Mensah *et al*., 2020). Agyabeng-Mensah *et al*. (2020) also argue that green warehousing creates the capacity for organisations to deal with consumer demands through the implementation of technologies that improve quality and reduce waste management, thereby increasing sales and profits.

Helo and Ala-Harja (2018:476) focus their study on GL in food distribution, and their study showed a positive savings potential and possibilities of improved eco-efficiency through the adoption of sustainable distribution processes. Similarly, Agarwal *et al*.'s (2018:350) study showed a positive relationship between GSCM and economic performance, which, from their perspective, entails cost savings because of a

reduction in energy consumption, less resource wastage, and increased efficient processes, leading to the efficient use of resources.

Apart from the benefits mentioned above, Bag *et al.* (2017) point out that green practices can bring about improvements in terms of agility, adaptability and promote the alignment of an organisation. Agility in a business context can be defined as the capacity of an organisation to adapt to market changes fast, react quickly and flexibly to consumer demands without compromising quality (Agile Business online, 2021). Adaptability refers to the ability of an organisation to change its strategic actions in response to the changes in the external environment (Kokemuller, n.d.).

4.2.5 Challenges faced in implementing green logistics practices.

Not all organisations have found GL practices useful and attractive due to the challenges involved in setting up and monitoring the processes (Jaggernath & Khan, 2015:44). In addition, different industrial sectors are facing different environmental issues which cause some of the green practices to be different in terms of adoption and implementation (Tumpa *et al*., 2019:125). It is believed that the initial implementation phase for GL tends to be costly, but it has been proven to be advantageous and cost effective in the long run (Mahmoud, 2018:127). Wang *et al.* (2016:26) state that the main challenges and barriers to effective implementation of GL practices are a lack of information technology, high investments needed for GL and low returns on investments, the storage of needed hazardous materials, complexities of identifying third parties to collect used products, resistance to technology advancement, a lack of organisational encouragement, poor human resources quality, market competition and uncertainty, a lack of government support systems, a lack of top management commitment and cost implications. These challenges are discussed further in the following sections.

4.2.5.1 Increase in operational costs

Gulmez and Rad (2017:610) state that there is the view that the application of GL increases the need for investment and adds to the cost of operations and purchasing. Tumpa *et al.* (2019:119) point out that the green procurement and sourcing of eco-friendly products in the fashion retailing sector increases costs, which in turn require

higher investments. In line with the Gulmez and Rad (2017) statement, a study by Yook *et al*. (2018:327) also noted that organisational leaders have a belief that investing in environmental improvements increases the total purchasing/operational costs, thereby jeopardising the competitiveness of an organisation. Many organisations are concerned when it comes to making decisions relating to the greening of logistics systems (Sarkis & Dou, 2017:995).

However, according to Yook *et al*. (2018:328), the above are merely assumptions, as there is a lack of practical investigations to measure the impact of environmental improvements on the economic performance of the organisations. Fang and Zhang (2018:1066) point out that green practices tend to increase costs during the early stage of adoption because organisations may need to buy expensive equipment. The adoption of green practices requires investment in technology which tends to increase operational costs during the first stage, and this was identified as a barrier to the implementation of green practices (Saha, *et al*., 2021:1). Wang *et al*. (2018:2238) explain that the negative relationship found between GL and economic performance is because of large investments required at the early stages of the implementation of GL practices.

4.2.5.2 Lack of information and availability of resources

A lack of availability of information on GL limits the interest in learning and adopting GL practices within organisations (Shah *et al*., 2021). According to Sarkis and Dou (2017:103), data management and the availability or acquisition of information are vital for the achievement of GL goals. Blanco and Sheffi (2017:154) point out that for GL processes to reach desired performances requires availability of more data, which in most cases is not available to logistics decision-makers. A study by Epoh and Mafini (2018:8) showed that managers within organisations lack information regarding the benefits associated with implementing green practices. Top managers must understand the concept of “green practices” and its links to environmental and economic performance to ensure its successful implementation.

The implementation of green practices is capital intensive, and many organisations do not have enough capital or the cash reserves, thereby limiting their ability to adopt and

support green strategies (Epoh & Mafini, 2018:8). Dixon-O'Mara and Ryan (2018:462) found that a lack of internal financial resources is one of the most significant barriers about which retail organisations expressed their concerns. Gruchmann (2019:679) contends that organisations and their network partners need to have resources (physical, human, or intangible resources) at their disposal for the implementation of GL practices to be a success. Shah *et al*. (2021) are of the opinion that investment coordination among the organisations and their respective stakeholders is important to achieve the goals of GL practices.

In support of the ability of organisations to adopt green practices, Yook *et al*. (2018:329) investigated whether an organisation's size affects the adoption of green practices and their results confirmed that large organisations are more likely, and in the position, to adopt green practices as compared to smaller organisations, due to more resources and leverage. Resources in the form of a skilled and committed workforce are a challenge for many organisations to implement green practices successfully (Epoh & Mafini, 2018:8). Mkhize and Ellis (2018) argue that developing countries, such as South Africa, lack mechanisms to enhance the adoption of green practices. Developing countries or nations facing economic challenges may not have the financial resources, adequate infrastructure, and resources, such as skilled manpower (Bhatia & Gangwani, 2020:133) to implement GL. A lack of resources and financial aid leads to failure to implement green practices (Bag *et al*., 2017). Developing countries require appropriate resources and time to be able to promote the transition to a green economy; at this point, little contribution has been made towards sustainability, especially from African countries (UNECA, 2021).

Commercial and budgetary constraints remain a challenge in organisations, especially when ensuring that the full value of readily available equipment is achieved or when sourcing equipment that is required to lessen environmental damage (Hart *et al.*, 2020:124). Mafini and Loury-Okoumba (2018:9) emphasise the importance of setting a budget when embarking on the sustainability route. The lack of equipment to measure the amounts of carbon emission contributed by each organisation remains a challenge, especially in developing countries (Asif *et al*., 2020:130). The authors

suggest that developed countries should invest in developing countries since they have access to such equipment.

Developing countries are focusing more on economic growth, and the view that the adoption of green practices affects financial and operation performances, especially at the early stages of implementation, hampers the interest of organisations to adopt green practices (Tumpa *et al*., 2019:119). Rajeev *et al*. (2017:300) agree that emerging economies are more concerned about economic growth, and they tend to compromise their social and environmental needs in seeking economic growth. Similarly, Mardani *et al*. (2020:124) state that the shortage of resources hampers the implementation of green strategies, and it is the main challenge facing developing economies (Bhatia & Gangwani, 2020:134). However, Wang *et al*. (2016:20) are of the opinion that developing countries need to focus on environmental development rather than focusing on economic development.

4.2.5.3 Social challenges, inefficient and poor regulatory and legislative measures

Regulatory and legislative measures refer to the laws, rules, and policies put in place by the government in an attempt to minimise environmental damage and conserve natural resources (Epoh & Mafini, 2018:3). The existence of regulatory policies applies pressure on organisations to adhere to environmental legislation (Girisiballa & Bhattacharya, 2016). A study by Tumpa *et al*. (2019:124) identified the lack of government support and efficient regulatory measures as the main barriers to the implementation of green practices, especially in developing countries, leading to a reluctance by organisations to introduce sustainable production practices. Shah *et al*. (2021) state that political issues hinder the development of an effective GL system. The authors point out that there is usually conflict among geographical and jurisdictional boundaries regarding the assumption of GL developmental costs.

According to Asif *et al*. (2020:136), the main challenges facing developing countries in implementing green practices are a lack of sustainability awareness, corruption, the unequal distribution of resources, a lack of supplier performance, and a lack of skilled labour. Corruption was identified as one factor slowing the adoption of green practices,

for example organisations can easily buy certifications from third-party providers without being compliant with the required practices (Jia *et al*., 2018:270). Liu *et al*. (2017:184) point out that organisations face complexities in the implementation of green practices due to a lack of understanding and awareness of environmental legislation and policies.

4.2.5.4 Organisational limitations

Muduli *et al*. (2013), in Wang *et al*. (2016:20) are of the opinion that the top management lacks knowledge of newly advanced technologies available that can efficiently assist in the implementation of GL practices. The use of technologies can help to gather and utilise actual data, which in turn will give a clear picture of the impact of green practices being used within organisations (Bhatia & Gangwani, 2020:135). Jia *et al*. (2018:270) suggested that there is a need for continuous training on GL and support to acquire the requisite knowledge and expertise, especially in developing countries, where such skills are lacking. Top management support and participation is needed to initiate collaboration and integration of GL practices within the organisation and the supply chain at large (Girisaballa & Bhattacharya, 2016).

4.2.5.5 Lack of infrastructure and green transportation

Jia *et al*. (20218:270) assert that a lack of adequate transport infrastructure poses a challenge to the effective implementation of green practices. A report published by the United Nations (2020) emphasises the importance of investing in resilient infrastructure which promotes sustainable economic development. A study by Zhang *et al*. (2020) concluded that the development of GL infrastructure, such as logistics recycling stations, can have a significant impact on the achievement of GL goals such as reduction in waste, resource conservation and overall improvement of logistical activities. The use of intermodal transport solutions in the retail sector is still facing challenges of inflexibility and longer transit times, which then affect the products' life on the shelves negatively (Rossi *et al*., 2020).

4.2.6 Ways of incorporating green logistics within the retail supply chains

The implementation of GL is not an easy task; it requires processes and protocols to be put in place to allow for the efficient flow of activities. Below are some of the ways that organisations can adopt to promote the implementation of GL practices.

4.2.6.1 Governmental support

Government is the principal body responsible for developing rules, policies, regulations, and guidelines that control and govern organisations towards the adoption and implementation of green practices (Wahab *et al*., 2018). According to Rodrigue *et al*. (2017), the efficient and effective implementation of GL comes from the intervention of both local and national governments through their strengthened state efforts. Government intervention through policy development is regarded as an umbrella shield that is used to direct and manage sustainability initiatives and activities from all stakeholders (Gulseven & Mostert, 2017). Similarly, Zhang *et al*. (2020) point out that these policies exert pressure on organisations to adopt and implement GL practices, thus eradicating non-green behaviours. According to Sarkis and Dou (2017:93), some organisations adopt GL practices for the sake of being compliant with regulatory measures. The development of stricter regulations helps to implement GL practices and minimise the negative effects being imposed on the environment (Wang *et al*., 2018:2236). However, for a policy to be effective, there should be clear and concisely set goals that are measurable and achievable (Zhang *et al*., 2020). It is critical that the government develop a national environmental certification process that would ensure organisations can make legitimate claims about their green processes or initiatives (Mkhize & Ellis, 2018). Mkhize and Ellis (2018) emphasise that projects such as green initiatives require initiation from the government or non-profit organisations. Zhang *et al*. (2020) point out that the government should guide the development and implementation of GL practices through providing advice and guidance instead of forcing organisations to adopt their developed policies. In an attempt to create a more visible and traceable sustainability progress, Stats SA (2019) introduced a goal tracker which enables organisations to easily access data, collaborate and promote transparency in allocating resources among all stakeholders.

The governments can be involved in greening the retail supply chains by providing financial incentives or subsidies, pilot projects, and tax breaks or green taxes to motivate organisations to adopt GL (Tumpa *et al*., 2020:125; Wang *et al*., 2018:2250). Similarly, Tang *et al*. (2018:402) point out that the government can be involved in the implementation of green practices themselves, for example the purchasing and installation of LED lights in public infrastructures, such as roads. Government involvement in GL initiatives through subsidies can help organisations to relieve pressure on the investments required to adopt GL practices efficiently (Sarkis & Dou, 2017:94). A study by Dixon-O'Mara and Ryan (2018:462) found that availability of subsidies was the second highest driver for retail organisations to implement green energy solutions.

Government can also support green production by ensuring the availability of green materials in the local markets, for example, through the low import tax on imported materials, as unavailability of green materials was identified as one of the barriers to the adoption of green practices (Tumpa *et al*., 2020:126). Tumpa *et al*. (2020:124) emphasise that a lack of promotion from the government in the implementation of green practices has a negative impact on the adoption of environmentally sustainable measures. Gulseven and Mostert (2017) contend that a government involved in the implementation of green practices through incentives and other support methods (such as hosting international and national innovation conferences, offering scholarships for postgraduate students) can potentially be the driver for a successful and continued innovative nation. However, government initiatives do not take the responsibility away from organisations to expand their growth in green innovations and encourage, educate, and train their workers to be more familiar with environmental sustainability (Huang *et al*., 2020:131; Mafini & Loury-Okoumba, 2018:9).

4.2.6.2 Retail organisations' commitment to green practices

Organisations that are environmentally proactive are more likely to invest their resources and capabilities in green practice implementation (Liu *et al*., 2017:183). According to Yook *et al*. (2018:328), organisational capabilities are the representation of an organisation's personality and identity brought about by a collective set of skills, abilities, and expertise that an organisation possesses through investing in training,

staffing, compensation and communication. Top management is the reflection of an organisation, and their commitment and actions towards green practices have a positive impact on the successful implementation of green practices projects, and it requires sustained and focused efforts (Bag *et al*., 2017; Mohtar & Rajiani, 2016:3841). Top management is regarded as the driving force behind the successful implementation of green practices (Wahab *et al*., 2018). Zhang *et al*. (2020) also agree that the way top management perceives GL and its policies determines the success of GL implementation. In the same vein, Shafael, Nejati and Yusoff (2020:1055) state that executives' and top management's commitment towards environmental protection is demonstrated through integrating the environmental protection requirements into the organisation's mission and objectives and making it a top priority. Park, Gonzales-Perez and Gloriani (2021) are of the opinion that the implementation of green practices requires organisations to change their behaviour towards the subject both at cultural, individual, and organisational levels and be able to adapt more easily to changing business environments and policies that affect operations.

To benefit the environment, organisations need to work towards developing and designing products that use less energy and resources whilst promoting recycling, reusing and the recovery of parts and materials (Epoh & Mafini, 2018:10). Hart *et al*. (2020:125) suggest that organisations must practise the independent auditing and approval of plans aimed at reducing environmental damage. A study by Chen *et al*. (2018:1012) reported that many researchers emphasised the need for organisations to reward their executives for environmental plans executed to promote sustainability. According to Nguyen *et al*. (2018:382), offering rewards to employees enhances positive working attitudes and improves their overall performance through employee satisfaction. Agarwal *et al*. (2018:344) suggest that organisations must create an environment that caters for the psychological needs of autonomy, competence, and the relatedness of managers who are responsible for the adoption of green practices. This will encourage further commitment from the top management team.

An article by Kroll (2017) also emphasises the importance of top management commitment to GL initiatives. Similarly, Agarwal *et al*. (2018:344) emphasise the importance of top management commitment towards sustainability. The authors point

out that not only does it help to create a culture that values sustainability within the organisation, but more importantly for the full integration of sustainability strategies within the organisation's mission statements, organisational and corporate strategies. Therefore, it is important for organisations taking the sustainability route to ensure effective governance of the decisions and actions of GL to have a substantial impact on both their economic and environmental performance (Hart *et al*., 2020:124).

4.2.6.3 Retail organisation involvement in raising awareness of green logistics to consumers.

Individual perceptions and attitudes of consumers towards green products are of the most important factors driving the success of GL practices (Shah *et al*., 2021). Grewal, Gauri, Das, Agarwal and Spence (2021) point out that consumers are key forces in driving organisations to adopt Gl. A study by Zhang *et al*. (2020) concluded that public perceptions towards GL policies have a huge impact on the success of GL implementation. Bag *et al*. (2017) point out that it is difficult to implement green practices without environmental awareness in the market. In addition, a green economy requires consumers to change their buying habits and attitudes towards green products (Sima & Gheorghe, 2019:154). However, for consumers to change their habits, they need to be informed and have a certain level of satisfaction with green products (Sima & Gheorghe, 2019). Customer satisfaction can be defined as the measure of how products, services and capabilities of an organisation surpass or meet customer expectations (Wikipedia, n.d.).

Tumpa *et al*. (2020:125) emphasise the importance of educating customers about the green supply chain processes and their impact on the environment. In this way, it will increase their awareness and, in turn, demand for greener products (Tumpa *et al*., 2020:125). It is therefore important for organisations to provide the best possible information available to consumers, thereby empowering them to purchase wisely (European Union, n.d.). Consumers lack green behaviour due to a lack of promotion of green products (Mkhize & Ellis, 2018). However, recent statistics by NielsenIQ (2022) have shown an increased interest in green behaviour by consumers, especially in the food and beverages category. In addition to organisations' efforts, the state needs to offer public training on sustainability issues (Gulseven & Mostert, 2017:96).

Working with consumers in recovering used products to promote recycling is another way that can be used by organisations to practise environmental sustainability (Epoh & Mafini, 2018:10). Mkhize and Ellis (2018) state that consumer cooperation is important to be able to address environmental damage and the depletion of resources. Saeed and Kersten (2017:1) observe that mostly in developed countries, consumers are aware of the environmental needs, and they are giving more attention to the environmental quality of the goods and services they are using. Magnani and Zucchella (2021:505) suggest that consumers are required to take action against environmental damage and to share the responsibility with organisations to protect the environment. This will also influence policy makers as they are in most cases reluctant to implement GL policies due to fear of public protestations and acceptance (Shah *et al*., 2021).

4.2.6.4 Retail organisation investment in innovative technologies

The new era in which organisations are operating requires them to do business in a way that accommodates technological development and innovation (Park *et al*., 2021). The emergence of technology in the retail environment is transforming the industry and consumers' shopping experiences (Grewal *et al.*, 2021). The use of technology helps to achieve GL goals (Zhang *et al*., 2020). According to Klumpp (2016:446) and Shah *et al.* (2021), the development and application of technology is the most encouraging and acknowledged driving force in GL as it gives hope to increased efficiency of the logistical systems. Cinar *et al*. (2017) support the rise and adoption of new technological developments and argue that it will reshape the logistic systems and enable the achievement of GL goals. In support of this statement, Gruchmann (2019:668) state that having technological tools that can assist in collecting relevant environmental information within and around different processes will enable the efficient and effective development and implementation of GL. Chuang and Huang (2018) emphasise the importance of investing in information technology (IT) in businesses to enhance the environmental sustainability of logistic systems. According to Saha *et al*. (2021:1), many organisations are investing in technology to enhance the implementation of green practices, thereby strengthening their competitive advantage and leading to increased market share. Ren *et al*. (2020:278) state that green innovation technologies have a positive effect on the implementation of GL.

Gulseven and Mostert (2017) point out that innovation and investing in resource-efficient technologies and creating markets that promote green products and services are prerequisites for developing a resilient and efficient circular economy (also known as the green economy). Similarly, a study by Epoh and Mafini (2018:10) suggested that it is important for organisations to invest in innovative technologies, especially when it comes to reverse logistics as one of the important GL dimensions. Bag *et al*. (2017) point out that investing in clean and best technologies in logistics is necessary for organisations as it brings about long-term benefits. According to Rossi *et al*. (2020:2), technology reduces barriers that are associated with intermodal transportation (a solution to lessen the environmental impact of transport activities) and provides both economic and environmental solutions for food supply chains. A study by Helo and Ala-Harja (2018:465) has found that the use of information technology has opened possibilities of tracking vehicles' carbon emissions. Helo and Ala-Harja (2018:465) pointed out that information technology such as intelligent telemetric systems has opened the possibility of tracking vehicles online, enabling management to make real-time decisions; thus, they have real-time control of activities. For example, having customer, day, emission, and season-specific information at management's disposal will help to consolidate shipments and reduce fuel consumption that will reduce gas emissions (Helo & Ala-Harja, 2018).

Quality data and reporting allow managers to make real-time decisions based on accurate data and can easily identify and prevent problems that may affect the processes and achievement of set goals (Nguyen *et al*., 2018:382). Having quality data and reporting tools allows organisations to participate in sustainability reporting which shows their commitment to environmental protection (UN, 2020). For example, retailers such as Shoprite Holdings are now able to track their sustainability progress through their use of data reporting tools. These technology tools enable them to compare their sustainability progress against the set goals (Shoprite Holdings). Asif *et al*. (2020:129) point out that the use of innovative technology alongside renewable resources is an important practice for environmental protection. Singjai *et al*. (2018:139) comment that innovation is a great tool that can assist organisations to adapt to sustainability demands easily.

Bai and Sarkis (2020:2159) have identified blockchain technology as one of the key technologies in achieving economic sustainability and social development. “Blockchain technology is a distributed database that holds tamper-resistant and verified records of digital data or events” (Sarkis & Dou, 2017:104). Blockchain technology allows all supply chain participants to access information related to their organisation’s trade, and supply chain members can track and share data (Sarkis & Dou, 2017:104). The use of technology solutions brings advantages such as facilitating integration with other tools, providing accurate data, and reducing paperwork (Mafini & Loury-Okoumba, 2018:10). For example, using blockchain technology is useful in GL activities in the sense that the movement of products is recorded in terms of the distance travelled and the mode of transport used; this will later provide information regarding the evaluation of carbon footprint per trip or transported item (Sarkis & Dou, 2017:104). Examples of organisations currently using blockchain technology in the retail supply chains are Walmart and Unilever (Iredale, 2020; Sarkis & Dou, 2017:105).

Advances in technological developments, such as digital media, enable organisations to practise online collaboration networks and have interactive visual communication with stakeholders and other organisations (Maher *et al*., 2018:1358). Organisations that are starting to incorporate GL practices normally select suppliers that are already practising and using sustainability technologies with their operations (Agarwal *et al*., 2018:351). This provides an opportunity for mutual support among organisations (Maher *et al*., 2018:1358).

Asif *et al*. (2020:125) recommend that large organisations implement pollution-controlling green practices in their supply chains to transfer the practices to the smaller organisations in the supply chain through spillovers and innovation diffusion. The authors also point out that it is important for organisations to measure their carbon emissions. As indicated in the study by Sarkis and Dou (2017:101), transport activities contribute a larger percentage to gas emissions, and the development of green transport technologies can help minimise the negative effects it poses on the environment.

4.2.6.5 Retail investment in Green Human Resource Management (GHRM)

Employees are the shaping blocks of organisations and their commitment to environmentally conscious behaviour plays an important role in an organisation's environmental performance (Shafael *et al.*, 2020:1044). Driving successful GL practices implementation relies heavily on employees to act as agents in the implementation process (Nejati *et al*., 2017 in Shafael *et al.,* 2020:1042). Hence, GHRM is regarded as a way organisations can achieve GL objectives (Shafael *et al*., 2020:1042). Every organisation has a responsibility to ensure that its activities are environmentally sustainable, and to achieve this, acquiring human resources is required (Mohtar & Rajiani, 2016:3840). Human resources are instrumental in any organisation and play an important role as organisations strive to achieve the environmental sustainability application of green practices that minimise environmental damage (Dixon-Fowler *et al*., 2020:104; Gulseven & Mostert, 2017:96).

GHRM can be defined as human resource practices that are focused on environmental protection through generating employees who are environmentally conscious, and who acknowledge and value the organisation's environmental efforts (Shafael *et al*., 2020:1043). GHRM is an important driver in navigating the adoption of green practices (Westerman, Rao, Vanka & Gupta, 2020:100). A study by Zaid *et al*. (2018:976) concluded that GHRM is a useful tool that can be adopted by organisations to enhance the implementation of green practices, and at the same time achieve positive sustainability performance. Human resource practitioners are encouraged to practise green hiring, green training and involvement, and green performance management and compensation to promote the easy implementation of green practices in organisations (Zaid *et al*., 2018:967). Improving the skills of employees does not only improve the production processes, but also increases quality performance through the reduction in defects leading to the achievement of economic and environmental sustainability (Nguyen *et al*., 2018). In addition, implementing GHRM promotes employee engagement that increases motivation and ultimately job satisfaction among employees (Shafael *et al*., 2020:1044). The proper training of human resources is necessary to develop a culture that can manage risks as the process of greening operations involves financial risks (Bag *et al*., 2017). The authors pointed out that

skilled and talented employees are attracted to organisations that continuously make progress and adopting green practices improve the organisation's reputation and enhance brand image. Shafael *et al.* (2020:1044) add that GHRM leads to lower costs and enhanced efficiency.

4.2.6.6 Retailer collaboration with suppliers and consumers

For GL to be achieved successfully, joint efforts are required from both production and consumption sides (Mangla *et al.*, 2017:510). According to Liu *et al*. (2017:184), the successful implementation of green practices requires collaboration and support from the suppliers. It is important that the GL practices are embedded in the whole supply chain's planning and coordination activities (Gruchmann, 2019:675). Girisaballa and Bhattacharya (2016) state that attempts to implement GL practices by one tier in the supply chain and not by all the tiers have led to the failure of the GL concept. Any organisation pursuing the green path must highlight the importance of supplier relationship management (Bag *et al*., 2017). Mkhize and Ellis (2018) emphasise the importance of cooperation among the major stakeholders, which are the government, customers, and suppliers, to enhance the positive impact of GL on the environment. Huang and Li (2017:312) indicate that success of any innovation, such as introducing GL, relies on effective communication and collaboration on all the different levels of the organisation and other stakeholders involved, such as suppliers who are involved in the product design. Cinar *et al*. (2017) also argue that achieving an efficient GL system requires collaboration and outsourcing of activities among the supply chain participants. All the above statements reflect that, for any GL practices to be successful, they must be adopted across all the supply chain partners (Girisaballa & Bhattacharya, 2016).

To overcome difficulties in the implementation of green practices, organisations are combining resources with their supply partners to boost sustainable green strategies that will yield efficient results (Liu *et al*., 2017:182). For example, Shoprite Holdings (2020) have stated in its Sustainability Report that the organisation has deepened its relationship with its partners, and they are developing new relationships to ensure that its sustainability strategies are scalable, meaningful, and replicable. In addition, in a

statement Pick n Pay has emphasised the importance of working closely with stakeholders to achieve its sustainability goals (Pick n Pay Online, 2021).

Studies by Maditati *et al*. (2018:155) and Fang and Zhang (2018:1066) point out the importance of collaboration of suppliers and customers as crucial for achieving sustainability, economic and operational goals. Agyabeng-Mensah *et al*. (2020) argue that organisations must embrace the role of collaboration between themselves, consumers, and suppliers to ensure effective implementation of green practices. For example, the results from Fang and Zhang's (2018:1078) study have shown the positive impact of internal environmental management on the external environment due to cooperation and coordination among organisations working on green practice projects. Moreover, the technologies and investment required for adopting and implementing GL are considerable for one organisation to embark on alone, hence the importance of collaboration (Gartner, 2020).

4.2.6.7 Investing in green transport solutions

According to Rossi *et al*. (2020:4), the use of intermodal transport is one of the solutions to reduce the transport environmental impact in retail organisations, especially those dealing in perishables. However, decreasing the environmental impact of transportation is still a challenge (Sallnäs & Björklund, 2020:1178).

4.3 CONCLUSION

Chapter 4 introduced the green concept, starting with GSCM as the umbrella term and its element GL, which was the focus of this study.

Section 4.1 focused on the GSCM concept. An overview of its definition, pressure to implement and scope of GSCM were given. External and internal pressure points were outlined. Consumers and government were identified as the main external stakeholders driving organisations to implement GL practices. Internal leadership or top management values and beliefs were found to be the main internal drivers for organisations to adopt green practices. It was stated that top management or the leadership group is responsible for sustaining an organisation and their value and beliefs represent the organisation.

Section 4.2 gave a detailed discussion of the GL concept. In this section, an introduction was given followed by different definitions given by different authors. These different definitions all focused on the importance of environmental sustainability and how GL can contribute to the achievement of a green environment. In this section five logistics elements of GL were identified: (1) green purchasing, (2) green marketing, (3) green packaging, (4) green transportation, and (5) green warehousing. Among all the elements, green transportation and green warehousing were on the higher rank of contributing to negative effects on the environment. Green transportation emphasises the need to reduce gas emissions caused by transport activities. Green warehousing focuses on the effects of inbound and outbound logistics activities and promoting green inventory management, reduction of energy consumption, and reducing gas emissions.

Challenges and obstacles for adopting and implementing GL practices within organisations were identified. Among the challenges identified, financial constraints seem to be a major obstacle for organisations. Drivers for GL practices were outlined and among these, government intervention through the development of rules, policies, and regulations, issuing of incentives and building infrastructure were recommended by many authors. The benefits of the implementation of GL practices for organisations were also discussed in this chapter. Some of the benefits outlined are reduction of costs, gaining competitive advantage and environmental benefits, such as a reduction in waste, gas emissions and efficient use of energy.

CHAPTER 5: RESEARCH METHODOLOGY

5.1 INTRODUCTION

The previous chapters explored the nature and extent of GL in general and in the retail sector specifically, focusing on South African retail. This chapter presents the research methodology used to conduct this research. The following concepts are discussed, (1) research design, (2) research objectives, (3) problem statement, (4) research instruments, (5) limitations to the study, and (6) ethical considerations. The main purpose of this research was to examine the implementation of GL in a large retail organisation in South Africa.

5.2 RESEARCH DESIGN

A research design "is the blueprint for fulfilling objectives and answering questions" (Blumberg, Cooper & Schindler, 2014). Research design goes beyond the process of gathering information and provides answers to the unanswered questions (Goddard & Melville, 2004). According to Kothari (2020), research design is the theoretical structure in which research is conducted, consisting of the layout or plan for collecting, measuring, and analysing data. Different research designs can be used; these include qualitative, quantitative, and mixed research designs (Snyder, 2019). Quantitative research is often used when collecting data that uses numbers, whilst qualitative research is used mostly when non-numerical data is being collected (Saunders, Lewis & Thornhill, 2019:175). Bryman and Bell (2015:41) state that "quantitative research tends to be concerned with quantification in the collection and analysis of data; qualitative researchers prefer induction, informed by constructivism and interpretivism".

There is no perfect design, but a choice of any design depends on factors that are not limited to time, availability of financial resources, access to participants, knowledge and ability to use the design (Bengtsson, 2016; Saunders *et al*., 2019:190). Saunders *et al*. (2019) state that a perfect research design is the one that will help the researcher to answer the research questions and achieve the intended goals. It is important for the researcher to choose the most appropriate research design approach to follow,

depending on the research problem and purpose of the research (Snyder, 2019). Due to the nature of this study, a qualitative research design was used to conduct the research.

5.3 QUALITATIVE RESEARCH

Qualitative research involves the analysis of attitudes, opinions, and behaviour of individuals towards something or a certain situation (Kothari, 2020). According to Merriam and Tisdell (2015:6), qualitative research has an interest in understanding the reaction and interpretation of people's experience towards a situation or phenomenon. Qualitative research provides an understanding of the human state in different circumstances and at a given situation (Bengtsson, 2016). The main aim of qualitative research is to explore humans' experiences and perceptions towards things around them (Ames, Glenton & Lewin, 2019). Saunders *et al*. (2019:180) compiled the main characteristics of qualitative research as outlined below:

- The researcher is not regarded independent from the ones being researched.
- It is designed to understand participants' associated relationships and attributed meanings.
- The design uses non-probability sampling techniques.
- The design uses structured or semi-structured methods to collect data.

Qualitative research design is associated with several strategies, and these include (1) case studies, (2) ethnography, (2) action research, (4) grounded theory. and (5) narrative inquiry (Saunders *et al*., 2019). The research focused on one retail organisation; therefore, it is regarded as a case study. Bryman and Bell (2015:42) define case study as "an in-depth study of one or more individuals or phenomena in its existing context". The data was collected using in-depth semi-structured interviews.

The researcher followed an inductive qualitative research approach in the sense that the design was used to build a theory that is already existing in literature (Saunders *et al*., 2019). Qualitative research provides a more realistic feel of the world that cannot be experienced in the numerical data and statistical analysis used in quantitative research. It provides flexible ways of collecting, analysing, and interpreting data and information.

5.4 POPULATION OF THE STUDY

Population refers to the units from which a sample is selected (Bryman & Bell, 2015). Saunders *et al*. (2019:294) describe population as a "full set of cases or elements from which a sample is taken". A population in research samples refers to people only, but it can be organisations, nations, regions, and cities (Bryman & Bell, 2015; Saunders *et al*., 2019:294). Because the case study approach was followed, the population in this study was a retail organisation which is being referred to as Retailer A or Retail organisation A. The sample targets were individuals in different departments within the organisation who are familiar with the GL topic.

5.4.1 Sampling technique

Sampling refers to the process of selecting a subset of the population of interest in a research study (Turner, 2020). Two types of sampling strategies can be identified, namely probability and non-probability sampling (Turner, 2020). Non-probability is a sampling strategy that does not guarantee any of the elements in the sampling frame a chance to be selected (Etikan & Bala, 2017). In other words, non-probability sampling does not use a random selection of a sample (Bryman & Bell, 2015). Probability sampling refers to the selection of a sample randomly, thereby giving each unit in the population a chance of being selected (Bryman & Bell, 2015). Examples of non-probability sampling include snowball sampling, convenience sampling, dimensional sampling, purposive sampling, and quota sampling (Cohen, Manion & Morrison, 2018:218). For the purpose of this study, a non-probability sampling technique was followed, specifically using purposive sampling technique.

Bryman and Bell (2015) describe purposive sampling as a technique that seeks to sample participants who are relevant to the research questions so that valuable information relating to the research objectives is obtained. In purposive sampling, the researcher selects a sample through judgement of characteristics that each unit possess so that the sample can meet the researcher's specific needs (Cohen *et al*., 2018:218). Purposive sampling allows the researcher to gain rich insights into the research topic through in-depth study and exploring the research questions as they will be focusing on small group samples (Saunders *et al.*, 2019). The researcher had

to select a sample carefully that would help in answering the research questions and to achieve the set goals (Saunders *et al*., 2019:321).

5.4.2 Sample size

There are no rules on deciding a sample size, but it is rather determined by the nature of the research questions and objectives (Saunders *et al*., 2019:315). The researcher used a saturation method to determine the sample size. Saturation is reached when the new data being collected adds little or no new information (Saunders *et al*., 2019:315). The researcher purposely selected interview participants who facilitated the exploration of the research questions and deeper understanding of the topic. Therefore, the sample included the managers for transport, procurement, warehousing, and logistics departments in the retailer.

In this study, a total of ten people were interviewed. The sample included personnels from different departments which included transport department, logistics department, sustainability department, warehousing department and finally procurement department. The researcher concluded that data saturation had been reached as no new information emerged after the eighth interview. However, the researcher conducted two more interviews to firmly confirm that data saturation had been achieved.

5.5 DATA COLLECTION INSTRUMENTS

Data collection is an important phase that determines whether research questions will be answered. Data collection for qualitative research can be done by means of questionnaires, interviews, and observations (Cohen *et al*., 2018). For the purpose of this study, data was collected by means of semi-structured and in-depth interviews specifically using open-ended questions. Saunders *et al*. (2019:436) outline that semi-structured and in-depth interviews can be conducted in different ways, such as by telephone, face-to-face or via the internet on an individual basis or as a group. Creswell and Creswell (2018) point out that qualitative interviews intend to obtain views and opinions of the participants and their understanding of the subject matter. In this study, the interviews were conducted via the online platform using Microsoft Teams. The interviews were audio-recorded and later transcribed. As outlined by

Saunders *et al*. (2019), a research interview is a formal conversation that happens between two or more people whereby the interviewer asks brief and straightforward questions and listens carefully to the interviewee's responses. Cohen *et al*. (2018:506) argue that an interview is not merely a data collection technique, but also a social interpersonal encounter.

Interviews are being widely used to collect data (Cohen *et al*., 2018), hence they were chosen for this study. Interviews allow both the interviewee and the interviewer to express their own opinion and understanding towards the subject matter (Cohen *et al*., 2018:506). Interviews are considered flexible in collecting data because they allow multi-sensory channels to be used. Research interviews can be used as a guide to refine questions that are not properly formulated (Saunders *et al*., 2019:434). According to Creswell (2014:191), interviews allow the researcher to have control over the line of questioning.

To ensure consistency in the data collection process, the interviewer followed an interview guide. The guide consisted of all relevant subject topics to ensure that the research objectives were all addressed. The interviews were conducted individually to avoid interruptions and unequal participation. This allowed the researcher to establish a relationship with each participant. As indicated by Saunders *et al*. (2019:444), establishing a relationship with a participant provides them with an opportunity to reflect on situations or events, especially if they are related to their current work. The authors also point out that establishing personal contact helps in establishing trust between the interviewer and the interviewee. In this case, all the participants were somehow or in some way involved in the implementation of GL practices across their respective departments.

5.6 DATA ANALYSIS AND REPORTING

Data analysis in qualitative research involves the identification of recurring patterns within the collected responses and carefully analysing them so that the intended objectives are met (Dudovskiy, 2016). The aim of data analysis is to make sense out of image and textual data by creating segments and breaking up the data as well as recombining the data (Creswell, 2014). There is no outright method for analysing data,

but any choice is determined by its “fitness for purpose” (Cohen *et al*., 2018). In this study, thematic analysis was used to analyse the data.

“Thematic analysis is a method for analysing qualitative data that involves searching for recurring ideas in a data set” (Riger & Sigurvinsdottir, 2016). Thematic analysis allows the researcher to identify ideas that are common across all participants (Riger & Sigurvinsdottir, 2016). Thematic analysis offers flexibility advantage as it is not restricted to a specific research philosophy (Cohen *et al*., 2018:651). This study followed Cohen *et al*.’s (2018) procedure for conducting thematic analysis, as outlined below:

- Step 1: Becoming familiar with the data.
- Step 2: Coding of the data.
- Step 3: Searching for themes and recognising relationships.
- Step 4: Refining themes and testing propositions.

5.6.1 Step 1: Becoming familiar with the data

Familiarising with the data starts during the transcription process (Cohen *et al*., 2018). The researcher had to read and re-read the transcripts in order to develop familiarity with the data (Cohen *et al*., 2018:652; Maguire & Delahunt, 2017:3355).

5.6.2 Step 2: Coding data

A code can be a single word or a brief term (Saunders *et al*., 2019:653). The authors point out that codes are required to interpret meanings of the data. Coding involves the categorisation of data that have similar meanings (Cohen *et al*., 2018:658). Coding the data helped the researcher to manage data by reducing it into small pieces (Maguire & Delahunt, 2017), and above all, minimise time spent on analysing it. The data was coded in line with the research questions. Guided by Saunders *et al*. (2019), the researcher had a list of codes that was used to categorise data. This made the process shorter and easier in the sense that as new data emerged, it was linked with a code that had the same meaning.

5.6.3 Step 3: Searching of themes and recognising relationships

As indicated in Saunders *et al*. (2019:657), themes are broad categories that include different codes of the same nature representing ideas that are crucial to the research questions and objectives. According to Maguire and Delahunt (2017), a theme is a pattern that represents ideas that are noteworthy or fascinating to the research questions and objectives. As outlined in Bryman and Bell (2015:429), a theme comprises of the following characteristics:

- Is a category identified within the data.
- It is connected to the research questions and objectives.
- It is built on codes identified within the transcribed data.
- It is the basis for theoretical understanding of the data.

In this study, all codes were examined and fitted with the respective themes.

5.6.4 Step 4: Refining themes and recognising relationships

During this process, the researcher reviewed and modified the prepared themes to determine whether they provide a sensible meaning and that they represent a structured analytical framework for further analysis (Maguire & Delahunt, 2017; Saunders *et al*., 2019). The idea is to determine whether the data linked is supporting the themes and if they contextualise with the whole data set (Maguire & Delahunt, 2017:3358). This process required continuous reading and re-reading as well as reorganising the data (Saunders *et al*., 2019:658). In doing so, some of the initial themes that were developed were combined to create a new theme, whilst some themes were separated to create sub-themes.

Writing and presentation of the findings are discussed in Chapter 6.

5.7 DATA QUALITY MANAGEMENT

To ensure trustworthiness and quality of data, four trustworthiness criteria were adopted. Below is a brief summary of each criterion.

5.7.1 Credibility

Credibility refers to the truth value (Cohen *et al*., 2018). Establishment of credibility assures that the research was conducted in an ethical manner and that the researcher understood the social world correctly (Saunders *et al*., 2019:295). In this study, the researcher used published and unpublished documents of the organisation to confirm and compare the collected data.

5.7.2 Dependability

Cohen *et al*. (2018) state that a research study has to be consistent throughout the whole process.

Dependability requires the researcher to keep complete records of the entire process, from problem formulation, samples, interview records and data analysis choices (Bryman & Bell, 2015).

5.7.3 Transferability

Transferability relates to the extent to which the research process and results of a study can be judged and understood by the reader (Saunders *et al*., 2019). In this study, the researcher outlined a clear problem statement and assumptions which formulated the baseline of the study. Moreover, questions used to gather data are drafted as such that they do not only fit to a specific organisation, but rather be applied to different organisations.

5.7.4 Authenticity

Authenticity criteria relate to the promotion fairness in the representation of all research views (Saunders *et al*., 2019). Bryman and Bell (2015) stress that research must be fair, help participants to transpire better understanding of their social environment, help participants to acknowledge different views of other participants and if the research empowers the participants. In this study, the researcher kept all the recordings of the raw data collected that can be used to compare the summary and conclusion of the given findings.

5.7.5 Confirmability

Confirmability stresses ensuring that the researcher did not allow their personal views or values to affect the way research was conducted and the findings or results thereof (Bryman & Bell, 2015). In this study, the researcher drafted standard questions that guided the interviews. Moreover, participants were interviewed separately, and the data collected was compared and reconciled for consistency among participants.

5.8 ETHICAL CONSIDERATIONS

As defined by Saunders *et al*. (2019:252), "ethics refers to the standards of behaviour that guide your conduct in relation to the rights of those who become the subject of your work or are affected by it". Ethical considerations relate to the values and integrity of a research (Bryman *et al*., 2015). Cohen *et al*. (2018:111) stress that ethics are mainly concerned about what the researcher plans to do and not do in their research, including their research behaviour. Guided by Bryman *et al*. (2015), the participants of this study were fully informed about this research and the associated process. In this line, Bryman and Bell (2015:510) point out that issues in research ethics are centred on aspects such as:

- How should participants be treated when conducting research?
- Are there activities that the researcher should or should not engage in with the participants?

Ethical principles provide a guide on answering the above questions. As suggested in Cohen *et al*. (2018) and Bryman and Bell (2015), these principles are as outlined below:

- Harm to participants: The research must not pose harm to the participants. Harm can be in the form of physical harm, conflict, or emotional harm. Saunders *et al*. (2019) state that any research that poses harm to the participants must be avoided. In this study, the research did not pose any form of harm.
- Informed consent: The researcher has to provide sufficient and accurate information about the research so that participants can make an informed decision on whether or not to participate in a respective study (Saunders *et al*., 2019). Participants must not be included in the research without their knowledge and

consent. Therefore, the researcher must obtain informed consent from all participants in the research.

- Invasion of privacy: Privacy is a key principle that interconnects with other principles such as informed consent, avoidance of harm and confidentiality. Therefore, each participant has the right to decline certain activities or questions which they deem to be sensitive and invade their privacy.
- Deception: Deception occurs when a researcher withholds certain information about the study and its true nature. That is the researcher knowingly provides false information on the purpose of the research.
- Reciprocity and trust: Reciprocity entails the act of giving or giving back something to participants as a thank you for their participation in the research. This can be in the form of monetary or improvements in their quality of living or surrounding conditions. The researcher is obliged to fulfil what was promised to the participants. In this study, the participants were made aware of how important GL is to the environment and the living conditions for the community.
- Confidentiality: Confidentiality is a way of protecting one's privacy. In some cases, participants or organisations may request a researcher to sign a confidentiality agreement that requires the researcher not to pass any information to a third party. Saunders *et al*. (2019) state that ensuring confidentiality and anonymity of participants enhance the reliability of study.

An informed consent letter was sent out to all participants to read carefully and give their consent to participate in the study. The consent letter outlined the objectives and benefits of the study, possible risks and a statement that clearly stated that their participation was voluntary and that they could withdraw from participating at any time. This study was considered and approved by the UNISA Ethics Review Committee.

5.9 DIFFICULTIES AND LIMITATIONS OF STUDY

The main difficulty in the study was contacting the participants and making appointments because of their busy schedules. The process of collecting data became lengthy and spaced out because the interviews were done one-on-one when each participant was available. Secondly, participants feared to participate because of having their voices recorded. However, the researcher assured confidentiality to all

the participants. A limitation of this study is that only a single retail organisation was involved in the study, which provided insights into one retailer and therefore the findings are not necessarily representative of the whole industry.

5.10 CONCLUSION

The aim of this chapter was to elaborate on the research methodology used to collect and analyse data for this study. A qualitative research design was used for this study. The reasons and benefits for choosing a qualitative study were given. The researcher also outlined the sampling and data collection techniques for this study. To analyse the collected data, a thematic analysis technique was adopted. To ensure the quality of data, the researcher used qualitative strategies such as credibility, dependability, transferability, and authenticity. The chapter concluded with a discussion of ethical considerations and difficulties and limitations of the study.

CHAPTER 6: DATA FINDINGS AND ANALYSIS

6.1 INTRODUCTION

This study was aimed at exploring the implementation of GL in a large retail organisation in South Africa. Chapter 1 began with an introduction to the study followed by the problem statement and research objectives. This chapter also gave a short description of the research methodology followed and an outline of the research questions. Chapter 2 introduced the literature review on sustainability concept as an umbrella shield for the research topic. Chapters 3 and 4 reviewed literature on the retail industry in South Africa and the concept of GL. A detailed research methodology was given in Chapter 4, looking extensively at the research process followed.

This study followed the semi-structured interview guide to conduct the interviews. The researcher focused on one organisation which made it easy to identify participants with extensive knowledge regarding the topic within the organisation. The participants were selected from different departments, which included the logistics, procurement, transport, properties (distribution/warehousing/stores centres) and waste management departments. A total of nine participants were interviewed. The participants were asked about their background and their understanding of the GL concept. The participants showed significant knowledge of the subject and how they relate it within their organisation. Included within the participants were the third-party providers for transport and waste management. Table 6.1 shows the details of the participants and the interviews.

Table 6.1: Details pertaining to the interviews with all participants

Participant	Department designation	Interview duration
Participant 1	Sustainability	31m 2s
Participant 2	Sustainability	43m 42s
Participant 3	Sustainability	1h 34s
Participant 4	Logistics (3rd party service provider - transport)	33m 44s
Participant 5	Supply Chain	57m
Participant 6	Logistics (3rd party service provider - transport)	43m 51s
Participant 7	Logistics	29m 22s
Participant 8	Supply Chain (3rd party service provider)	65m 7s
Participant 9	Technical	28m 41s

The research was set to achieve the following research objectives:

- To explore ways of incorporating GL practices across retail supply chains.
- To identify the challenges and obstacles associated with implementing GL practices in retail supply chains.
- To explore the benefits of implementing GL in retail supply chains.
- To determine the awareness of the importance of GL in the supply chains.
- To explore how technology can assist in facilitating the implementation of GL practices.
- To identify future opportunities for GL in retail supply chains.

To achieve the above-mentioned objectives, the participants were asked the following research questions:

- What is your understanding of green logistics?
- What areas are part of your green logistics drive?
- What green logistics practices do you implement in your part of the organisation?
- Is there a specific framework, programme, or process that you can follow to incorporate GL in your organisation?
- What challenges or obstacles does your organisation face in the implementation of green logistics?
- What benefits do you think can be accrued by implementing green logistics?
- How does your organisation create awareness of the importance of green logistics in the organisation?
- How does your organisation create awareness or require suppliers to consider/implement green logistics?
- Does your organisation use technology to assist in implementing and improving green logistics? If yes, what technologies do you use? To what extent have these technologies assisted in achieving or improving green logistics objectives?
- What techniques or activities could be recommended to consolidate green practices in the existing structures of your organisation?
- How and how often do you report on progress in green logistics and what is your experience and opinion about green logistics reporting (benefits, drawbacks, and importance)?

6.2 OUTLINE OF THE THEMATIC PROCESS FOLLOWED

In this section, the researcher presents the results obtained from inductive thematic analysis. The qualitative analysis utilised by the researcher entailed the six-phase, thematic analytical process defined by Braun and Clarke (2006). Each of the six phases of thematic analysis will be presented as well as what each phase entailed. The steps were as follows.

Phase One: Familiarising with the Data

According to Braun and Clarke (2006), this phase provides the foundation for the rest of the analysis. Within this phase, the researcher immersed themselves with the data

to the extent that they became familiar with the breadth and depth of the content. This immersion entailed reading and rereading the data and ensured that the researcher read the data in an active manner by which they searched for and identified patterns and meanings within the data (Braun & Clarke, 2006).

Phase Two: Generation of Initial Codes

Once the researcher had familiarised themselves with the data, as well as generated initial ideas and observations regarding the data, the researcher delved into Phase Two. Within this phase, the researcher generated initial codes in a meaningful and systematic manner (Braun & Clarke, 2006) through the utilisation of ATLAS.ti v22, a qualitative data analysis software. These codes were interesting features of the data that related to the aims and objectives of the research study (Braun & Clarke, 2006). ATLAS.ti V22 allowed the researcher to manage the data as well as develop initial codes. These codes were continuously modified throughout the process in which certain codes were disregarded and several others were merged.

Table 6.2: Preliminary codes and their definition

Codes	**Definition of codes**
Strategy to bring everyone on board	Strategy to bring everyone into working towards the organisational goals to achieve GL.
Green marketing	Green marketing initiatives to enhance awareness of GL practices.
Ethical sourcing	Sustainable ethical sourcing.
External funding/aid	Funding sought externally to cover GL costs.
Suppliers and sustainability	Ways to help small and medium enterprises (SMEs) to be more sustainable.
Talent acquisition	The extent to which Human Resources Management acquired the right talent.

Codes	Definition of codes
Frameworks, programmes or processes to incorporate GL	Frameworks, programmes or processes to incorporate GL in the organisation.
Departments	Departments involved to achieve GL goals.
Benefits of implementing GL	The benefits that can be accrued by implementing GL.
GL understanding	Understanding of the GL concept.
Consolidation of green practises	How the company consolidates green practices in the existing structures.
Report on progress	Report the progress on the implementation of GL practices.
Guidance to creating awareness	Raising or creating awareness of the importance of GL.
Use of technology	Use of technology to assist in implementing and improving GL.
GL main issues	Challenges or obstacles in the implementation of GL. GL areas that need attention.
GL practices	GL practices that are being implemented to achieve GL.

Source: Author, 2022

Phase Three: Searching for Themes

Within Phase Two, the researcher identified and generated a long list of codes across the data set. Within Phase Three, the researcher analysed the final codes generated to determine which codes presented a similarity and thus sorted these relating codes into potential themes (Braun & Clarke, 2006). These themes demonstrated important aspects of the data in conjunction with the research aims and objectives.

The following table represents the initial themes generated as well as the various codes that fall within each theme.

Table 6.3: Preliminary themes and corresponding codes

Theme	**Code**
Technological facilitation	Use of technology Consolidation of green practices Frameworks, programmes, or processes to incorporate GL.
Current GL practices	GL practices Small suppliers and sustainability Strategy to bring everyone on board Talent acquisition
GL awareness	Green marketing Guidance to creating awareness Report on progress
GL challenges and opportunities	Benefits of implementing GL Ethical sourcing External funding/aid GL: main issues
Definition of GL	Background information Departments GL understanding Rating Talent acquisition

Source: Author, 2022

Phase Four: Reviewing the Themes

Once the researcher had drawn up a set of potential preliminary themes within Phase Three, the researcher was able to progress to Phase Four in which they refined the developed themes (Braun & Clarke, 2006).

Phase Five: Defining the Themes

Within this phase, the researcher defined each theme identified and thus distinguished the essence of what each theme is about (Braun & Clarke, 2006). The final themes identified are presented in Table 6.4, along with their accompanying definitions.

Table 6.4: List of themes, sub-themes, and codes

Theme	**Code**
Technological facilitation	Use of technology Consolidation of GL practices Frameworks, programmes, or processes to incorporate GL
Current GL practices	GL practices Strategy to bring everyone on board Talent acquisition Frameworks, programmes or processes to incorporate GL Rating
GL awareness	Guidance to creating awareness Report on progress Small suppliers and sustainability Talent acquisition
GL challenges and opportunities	Benefits for implementing GL External funding/aid GL main issues

Definition of GL	Background information GL understanding
Elements of GL	Green marketing Ethical sourcing Green transportation Departments

Source: Author, 2023

Phase Six: Discussion

A detailed discussion of the findings is given in the following section.

6.3 DISCUSSION OF FINDINGS IN RELATION TO OBJECTIVES

The discussion of findings is presented in line with the research question and objectives. The following table illustrates data findings of the empirical study in relation to study objectives.

Table 6.5: Presentation of study objectives against data findings

Objective	**Data findings**
To explore ways of incorporating GL practices across retail supply chains	Ways of incorporating GL ● Use of renewable energy through the installation of solar panels on the stores and warehouse roofs. ● Offering recycling facilities to cater for recyclable product waste and materials. ● Recycling water. ● Use of tanks to collect rainwater. ● Use of energy and fuel-efficient transport modes such as scooters for deliveries.

	• Sustainable sourcing. • Tracking of fuel, water and gas usage. • Installation of electric fridges on trucks. • Vehicle tracking devices. • Waste management. • Health and safety audits (including food safety processes/ regulation). • Collaborating with suppliers to ensure GL practices are being implemented. • Training employees.
To identify the challenges and obstacles associated with implementing GL practices in retail supply chains	Challenges and obstacles • High capital investments act as a challenge for retailers to adopt GL practices. • Limited GL initiatives at individual store level if it is located within a shopping mall where the store does not own the building. • Problems in getting and consolidating data on GL initiatives from different departments for reporting. • Accuracy of data is a challenge. • Lack of governmental support. • A lack of availability of new technologies and infrastructure that can support the implementing GL practices.

	• Difficulties in measuring things such as waste for reporting purposes. • High government taxes on imported products such as electric vehicles. • Shortage of recycling plants. • The reporting side of GL is time consuming.
To explore the benefits of implementing GL in retail supply chains	Benefits of GL • Operational cost savings through energy efficiency. • Reducing gas emissions. • Less use of resources. • Lower logistical costs that eventually filter down to prices of consumer goods. • A better lifestyle for consumers. • Information provided on reports for GL practices helps the consumers and investors to make informed decisions. • Reporting on GL initiatives can be a learning curve for other retailers.
To determine the awareness of the importance of GL the supply chains	How the organisation is creating awareness of GL • Working directly with suppliers and third-party service providers such as transporters and waste management companies.

	• Offering GL expertise to small to medium suppliers. • Educating and encouraging consumers and suppliers to practise GL. • Putting educational posters around the stores and distribution centres (DCs) to educate consumers and employees. • Using social media platforms such as Facebook to run campaigns about GL practices. • Publishing reports on websites for investors, consumers and the public to see. • Internal communication with the employees every week. • Using packaging of products to communicate about going green.
To explore how technology can assist in facilitating the implementation of GL practices	Technologies being used. • Online tracking of water and electricity usage. • RFID technology. • Waste dashboards. • Use of reverse vending machines for an easy recycling process. • Online platforms such as Sedex being used to evaluate suppliers on their commitment to sustainability.

To identify future opportunities for GL in retail supply chains	Future opportunities ● Expand the adoption of electric vehicles in South Africa. ● Incentivise recycling of products or materials. ● Investing in technological systems that can help organisations to manage data. ● Automating processes. ● Developing software that can facilitate the live sharing of data across the supply chain.

Source: Author, 2023

6.4 DISCUSSION OF THEMES

This study was aimed at investigating the implementation of GL practices in a retail organisation in South Africa. To be able to do an in-depth study, the researcher designed research questions that were aligned with the primary and secondary research objectives. This section consolidates the key findings to the research questions used.

6.4.1 Green Logistics

Within this theme, the researcher identified sub-themes as discussed in the following sections.

6.4.1.1 Green logistics understanding

This research question was designed to determine whether participants understand the concept of GL. Most of the participants have an understanding and idea of what GL is. All their responses agree to the fact that GL is all about reducing the negative impact caused by an organisation's activities on the environment.

> Green logistics is about reducing our impact on our environment and thereby also developing more efficient ways of moving products from manufacturer to consumer. Where be it, through different networks of different methodologies, or shortening the links in the supply chain, or just by investigating alternative materials, or by enabling reuse and recycle capability within the supply chain itself. (Participant 8)

One participant in particular viewed GL as initiatives that are put in place by organisations to tackle the environmental problems caused by activities such as transport.

> … refers to any initiative that companies, logistic companies, and transport companies and retailers and those organisations that make use of transport, any initiatives that they implement, to try and make it as sustainable as possible. So that can be aimed at the fuel that is used or more efficient vehicles, or if it's refrigerated trucks, what type of refrigerant gases that they use. So really, it's anything to try and reduce the impact that logistics has on the environment. So, it can be about reducing emissions or reducing, like any other types of pollution that's associated with the logistics system. (Participant 1)

However, one participant was not familiar with the term GL before they were introduced to the interviews. Participant 3 had never heard the term ‘GL’ but they went on to define it as defined by other participants. They emphasised the minimisation effects on the environment. The participant was familiar with the term sustainability as it is the one they often use within their organisation.

> … So green logistics, to be honest with you before you’ve reached out, I haven't heard that term before. So, I'm assuming it's, we, green logistics is within the retail sector, we are trying to the value chain of getting our products from point A to B, you trying to make that as sustainable and as environmentally friendly as possible. If that makes sense? Yeah, so in the retail sector, obviously, the way I understand logistics is getting our products from the warehouse to our stores, from our suppliers manufacturing plants or their warehouses to our

> distribution centres, and from our distribution centres to our stores. So that whole process, green logistics is basically trying to make it as environmentally green as possible, you know, by using less fuel, driving less, you know, and using, I don't know, using certain types of trucks. (Participant 3)

Some participants defined their understanding of GL based on their area of expertise or the department they fall under. For example, participants in the transport department viewed GL in terms of minimising gas emissions and fuel usage. Their emphasis was on the adoption of electric vehicles and installing electric fridges on the vehicles to minimise the use of diesel.

> Green Logistics is the new way forward in the transport industry. This is things like we can start with cooling units on the trucks where if you really want to go green you can either use electric fridge or some companies go for nitrogen, but I think the future is moving to the electric side of it, then in South Africa and in Africa, we are tracking a bit behind with the rest of the world regarding electric trucks and so on. So, we always try and source the vehicles that are the most fuel efficient, running on diesel obviously but yeah, that that is as far as our green logistics goes. Obviously also things like isolation of the truck bodies, especially with fridges are involved. Not to let hot air in too quickly also contributes to a greener future. (Participant 6)

6.4.1.2 Green logistics practices

As one of the pioneers in the industry to implement GL, this retail organisation is implementing a number of GL practices. One of their major focuses as the group (the organisation) is to minimise waste and promote green packaging which they refer to as “sustainable packaging”. The organisation developed a partnership with a third-party organisation to manage its waste. This shows a huge commitment to fight against environmental degradation. Most participants emphasised reducing gas emissions, energy efficiency, packaging, waste, and water management.

> Our understanding is that our company reduces its impact in the environment. And this impact is caused by things like carbon emissions in different ways. So,

> the organisation’s refrigeration, but it's also transport. It's waste management, you know, but where is the waste management? It’s the waste management, that is at stores its waste management, at our distribution centres. It's waste disposal, how do we dispose of our waste at this stores or end to end, let's say that, you know, there's a move from a store to DC and then we dispose them, you know, with different ways and packaging, you know, how can we improve the packaging. (Participant 5)

Participant 1 made a point that the organisation has a huge focus on energy efficiency in both warehouses and their stores. This is because there is intensive use of energy whether it is in cooling, heating, or lighting. Basically, almost every equipment or appliances use energy.

> I think there is a very big focus on energy efficiency for the retailers, that's just installing more energy efficient light bulbs and things like that, doing online electricity metering, which means that they can quite clearly see when a certain warehouse or a certain area in the warehouse is using too much electricity. And in that way, they can become much more efficient. And then in terms of refrigeration, many of the bigger warehouses use natural refrigeration systems to cool any of the fresh products, which will then lead to lower emissions for the distribution centre as well. (Participant 1)

The organisation also has a dedicated procurement team that works tirelessly on procuring goods that are environmentally friendly or grown in a sustainable way.

6.4.1.3 Benefits of implementing GL practices

As mentioned in the interviews, several benefits can be achieved through implementation of GL practices. Among all benefits discussed, cost saving is the major benefit that all participants emphasised. These cost savings are in the form of lower operating costs, lower interest rates from banks and lower maintenance costs on vehicles and machines. This corroborates with the study by Agyabeng et al. (2020) which found positive relation between GL implementation economic performance for organisations. Other benefits mentioned are alleviation of poverty, better lifestyle for

consumers and ultimately lower prices of goods to consumers. Similarly, Agyabeng et al. (2020) study also showed a positive corelation between GL and social values and ethics. In other words practising GL is another way of catering for and improving living conditions for human and animal life.

From the organisational perspective, benefits that can be attained are that of increased brand value, resources efficiency and costs reduction.

> Well, there are opportunities for cost reductions, there're opportunities for reducing the environmental impact, all of these big companies usually have the same ability targets. So those are being able to achieve them means that they can get better brand value, they can talk about it with their customers, they can use it for marketing. So, there's really, there's a lot of benefits. And they are just about trying to implement something that makes sense for the business. But it's all about cost and efficiency and using less resources and things like that. (Participant 1)

Participant 8 reiterated the effect of GL on consumer goods. They suggested that if the movement of goods is efficient and cheaper, it will have a positive effect on the prices of consumer goods. A study by Aldakhil et al. (2018) also confirmed the costs that are associated with transport and infrastructure due to carbon emissions and these costs eventually filters down to the end customer in the form of high prices.

> You can start off with your cost savings and your maintenance savings. So, as you know, transport and especially the truck industry of logistics, that is a heavy contributor to prices of consumer goods. So, if you can start from there in any organisations, the heaviest up, the heaviest expense is your transport. Even with Pick n Pay, we are their transport supplier, and we are their biggest expense. So, from where you can start saving, being cheaper getting the product to the DC and the product from the DC to the shelves, you will reduce product prices and product increases. And also, you will be moving away from their script that the oil industry has gotten us by dictating oil and diesel prices the way they want. And that is contributing to a hell of a lot of increases across

> the world. Food increases and other goods. So yes, I think that is a big, big saving and then of course we mustn't forget Mother Earth, she will be taking a break. We might be polluting too much and all that stuff. (Participant 6)

One participant viewed recycling as a way of earning extra income for what they call “informal pickers” and said that it could help to reduce poverty. Another participant viewed the benefits of GL beyond the organisation's advantage and pointed out that these GL initiatives would benefit the future generation and also enable people to live more sustainably.

> In South Africa, from a recycling point of view, we've got all what they call the informal pickers. If those guys could pick more, they would earn more, and would also lift a lot more people out of poverty. The trap now is because those recycling facilities are not available there's only a limited number of items that the pickers can pick, and therefore doesn't allow them to earn as much as they possibly could earn if there were more recycling plants for various materials. (Participant 9)

> Oh, let’s call it the people that our children will actually benefit from, not us at this point in time. If we go green or total green logistics, I think they will have a better lifestyle or that is the main focus for us. (Participant 7)

Participant 8 added, “I think, a net zero cost would be good enough to them as shareholders in planet earth, I think there's huge potential for us to live more sustainably”.

6.4.1.4 Green logistics main issues/challenges

One of the challenges of implementing GL mentioned by almost all participants is costs. The findings show that organisations are interested in implementing GL but the costs involved scare them away because organisations cannot be environmentally proactive at the peril of making profit. Participant 3 argued that organisations always think of costs and profit and gave an example of goods transportation, mentioning factors such as quantity, frequency and capacity of carriers.

> …. we always talk about sustainability and green this, green that, but there's always a cost attached to it. And you know, as a business, the business must always think of costs. And so, I would say the, us, *[sic]* as a company has been limited to two track deliveries, you know, and they're not been an alternative to that. Because of the, of the quantity and of the frequency of our deliveries and the quantity. So, there's no alternative to us having a 14-ton or an 18-ton truck coming to our stores. (Participant 3)

> I mean the obvious one is cost, right. So, it's, you know, your sustainability can't be done at the expense of, it's difficult to do at the expense of operational profit, unless there's lots of profit, right? And retailers run on very thin profits. It's a cost as you mentioned, it's going to be, but it's, you know, it's a, I think it's a focus. (Participant 4)

Another challenge being faced is that of bringing technology to developing countries such as South Africa. The country has a lack of infrastructure that can efficiently support the newer technologies being used in developed countries such as the United States, Australia, to mention but a few. This challenge does not only end in acquiring technology, but the country also has a lack of experienced people who possess the right skills and knowledge to utilise those kinds of technology.

> Like I said, the main obstacle is getting the technology to South Africa. It is a very, very expensive exercise to get this technology in audit, it is a pricey affair, costs a lot of money. And then of course, once you have the technology, you also need the people to operate and be able to maintain the technology. And that is another thing we are lacking because we don't currently have that knowledge with technicians, maybe one or two but they’re far and wide. And because they are very specialised. They also come at a premium. (Participant 6)

While the will to implement a green framework to its fullest extent is evident, there are limitations to what retailers can do regarding green operations in the retail outlets,

particularly if they do not own the building, for example, they cannot install water meters. One participant mentioned that the government is not making it easy for them either to adopt GL initiatives in the form of taxes charged. This corroborated with the findings of Aldakhil et al. (2018) in which they mentioned that policy makers have to develop and implement policies that are favourable to the implementation of GL.

> Believe it or not the government and tax, the government doesn't really support green logistics, believe it or not, to get in the vehicles that are electric, I mean, it's 80% taxed. So that's why the whole South African environment, even the residential environment, can't move over to electric vehicles because of the taxation because the government needs the income on diesel and petrol. You know, just to sustain South Africa currently. (Participant 7)

> Just recently, in May, we published our climate target, because we want to be carbon-free by 2050. And then also work on a carbon baseline for financial year 2022 to have reached 60% in 2025. And then work on increasing renewable energy in most of our sites that we own. The challenge now is the fact that most of our stores are in malls, and we don't own those malls. So, if maybe we have a standalone store, then we might be able to introduce renewable energy because we own the building. But in most cases, the areas in which our stores are located don't own that building. So, it will, it becomes difficult then to install your solar panels on and then we're also working on energy efficiency reduction, which we want to have increased by four to 45% in 2030, and also CO_2 refrigeration as well in our stores and also DCs have 100% of that by 2040. (Participant 2)

One participant stressed that there seems to be a conflict between the retailer and mall developers when it comes to recycling of waste. According to the participant, some mall developers prefer the recycling to be done through their channels because of the money aspects involved. In other words, these mall developers earn money through recycling, and they insist on having all store owners send their recyclables through them so that they can increase their earnings.

> Part of the hindrance there also is that the main shopping mall developers insist on part of your lease agreement that all your recyclables have to go through them. You're not allowed to take it out of your own store back to your DC. It has to go through their plant that they put together because there's money to be made. I mean, I've, we've done systems, just recycling cardboard and plastic, where upwards of 5 million rands invested, and that's paid off in less than 18 months. (Participant 8)

One other major challenge they face as an organisation is that of consolidating data across all the group stores. According to Participant 3, the challenge lies in getting accurate data regarding the GL initiatives. The group has stores across the African continent and some of the countries such as Zimbabwe are still trailing on new technological developments because they simply do not have infrastructure that supports new technologies.

> The biggest challenges are getting the data and getting the right data to report on and because obviously you can imagine with this organisation as a retail business, we not only report because obviously the group has stores in Africa as well. So, we operate in Zambia, Zimbabwe, Swaziland and yeah, I think I mentioned it all, it will be in the report all the African countries we operating *[sic]* with. So, you can imagine we trying to report on and we trying to accumulate all this data and the accuracy to make sure the data is accurate, you know, so we can be reported on correctly, I think that is the biggest challenge. (Participant 3)

Another challenge mentioned by participants is that of lack of consumer participation in implementing GL initiatives. One participant mentioned that consumers create waste through their higher expectations on goods. An example given was that of fresh products, the participant said that

> And I think we as consumers, and it's our fault, we go to Woollies, we buy the perfect red apple or the perfect orange or the unblemished bananas, we driving that culture of, you know, we waste a third of what food that's produced,

> worldwide is thrown away and most of that happens before it actually leaves the packers.

In other words, the participant is blaming consumers for increasing wastage of food due to their high expectation levels. However, participants also emphasise that the organisation should incentivise some of the initiatives such as recycling and this would attract more consumers to participate. Also making recycling infrastructures easily accessible would make it easy for consumers to get involved in recycling activities. Currently consumers pay all the costs involved in recycling, that is for example fuel costs to drop off the recyclables and this itself can hinder their interest to recycle. Participant 8 said that one cannot blame consumers for not participating in the implementation of GL practices because consumers' thinking is being driven by the marketing activities which are often driving opposite directions.

> Yeah, the issue is that at the same time, you're competing with the other spectrum of the marketing gurus who's trying to showcase that differentiation leads to you buying the product, not what's inside. So, it's two beasts trying to drive the consumer thinking in opposite directions. (Participant 8)

> So, our return supply chain and South Africa is quite poor, and our consumer discipline is also quite poor. So, we have not yet created a good enough incentive for consumers to recycle or to return packaging to stores. (Participant 8)

6.4.1.5 Consolidation of GL practices / departments

Data findings suggested that different departments coordinate and work together towards the achievement of GL goals. The organisation has a sustainability department to which all departments, such as operations, logistics, commercial and technical teams report when it comes to GL projects. The sustainability department, therefore, is the centre piece that assigns and sets goals or targets for each department and later consolidates the reports on each team's progress. The participants made a point that the group’s department are inter-connected, and they work together to achieve one common goal, which is to minimise the negative effects caused by their operational activities.

So, we worked with them, the commercial team, so the buyers, everybody that's responsible for procuring stock from suppliers. Then we worked with the technical team. So, the technical team, they are the ones that manage all the product specifics and specifications, and they develop products, as they work quite closely with the commercial team, but they are more on the technical side. Then we work with the operations team. So, the operations team manages everything on the ground. So, the store operations, and things like that, and the different regions and distribution centres and all that sort of stuff. Then we also work with the procurement team. So, the procurement team, they work with the different service providers. So that might be the cleaning teams at the stores, or the waste management teams. So, basically, any contractor or any service provider that operates at the different stores. And then we also work with the marketing and communications teams. And that's obviously to get more communications and marketing up there. And that's pretty much all of them. Then the last one is just like the leadership team, senior executives and stuff like that. And they're the ones that really set the strategy and set the goals and targets for us to achieve. (Participant 1)

… Okay, so you have to understand how the organisation works as well. We've got a, we've got a commercial, and we've got a supply chain, and then we've got IT. So commercial works with the suppliers and their focus is on the packaging, and specifically on the organisation’s branded products. Their focus is also on the bags we buy at the stores. And they focus on the property department as well as sustainability at the store. The type of refrigeration we use, the type of lightning we use, whether we've got PVC panels on the roof, etc. In the supply chain, I'll focus on that, and we usually do it through RFPs, but you know, who's our transporter and what can they do to reduce the carbon emissions that the trucks use. (Participant 5)

Whilst Participant 5 emphasised how coordination of departments is assisting the organisation to achieve GL goals, Participant 8 pointed out that coordination among departments is a challenge because of misalignment of tasks, objectives, and

requirements. However, the same participant suggested the organisation is working on technologies that will assist in managing the coordination challenges.

> So, there's a huge opportunity to become more efficient there because you've got a default planning, store replenishment. But they don't necessarily understand what that demand translates into truck volume and because, again, that truck planning or routing doesn't directly integrate into the DC, it also doesn't necessarily know exactly how many pallets and milk containers that order volume is going to be producing. So, you've got three islands planning to execute a cost, but they're not driving as efficiently as possible towards the end goal. So, we are working on developing software that can real time feed information back into all of these systems to help them gain that understanding and machine learning and AI technology, get them to understand what the impact is. (Participant 8)

The organisation has centralised DCs which assist in managing stock efficiently across the group’s stores. Each store can request certain stock to be delivered only when it is needed, and this helps in eliminating waste.

> So, we have our distribution centre in Cape Town in Philippi. So basically, all, most of our suppliers deliver to our distribution centres. And then from the store, I think the stores are limited to one or two deliveries from our DCs which are our distribution centres, from our DCs to our stores. So, I mean that just managers, so the store manager can also manage when stock is coming. So, they will have a morning delivery and an afternoon delivery for example. So, there won't be trucks coming every hour, Oh, there's a truck outside Oh, there's another truck. So, the store manager will know they get in a delivery in the morning, and they get in a top-up delivery in the afternoon. So, one thing you must also bear in mind is that everything is automated. The company has moved to an automatic system where in the olden days or in the past the store managers used to physically, manually write the orders, how much stock they need, and that, but now everything is automated which is being communicated directly to the DC. (Participant 2)

6.4.2 Creating awareness

The findings suggested that the organisation is raising awareness regarding environmental protection. Most participants mentioned the use of green marketing as a tool to create awareness. One participant emphasised building relationships across the supply chain. The organisation has different departments internally and different suppliers with whom they work, and all these have different perceptions on everyday life and the surroundings. Therefore, building relationships helps to create awareness of what the next person is doing and in doing so it becomes easy to pull people in the same direction.

The organisation has a communication department that internally publishes information regarding new projects and gives updates on ongoing projects. The marketing department is responsible for the advertising. The organisation is on-boarding their suppliers and consumers to work together and have in mind the same goals towards the environment. Internally the organisation uses e-mailing and WhatsApp groups to communicate with their employees. They also offer training to their staff members to be environmentally conscious and to be able to work towards the established goals. Externally they are using social media platforms such as Facebook, LinkedIn and Instagram. They are running special projects such as cleaning beaches and parks. This is their way of creating awareness to consumers regarding environmental protection. The organisation also communicates through press releases and through magazines such as shelf talk.

> We have our comms department. We've got all, so, someone in our team to be able to share those communications with the comms department. So, whenever there are new developments, when it comes to green logistics or any sustainability initiative that we're doing in our department, we were able to communicate it on an E-mailer, which is called an E-chat that goes out to the business every week on Tuesday. And then we also have a shelf talk, I'd say more like a mini magazine called Shelf Talk, where we also share our sustainability initiatives as well in there. And then that's also digital and also paper wise, and then social media as well with our customers if we can. But I'm

with our employees, it's your internal comms mailer Shelf Talk. And then we also have an app called Vuzu, specifically for our employees, so we are able to communicate those projects in there. I think in the past years, there was also another cold storage project that the logistic team and also store operations had, where they wanted to make sure that a cold storage product, if it gets out of the DC, it must make sure that it reached the store as it was when it got out from the DC, educating the store people on how that can be done. And what they need to do on their side to make sure that product is exactly as how it was when it went out from the DCs. So that's our communication channels that we're using. And also store groups because we do have your store WhatsApp groups, so if ever there are urgent communication that needs to be done by a certain department when it comes to logistics and whatnot, then those can be communicated in there. (Participant 2)

Training the staff is a big thing, because it helps with nothing, buying a 2 million truck with all these features and all these things, but the person operating it can't even use 25% of it. So that is also a big drive from our side. But I think more than that, like I said, we are pushing [*sic]* for a paperless office, it is still a journey that is not easy, because, again, the industry is paper heavy. A lot of the customers are still on a paper-based operation. So yeah, but yes, we were taking it step by step. (Participant 6)

There's a campaign, that the organisation runs, called “The A project” and you know, it's about cleaning up the beaches, cleaning up the parks, getting rid of litter, talking about sustainable seafood and sassy, and talking about, you know, talking about the good things that customers can do to help the environment. Telling our customers that I think we could do more of telling our customers about the good things that we do, but our “The A project” programme definitely is the platform that we use to educate customers on the sustainability points. (Participant 9)

The organisation is also working with schools to educate children on how to practise environmental protection practices, eat healthy and why it is important for this

generation to protect the environment from the harmful activities caused by their daily activities. The retailer developed partnerships with different organisations to make this project a success.

> We also have our Schools Club, which we are trying to incorporate some of the sustainability initiatives that we do. In the past years, we've partnered with Petco, we've partnered, I'm not sure if you know those companies, Petco, mostly concentrate on PET, and then we also partnered with Polycore as well, just to bring in that education and awareness to schools. Because on our Schools Club programme, we've got over 3,000 schools that are registered. And then we develop CAPS-aligned content that goes to the school. It's a physical content, hard copy content that goes to these schools and the content includes sustainability, healthy living, supply chain, and we're partners with different brand owners like your Lucky Star to share, about omega three because they are known for that, the pilchard Lucky Star. And then there's another brand called Glad. Not sure if you know it, because it's those Glad plastics sleeves that you use either to put in your sandwich or store your fruit for smoothies. So, they also tried to bring education behind their sleeves plastic that they have to say it's made up of recycled content or any other education that they might bring in terms of how to store your food so that you don't create too much food waste. And also, I think in the previous years, we've partnered with Eskom as well, there are many brand owners that we've partnered with. (Participant 2)

6.4.3 Use of technology

Most of the participants appreciated the use of technology in implementing GL. They gave examples of how the use of technology to monitor (online) electricity and water metering is assisting in energy and water efficiency. The online water meter is helping the organisation to easily identify if there is a leak in any of their stores or DCs, thereby minimising water wastage. There is also an online platform named Sedex that the organisation is using when viewing and selecting their suppliers. The Sedex platform flags all areas that are known for working against the social and environmental goals

such as the use of child labour. Therefore, an organisation can easily identify suppliers that are aligned with their environmental goals.

> So, technology is used in various ways to add to warehouses, there will be online electricity metering, and online water metering just to ensure that all the data is up to date, and they know when something's happening, or where problems occur, or where there's too much electricity used, etc., etc. And I mean, it's the whole thing with sustainability, a lot of it is about efficiency, and you'll just get more efficient the more technology you use. (Participant 1)

> I would say with our online water checks that we do with our stores and also with our DCs because it all helps us to see the flags. Because if there's a leak somewhere, then the online metering system will be able to notify us, that's technology on its own. What else, I can't think of anything else. Renewable energy as well, we've got an online dashboard as well, that assists in terms of checking that system as well. And then on waste as well we are able to track waste for each of our stores and also the DCs. (Participant 2)

> With the Sedex platform, we're able to see that because it's an online platform, whereby you are able to view all of your suppliers, and then it will give you flags to say if this area is known for child labour, then you really, really need to work with your suppliers to make sure that that doesn't happen. (Participant 2)

Technology has assisted retailers to transit smoothly to multi-channelling retail, whereas in the previous years only brick and mortar retailing was available. Most of the retailers in South Africa are now offering online shopping which is convenient for consumers who do not prefer physical shopping, thus relieving pressure within the stores whilst promoting environmental initiatives of reducing air pollution though less vehicles movement.

6.4.4 Report on GL progress

The organisation has different levels of reporting about their progress on GL projects. Internally, the organisation reports monthly for employees to be updated on how their

projects are performing. The organisation also compiles reports quarterly for their investors and shareholders to see what the organisation is working on. The public report that is uploaded on their website is done annually. So far reporting has been beneficial to the organisation as it maps a clear picture of what the organisation is doing, and it helps to enhance their brand image. Reporting makes data readily available in the system and can be used as a benchmark by other retail organisations who would want to start implementing GL practices.

> We used to do our sustainability report every two years. But now things have changed this year, we are going to be doing our sustainability/ESG report every year. So that helps in terms of publishing what we've done, and then in, so that, if any of our investors or anyone who's doing research would like to know where the organisation stands on sustainability, then they are able to go through that. (Participant 2)

6.4.5 Small suppliers and sustainability

Small organisations find it difficult to implement GL practices mainly because of the costs involved and a lack of knowledge and expertise regarding the subject. This retail group made it their goal to support these small suppliers so that they can compete with the big suppliers in the market, bearing in mind that they will need to be practising environmentally friendly operations. To help their small suppliers to adopt GL practices, this retail organisation is working with about 150 to 200 small suppliers, and they run a mentorship programme in which they offer support to these small suppliers. The support includes linking these small suppliers with funders, offering expertise and helping in designing environmentally friendly packaging materials. The group is also supporting the social development goals of black economic empowerment (BEE) by working with black-owned small businesses.

> We've got a programme in place within the organisation for small suppliers through our ESD programme. And then we've got a system where we support them, so there's a mentorship programme that's in place to assist the small supplier to allow them to progress and I have to say it's really fantastic to see how some of these small suppliers have exceeded far some of the big suppliers

in terms of their food safety requests. So, we don't just leave them, there is a process that they can follow to try and get them to pass those requirements. (Participant 9)

So, within the group, that's one of our big focuses. We actually have a small supplier, SME division. I think we reach over 150 to 200 small suppliers now that supply our company. So, as a group, we focus a lot on SMEs … Because obviously, most of these SMEs are all black owned, they're black woman owned, there's a few that are just black woman owned. So, we put them in touch with the government, so they can get the funding from that, we personally don't fund them. But we provide them with our expertise, so to speak. Like, obviously, because within the organisation, we have all divisions or expertise, our buyers work with them, our technical division works with them in terms of designing the packaging. (Participant 2)

6.5 CONCLUSION

This chapter introduced the study's findings. Firstly, the researcher narrated the thematic process followed to reach the findings. From the data findings, it is evident that the retail organisation is significantly involved in the implementation of GL practices. Furthermore, the research findings show that this retail group has in place targets and objectives they intend to achieve over a certain period of time. The literature review showed that there is a need for organisations to work together towards the achievement of GL initiatives and this retail organisation is doing just that through their collaboration with different third-party service providers and mentorship programmes they are offering to small suppliers. The organisation is also running environmental protection campaigns around the community to educate them on how they can behave responsively.

GL practices currently being implemented were identified and among those identified, the organisation is emphasising mostly reducing packaging that damages the environment, minimising waste and water usage, reducing fuel and energy consumption through the utilisation of fuel-efficient trucks and energy efficient equipment respectively.

In the next chapter the literature findings, the empirical findings and the research objectives will be aligned. The limitations of the study and recommendations will also be addressed.

CHAPTER 7: RECOMMENDATIONS AND CONCLUSIONS

7.1 INTRODUCTION

This study was aimed at collecting qualitative data within the South African retail industry specifically focusing on one large retail organisation. Therefore, the researcher followed a case study design approach. Chapters 1 to 5 focused on the research objectives, problem statement, literature review and research design process. Chapter 6 analysed the data findings in relation to the identified themes and research objectives. This chapter intends to elaborate on recommendations and conclusions to the study.

It is evident from the findings that the concept of GL is the future for the retail logistical operations. However, there is still a lot of work that needs to be done from the manufacturers and retail organisations, filtering down to consumers. The retailers are strongly positioned to initiate the adoption of GL initiatives from both the consumers' and suppliers' sides. It is believed that the government plays an important role in the implementation of GL practices. Among things that were mentioned, the major emphasis is on the government to practise relaxation of taxes, especially on initiatives that are meant to promote environmental protection, for example purchase of electrical vehicles. Another emphasis is on consumer involvement in the implementation of GL practices, and this can be assured through educating consumers about the importance and benefits of adopting GL.

7.2 THE RESEARCH OBJECTIVES

This section will revisit the research objectives as indicated in Chapter 1.

7.2.1 Primary research objective

The primary objective of this study was to investigate and explore the implementation of GL in a retail organisation of South Africa.

7.2.2 Secondary research objectives

The secondary research objectives are given as follows:

- To explore ways of incorporating GL practices across retail supply chains.
- To identify the challenges and obstacles associated with implementing GL practices in retail supply chains.
- To explore the benefits of implementing GL in retail supply chains.
- To determine the awareness of the importance of GL in the supply chains.
- To explore how technology can assist in facilitating the implementation of GL practices.
- To explore the impact of GHRM in the implementation of GL practices in retail supply chains.
- To identify future opportunities for GL in retail supply chains.

7.3 LINKING RESEARCH OBJECTIVES TO LITERATURE AND DATA FINDINGS

Chapters 2 to 5 provided a literature review regarding the topic which was used as a benchmark for this study. The author took a closer look into the sustainability concept and GSCM which are regarded as the umbrella terms for environmental protection. An investigation into the retail industry of South Africa was carried out, followed by a chapter which focused specifically on GL. The gaps identified in the literature review provided the baseline for developing these research objectives. The empirical findings support the literature and contribute to the achievement of the intended objectives. The following table illustrates the link between the research objectives and the data findings.

Table 7.1: Linking the research objectives to the key findings and relevant sections

Objective	Findings	Applicable section
To investigate the implementation of GL practices in the retail organisation of South Africa	Literature review	Chapters 2 to 5

To explore ways of incorporating GL practices across retail supply chains	Identified ways to implement GL: • Recycling • Use of renewable energy • Sustainable sourcing • Waste management • Health and safety audits • Training employees and consumers	6.4.1.2 6.4.1.5 6.4.2 6.4.1.5
To identify the challenges and obstacles associated with implementing GL practices in retail supply chains	Identified challenges of implementing GL: • High capital investments • A lack of accurate data • Shortage of technological advancement and infrastructure • High government taxes and a lack of governmental support • Shortage of infrastructure such as recycling plants	6.4.1.4
To explore the benefits of implementing GL in retail supply chains	Identified benefits of implementing GL: • Operational costs savings • Less usage of resources • Lower logistical costs leading to lower prices to consumers • Better living conditions for consumers • Setting benchmarks for other organisations to implement GL • Reduction in gas emissions	6.4.1.3
To determine the awareness of the importance of GL the supply chains	Identified methods of creating awareness: • Collaboration with suppliers and third-	6.4.2 6.4.4 6.4.5

	party service providers • Educational seminars to small to medium suppliers • Use of social media platforms • Educational posters • Reporting progress of GL projects on websites	
To explore how technology can assist in facilitating the implementation of GL practices	Identified technologies: • Online tracking of water and electricity • Online supplier evaluation platforms • Use of RFID technology • Use of reverse vending machines • Use of waste dashboards to track waste	6.4.3 6.4.5 6.4.4
To identify future opportunities for GL in retail supply chains	Identified future opportunities: • Adoption of electric vehicles • Automation of processes • Development of software that allows data sharing across the supply chain • Investing in technology developments	

Source: Author, 2023

7.4 DISCUSSION OF THE RESEARCH OBJECTIVES

This section seeks to discuss the research objectives in relation to literature provided in Chapters 2 to 5 and data findings. The following sections give a detailed discussion of each objective.

7.4.1 Research objective 1

To investigate and explore the implementation of GL in a retail organisation of South Africa.

The first objective was to explore and understand the implementation of GL practices in the retail organisation. A literature review was conducted through consulting different journals, books, press release statements and retail organisation websites. The idea was to gain extensive knowledge and insights relating to the implementation of GL practices in the retail industry. Consulting literature helped the researcher to develop research objectives and from there the research questions. The literature review revealed that GL practices are currently being implemented within the retail industry of South Africa. However, literature also indicated that developing countries, such as South Africa, are still behind with regard to the implementation of GL as compared to developed countries such as Australia, England and the United States of America. A number of challenges were identified in literature review and also confirmed in the data findings.

7.4.2 Research objective 2

To explore ways of implementing GL practices across the retail supply chain

To gain insight into the ways of implementing GL practices within this specific organisation, each interviewee was presented with an open-ended question and asked to identify ways of implementing GL practices that are currently being implemented by their organisation. Among the ways mentioned by each interviewee, four major GL practices were identified. These included recycling, waste and water management, the use of energy efficient equipment across the stores and the DCs, as well as using sustainable packaging.

7.4.3 Research objective 3

To identify the challenges and obstacles associated with implementing GL practices in retail supply chains

In the literature review, a number of challenges posing threats to the success of GL were identified. This objective mentioned above was developed to identify challenges and obstacles that retailers in South Africa specifically are facing. The data findings in

section 7.3 confirmed that these challenges associated with the implementation of GL practices remain a concern to all organisations. However, participants mentioned ways that could mitigate these challenges, and among those identified, government involvement and support was emphasised. This is supported in literature as well in section 4.2.6.1, where different authors emphasised the importance of the government role in the implementation of GL practices.

7.4.4 Research objective 4

To explore the benefits of implementing GL in retail supply chains

Although it is now a policy for organisations to adopt GL, a little bit of motivation can help organisations to reach a decision when it comes to spending money on projects that could take a long time to retain profits or that require high capital investment. This research objective was identified to determine benefits that could be accrued by organisations when they implement GL initiatives. Participants mentioned that it is not ideal for an organisation to sacrifice profits over costs. This simply entails that profit is always the number one priority for any commercial organisation. Participants confirmed that the implementation of GL practices has brought about benefits such as reduced operational costs, less usage of resources such as water and electricity, providing better lifestyle and affordable goods and services, thereby enhancing their competitive advantage.

7.4.5 Research objective 5

To determine the awareness of the importance of GL in the supply chains

It is important for organisations to make their GL efforts known to the stakeholders, suppliers, consumers, government and the public at large, and thereby motivate them to also get involved. This research objective was aimed at obtaining insight into how organisations are creating awareness towards the implementation of GL practices and the importance of creating awareness thereof. Creating awareness does not only publicise the efforts of individual organisations but also works as a benchmark for other organisations that are planning to adopt GL practices. Considering the high investments required to implement GL initiatives, creating awareness by individual organisations can assist others to save time and financial resources, for example small organisations that do not have the capacity to do so. The participants of this study

confirmed that the organisation in question has been involved in creating awareness in the form of educational programmes for small suppliers, helping small suppliers to get financial help to implement GL initiatives and working with the community to practise GL. The literature review in section 4.2.6.3 also emphasised the importance of retail organisations to raise awareness of GL to consumers. All the efforts of implementing GL practices from the retailer's side can go to waste if the end user is not aware of the importance of adopting GL. As stated in the literature review, the implementation of GL has to begin from the first stage in the supply chain, which is manufacturing (suppliers), and must filter down to the consumer.

7.4.6 Research objective 6

To explore how technology can assist in facilitating the implementation of GL practices.

Section 4.2.6.4 explored the adoption of technology in the implementation of GL practices. The literature showed how the adoption of technology has fast-tracked the implementation of GL practices. Participants also stressed how technology has assisted their organisation to implement GL successfully. In addition, participants emphasised the development of infrastructure that can allow the adoption of these new technological advances. It is evident from the study that South Africa still lacks proper infrastructure that is compatible with the new technological developments. The use of technology is, for example, allowing organisations to share live information, track and trace product movements across the supply chain and the effects they are causing to the environment, as well as track their resource usage, thereby allowing them to flag areas causing wastages immediately.

7.4.7 Research objective 7

To identify future opportunities for GL in retail supply chains

Retail organisations need to embrace the adoption of GL and make the best of it. This objective, therefore, was set to identify future opportunities for GL in the retail industry. The participants identified the following:

- Expand the adoption of electric vehicles in South Africa.
- Incentivise recycling of products or materials.
- Investing in technological systems that can help organisations to manage data.

- Automating processes.
- Developing software that can facilitate the live sharing of data across the supply chain.

7.5 LIMITATIONS OF THIS STUDY

This study focused on a single retailer in South Africa which could have limited views or information regarding the implementation of GL practices. Therefore, the data findings may not be representative of the entire South African retail industry. In addition, the data findings are limited to the retail organisation, side-lining the views of consumers, suppliers, government and other concerned stakeholders. Thus, this study only focused on the point of selling, excluding the point of production and the activities of the end user, which is the consumer.

7.6 RECOMMENDATIONS AND CONTRIBUTION TO FUTURE RESEARCH

Although this study focused on one retail organisation, the findings are replicable to other retail organisations. Therefore, the findings can be used as a benchmark for implementing GL practices, especially for small organisations. These findings can be used to create awareness and encourage other retailers that have not decided to incorporate GL within their operations.

There is still limited research in this field, especially in developing countries, therefore further research should be conducted looking across the whole retail supply chain. It is important to understand the effects of these logistical operations from point of production to the point of consumption. The GL field is still not yet clearly understood and further investigations and awareness creation are of paramount importance.

7.6.1 Recommendations for retail organisations and other stakeholders

After attentively analysing the data findings, the following recommendations are drawn:

- The government should implement policies and regulations that encourage and incentivise organisations to implement GL practices, such as financing or investing

in projects, offering incentives for organisations implementing GL and showing full force of law for any organisations causing negative effects on the environment.

- Government should develop projects that financially support and offer expertise in the field of GL to SMEs.
- Retailers, consumers, suppliers and other stakeholders should collectively work together towards the achievement of GL objectives throughout the supply chain.
- Consumers must make an effort to practise GL practices within their own areas of activity.
- Retailers, with the support from the government, should make available recycling facilities across the country.
- Retailers should consider and adopt innovative technologies that can help implement GL practices efficiently.
- Retailers should encourage their suppliers to be environmentally responsible and strive to work with those that practise the same.
- Retail organisations should work together with the experts within the GL field to continuously provide learning to their employees about new developments.
- Retail organisations should continuously offer training to their employees to be able to keep up with technological advancements.
- Organisations should set targets and KPIs to compare results achieved against set goals.
- Incentivising recycling activities by means of store coupons or discounts on groceries.

7.6.2 Future areas of research

While this study focused on one retail organisation, future research could be extended to all retailers in South Africa, including the SMEs. This could generate findings that could represent the whole retail industry and give further insight on how SMEs view the impact of GL practices. Participants further highlighted the need for the government and consumers to play their part in the implementation of GL, therefore, an extensive study towards the stakeholders' views towards GL practices could shed more light on the status of GL implementation in South Africa. With the above being said, the following summary of future research is given:

- Investigate the implementation of GL across the whole retail industry in South Africa.
- Investigate the impact of stakeholders' involvement in the implementation of GL.

7.7 CONCLUSION

This study was aimed at understanding the GL practices being implemented in the retail industry of South Africa. From the examinations made, the retail organisation that was being investigated is actively involved in the implementation of GL practices. This was confirmed in the nine interviews that were conducted. Among the interviewees were third-party providers for transport and waste management. Transport services are well known for gas emissions which are impacting the global ecology significantly, hence an emphasis was placed on discussions of ways of managing the negative impact being caused by the transport activities. Among areas of GL that require attention, the participants identified transport, energy use, waste and water management as the main pressing issues within their organisation.

It is evident that the implementation of GL practices in developing countries such as South Africa is still a challenge as compared to developed nations in the European countries. The most challenging problem faced is that of high costs involved in the implementation of GL practices. Most organisations do not have readily available capital to invest in GL projects and the costs of obtaining capital required through the banks are expensive. These views were supported through literature reviews related to the study and published documents on the organisation's website. It can therefore be confirmed that the research objectives were achieved.

LIST OF REFERENCES

Adams, J., Khan, H.T. & Raeside, R. 2014. *Research methods for business and social science students*. SAGE Publications India.

Adhikari, A., Biswas, I. & Avittathur, B. 2019. Green retailing: A new paradigm in supply chain management. In *Green business: Concepts, methodologies, tools, and applications*. IGI Global, 1489-1508.

African Business. 2020. Available at: https://african.business/2020/08/economy/south-african-retail-and-the-story-of-africas-consumer-boom/. [Accessed 28 December 2022].

Agarwal, A., Giraud-Carrier, F.C. & Li, Y. 2018. A mediation model of green supply chain management adoption: The role of internal impetus. *International Journal of Production Economics*, 205:342-358.

Agile Business. 2021. Business agility. https://www.agilebusiness.org/ [Accessed 02 July 2022].

Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., Dacosta, E. & Tian, Z. 2020. Green warehousing, logistics optimization, social values and ethics and economic performance: the role of supply chain sustainability. *The International Journal of Logistics Management,* 31(3):549-574*.*

Agyekum, K., Botchway, S.Y., Adinyira, E. & Opoku, A. 2021. Environmental performance indicators for assessing sustainability of projects in the Ghanaian construction industry. *Smart and Sustainable Built Environment.*

Aldakhil, A.M., Nassani, A.A., Awan, U., Abro, M.M.Q. & Zaman, K. 2018. Determinants of green logistics in BRICS countries: An integrated supply chain model for green business. *Journal of Cleaner Production,* 195:861-868.

Álvarez Jaramillo, J., Zartha Sossa, J.W. & Orozco Mendoza, G.L. 2019. Barriers to sustainability for small and medium enterprises in the framework of sustainable development—Literature review. *Business Strategy and the Environment*, 28(4):512-524.

Ames, H., Glenton, C. & Lewin, S. 2019. Purposive sampling in a qualitative evidence synthesis: A worked example from a synthesis on parental perceptions of vaccination communication. *BMC Medical Research Methodology*, 19(1):1-9.

Andrade, R.P., Lucato, W.C., Vanalle, R.M. & Vieira Junior, M. 2013. Reverse logistics and competitiveness: A brief review of this relationship. In Poms Annual Conference, 24th.

Antel Solutions. 2020. Available: https://www.antelsolutions.co.za/. [Accessed 13 August 2022].

Asif, M.S., Lau, H., Nakandala, D., Fan, Y. & Hurriyet, H. 2020. Adoption of green supply chain management practices through collaboration approach in developing countries–From literature review to conceptual framework. *Journal of Cleaner Production*, 276:124-191.

Bag, S., Anand, N. & Pandey, K.K. 2017. Green supply chain management model for sustainable manufacturing practices. In Khan, M., Hussain, M. & Ajmal, M.M. (Eds.). *Green supply chain management for sustainable business practice*. IGI Global, 153-189.

Bai, C. & Sarkis, J. 2020. A supply chain transparency and sustainability technology appraisal model for blockchain technology. *International Journal of Production Research*, 58(7):2142-2162.

Bartolini, M., Bottani, E. & Grosse, E.H. 2019. Green warehousing: Systematic literature review and bibliometric analysis. *Journal of Cleaner Production*, 226:242-258.

Bayer, P. & Aklin, M. 2020. The European Union emissions trading system reduced CO2 emissions despite low prices. *Proceedings of the National Academy of Sciences,* 117(16):8804-8812.

Bengtsson, M. 2016. How to plan and perform a qualitative study using content analysis. *NursingPlus open*, 2:8-14.

Bennett, A. 2020. UK POS. What is green retailing. Available at: https://www.ukpos.com/knowledge-hub/what-is-green-retailing. [Accessed 07 May 2022].

Besbes, W., Dhouib, D., Wassan, N. & Marrekchi, E. (Eds.). 2019. *Solving Transport Problems: Towards Green Logistics*. John Wiley & Sons.

Bhasin, H. 2021. Marketing91. Green Retailing – Concept, advantages and ideas Available at: https://www.marketing91.com/green-retailing/. [Accessed 07 May 2021].

Bhatia, M.S. & Gangwani, K.K. 2020. Green supply chain management: Scientometric review and analysis of empirical research. *Journal of Cleaner Production*, 284:124-722.

Bhavsar, A., Diallo, C. & Ülkü, M.A. 2021. Towards sustainable development: Optimal pricing and sales strategies for retailing fair trade products. *Journal of Cleaner Production*, 286:124-990.

Bizcommunity. 2022. Inflation hits 13-year high in South Africa – here are 8 things that are much more expensive. Bizcommunity, 20 July 2022.

Blanco, Edgar E. & Sheffi, Y. 2017. "Green logistics". In *Sustainable Supply Chains,* pp. 147-187. Springer, Cham.

Bloemhof, J.M., van der Vorst, J.G., Bastl, M. & Allaoui, H. 2015. Sustainability assessment of food chain logistics. *International Journal of Logistics Research and Applications*, 18(2):101-117.

Blumberg, B., Cooper, D. & Schindler, P. 2014. EBOOK: Business Research Methods. McGraw Hill. https://books.google.co.za [Accessed 13 August 2022].

Braun, V. & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2):77-101.

Broll Property Intel. 2019. Available at: www.broll.com. [Accessed 15 May 2022].

Bryman, A. & Bell, E. 2015. *Business Research Methods*. 4th Edition. Oxford University Press.

Bureau of Market Research, 2021. The next normal for SA retail. Available at: https://bmr.co.za/2021/11/25/south-african-retail-to-get-r11-3-billion-boost-from-black-friday-over-november-2021/. [Accessed 28 December 2021].

Businesstech. 2020. Pick n Pay is trialing 'package-free zones' as it cuts down on plastic. Available at: https://businesstech.co.za/news/business/371542/pick-n-pay-is-trialing-package-free-zones-as-it-cuts-down-on-plastic/. Accessed 10 April 2022].

Businesstech. 2022. Woolworths to expand delivery services as it takes on Checkers and Pick n Pay. Available at: https://businesstech.co.za/news/business. [Accessed 15 July 2022].

Businesswire. 2021. Available at: https://www.businesswire.com. [Accessed 30 June 2022].

C3controls. n.d. What is reverse logistics. Available at: https://www.c3controls.com/white-paper/what-is-reverse-logistics/. [Accessed 13 September 2022].

Çankaya, S.Y. & Sezen, B. 2019. Effects of green supply chain management practices on sustainability performance. *Journal of Manufacturing Technology Management*, 30(1):98-121.

Chang, K.C., Hsu, C.L., Hsu, Y.T. & Chen, M.C. 2019. How green marketing, perceived motives and incentives influence behavioral intentions. *Journal of Retailing and Consumer Services*, 49:336-345.

Chen, F., Ngniatedema, T. & Li, S. 2018. A cross-country comparison of green initiatives, green performance and financial performance. *Management Decision*, 56(5):1008-1032.

Cheng, C.C. 2020. Sustainability orientation, green supplier involvement, and green innovation performance: Evidence from diversifying green entrants. *Journal of Business Ethics*, 161(2):393-414.

Chkanikova, O. & Sroufe, R. 2021. Third-party sustainability certifications in food retailing: Certification design from a sustainable supply chain management perspective. *Journal of Cleaner Production*, 282:124-344.

Chuang, S.P. & Huang, S.J. 2018. The effect of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital. *Journal of Business Ethics*, 150(4):991-1009.

Cinar, D., Gakis, K. & Pardalos, P.M (Eds.). 2017. *Sustainable Logistics and Transportation*. Springer.

Cohen, L., Manion, L. & Morrison, K. 2018. *Research Methods in Education*. 8th Edition. Routledge.

Cosimato, S. & Troisi, O. 2014, August. The influence of green innovation in logistics competitiveness and sustainability. The DHL case study. In *17th Toulon-Verona International Conference Excellence in Services. Conference Proceedings. Liverpool John Moores University, Liverpool (England)* (pp. 95-111).

Creswell, J.W. 2014. *A Concise Introduction to Mixed Methods Research*. SAGE Publications.

Creswell, J.W. & Creswell, J.D. 2018. *Research Design. Qualitative, Quantitative & Mixed Methods Approaches*. 5th Edition. SAGE Publications.

Damen, A. 2022. Shopify.com. A Retailer's Guide to Sustainability: How to Make Your Store More Sustainable Available at: https://www.shopify.com/retail/sustainability-retail. [Accessed 03 March 2022].

Dangelico, R.M. & Vocalelli, D. 2017. “Green Marketing”: An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner production*, 165:1263-1279.

Dekker, R., Bloemhof-Ruwaard, J. & Mallidis, I. 2011. Operations Research for Green Logistics–An Overview of Aspects. *Issues, Contributions and Challenges*.

Diabat, A., Khodaverdi, R. & Olfat, L. 2013. An exploration of green supply chain practices and performances in an automotive industry. *The International Journal of Advanced Manufacturing Technology*, 68(1):949-961.

Dixon-Fowler, H., O'Leary-Kelly, A., Johnson, J. & Waite, M. 2020. Sustainability and ideology-infused psychological contracts: An organizational-and employee-level perspective. *Human Resource Management Review*, 30(3):100-690.

Dixon-O'Mara, C. & Ryan, L. 2018. Energy efficiency in the food retail sector: barriers, drivers and acceptable policies. *Energy Efficiency*, 11(2):445-464.

Dubey, R., Gunasekaran, A. & Papadopoulos, T. 2017. Green supply chain management: theoretical framework and further research directions. *Benchmarking: An International Journal*, 24(1):184-218.

Dudovskiy, J. 2016. *The ultimate guide to writing a dissertation in business studies: A step-by-step assistance.* Pittsburgh, USA, 51.

Ehgartner, U. 2018. Discourses of the food retail industry: Changing understandings of the consumer and strategies for sustainability. *Sustainable Production and Consumption*, 16:154-161.

Epoh, L.R. & Mafini, C. 2018. Green supply chain management in small and medium enterprises: Further empirical thoughts from South Africa. *Journal of Transport and Supply Chain Management*, 12(1):1-12.

Esfahbodi, A., Zhang, Y. & Watson, G. 2016. Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance. *International Journal of Production Economics*, 181 (Part B):350-366.

Etikan, I, & Bala, K. 2017. Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6):1-3

Etikan, I., Musa, S.A. & Alkassim, R.S. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1):1-4.

European Commission. n.d. Retail forum. https://ec.europa.eu/environment/industry/retail/about.htm [Accessed 17 August 2021].

European Union (EU). 2019. Waste from Electrical and Electronic Equipment (WEEE) Available at: https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en. [Accessed 20 January 2022].

European Union (EU). 2021. Environment. Available at: https://environment.ec.europa.eu. [Accessed 19 January 2022].

Fang, C. & Zhang, J. 2018. Performance of green supply chain management: A systematic review and meta-analysis. *Journal of Cleaner Production*, 183:1064-1081.

Garg, S. & Sharma, V. 2017. Green marketing: An emerging approach to sustainable development. *International Journal of Applied Agricultural Research*, 12(2):177-184.

Garren, S.J. & Brinkmann, R. 2018. Sustainability definitions, historical context, and frameworks. In *The Palgrave Handbook of Sustainability* (1-18). Palgrave Macmillan, Cham.

Gauri, D.K., Jindal, R.P., Ratchford, B., Fox, E., Bhatnagar, A., Pandey, A., Navallo, J.R., Fogarty, J., Carr, S. & Howerton, E. 2021. Evolution of retail formats: Past, present, and future. *Journal of Retailing*, 97(1):42-61.

George, A.L. & Bennett, A. 2005. *Case Study and Theory Development in the Social Sciences*. Massachusetts. BCSIA Studies in International Security/MIT Press.

Ghosh, M. 2019. Determinants of green procurement implementation and its impact on firm performance. *Journal of Manufacturing Technology Management*, 30(2):462-482.

Girisaballa, S. & Bhattacharya, S. 2016. Sustainable Supply Chain: An Institutional Perspective. In R. Dubey & A. Gunasekaran (Eds.). *Strategic Management of Sustainable Manufacturing Operations*. USA: IGI GLOBAL, 272-302.

GlobalGAP. 2017. Implementation and certification process Available at: https://www.globalgap.org/export/sites/default/.content/.galleries/Documents_for_Mailings/170704_GG_Implementation.pdf [Accessed 02 September 2021].

Goddard, W. & Melville, S. 2004. *Research Methodology: An Introduction*. Juta and Company Ltd.

Gong, M. & Kong, Y. 2014. The implementation of green logistics in supermarkets in Sweden and China: A case study for ICA MAXI and JIA JIAYUE. *Engineering and Technology*.

Govindan, K., Rajeev, A., Padhi, S.S. & Pati, R.K. 2020. Supply chain sustainability and performance of firms: A meta-analysis of the literature. *Transportation Research Part E: Logistics and Transportation Review*, 137:101-923.

Grewal, D., Gauri, D.K., Das, G., Agarwal, J. & Spence, M.T. 2021. Retailing and emergent technologies. *Journal of Business Research*, 134:198-202.

Grewal, D., Motyka, S. & Levy, M. 2018. The evolution and future of retailing and retailing education. *Journal of Marketing Education*, 40(1):85-93.

Gruchmann, T. 2019. Advanced green logistics strategies and technologies. In H. Zijm, M. Klumpp, A. Regattieri & S. Heragu (Eds.). *Operations, Logistics and Supply chain Management*. Cham. Springer, 663-686.

Gulmez, Y.S. & Rad, S.T 2017. Green logistics for sustainability. *International Journal of Management Economics and Business*, 13(3):603-614.

Gulseven, O. & Mostert, J. 2017. Application of circular economy for sustainable resource management in Kuwait. *International Journal of Social Ecology and Sustainable Development*, 8(3):87-99.

Hamdan, Y. & Alheet, A.F. 2021. Towards Sustainability: The role of TQM and corporate green performance in the manufacturing sector. *International Journal of Entrepreneurship*, 25(3):1-15.

Hart, M., Austin, W., Acha, S., Le Brun, N., Markides, C.N. & Shah, N. 2020. A roadmap investment strategy to reduce carbon intensive refrigerants in the food retail industry. *Journal of Cleaner Production*, 275:123-139.

Hazen, B.T., Wu, Y., Cegielski, C.G., Jones-Farmer, L.A. & Hall, D.J. 2012. Consumer reactions to the adoption of green reverse logistics. *The International Review of Retail, Distribution and Consumer Research*, 22(4):417-434.

Heinberg, R. & Lerch, D. 2010. *What is Sustainability?* The Post Carbon Reader, 11-19.

Helo, P. & Ala-Harja, H. 2018. Green logistics in food distribution–a case study. *International Journal of Logistics Research and Applications*, 21(4):464-479.

Hesse, M. & Rodrigue, J.P. 2009. Logistics. In R. Kitchin, & N. Thrift. *International Encyclopedia of Human Geography*. Elsevier, 277-284.

Hristov, I. & Chirico, A. 2019. The role of sustainability key performance indicators (KPIs) in implementing sustainable strategies. *Sustainability*, 11(20):42-57.

Hsu, C.C., Tan, K.C, Zailani, S.H.M. & Jayaraman, V. 2013. Supply chain drivers that foster the development of green initiatives in an emerging economy. *International Journal of Operations and Production Management*, 33(6):656-688.

Huang, I.Y., Manning, L., James, K.L., Grigoriadis, V., Millington, A., Wood, V. & Ward, S. 2020. Food waste management: A review of retailers' business practices and their implications for sustainable value. *Journal of Cleaner Production*, 285:125-484.

Huang, J.W. & Li, Y.H. 2017. Green innovation and performance: The view of organisational capability and social reciprocity. *Journal of Business Ethics*, 145(2):309-324.

Ibrahim, I., Jamil, N.A. & Halin, I.A. 2018. Green enterprise resource planning and green logistics performance. *The SIJ Transactions on Industrial, Financial and Business Management*, 6(1):1-6.

Inbound Logistics. 2017. 19 steps to creating a lean and green supply chain. https://www.inboundlogistics.com/cms/article/19-steps-for-creating-a-lean-and-sustainable-supply-chain/ [Accessed 03 March 2022].

Inbound Logistics. 2020. Are you ready to join the circular supply chain? Available at: https://www.inboundlogistics.com [Accessed 03 March 2022].

Industry Week. n.d. available at: https://www.industryweek.com/. [Accessed 03 March 2022].

Innovate. 2016. Available at: https://www.up.ac.za/media/shared/130/ZP_Files/innovate-11_2016_exploring-sa-retail-landscape.zp111498.pdf [Accessed April 2022].

IOL Business Report. 2020. Pick n Pay customers can now get their receipts emailed to them. Available at: https://www.iol.co.za/business-report/companies/pick-n-pay-customers-can-now-get-their-receipts-emailed-to-them-c70fdd7b-19c3-4a53-a524-0d362a847528. [Accessed 03 March 2022].

Iqbal, M., Nisha, N., Rifat, A. & Panda, P. 2018. Exploring client perceptions and intentions in emerging economies: The case of green banking technology. *International Journal of Asian Business and Information Management*, 9(3):14-34.

Iredale, G. 2020. 101 Blockchains. List of top 50 companies using blockchain technology. https://101blockchains.com/companies-using-blockchain-technology/. [Accessed 20 August 2021].

Ivanovic, O.M. 2019. Ecological responsibility and sustainable development as preconditions for development of the concept of circular economy. In *Green Business: Concepts, Methodologies, Tools and Applications*. USA: IGI Global, 1-16.

Jaggernath, R. & Khan, Z. 2015. Green supply chain management. *World Journal of Entrepreneurship, Management and Sustainable Development*. 11(1):37-47.

Jia, F., Zuluaga-Cardona, L., Bailey, A. & Rueda, X. 2018. Sustainable supply chain management in developing countries: An analysis of the literature. *Journal of Cleaner Production*, 189:263-278.

Johnson, O. & Iyamu, T. 2019. Framework for the adoption of e-commerce: A case of South African retail grocery sector. *The Electronic Journal of Information Systems in Developing Countries*, 85(5):12095.

Kaur, J. 2021. Proactive versus reactive environmental management and profitability of Indian firms: the moderating effects of environmental cost-efficiency and environmental liability. *Environmental Challenges*, 5:100-298.

Kazancoglu, Y., Kazancoglu, I. & Sagnak, M. 2018. A new holistic conceptual framework for green supply chain management performance assessment based on circular economy. *Journal of Cleaner Production*, 195:1282-1299.

Keller, R. 2007. Continuous improvement – What's this sustainability stuff all about? Industry Week. https://www.industryweek.com/leadership/companies-executives/article/21951901/continuous-improvement-whats-this-sustainability-stuff-all-about [Accessed 02 September 2021].

Kokemuller, N. n.d. Small Business.com. Available at: https://smallbusiness.chron.com/strategic-adaptability-78216.html. [Accessed 13 May 2022].

Končar, J., Vučenović, S. & Marić, R. 2020. Green supply chain management in retailing based on internet of things. In A. Kolinski, D. Dujak & P. Golinska-Dawson (Eds.). *Integration of Information Flow for Greening Supply Chain Management*. Switzerland: Springer, Cham, 181-202.

Kothari, Cr. 2020. *Research methodology: Methods and techniques*. India: New Age International (Pty) Ltd.

Klumpp, M. 2016. To green or not to green: A political, economic and social analysis for the past failure of green logistics. *Sustainability*, 8(5):441-462.

Kroll, F. 2017. Foodways of the poor in South Africa: How value-chain consolidation, poverty & cultures of consumption feed each other. *PLAAS Working Paper 36.*

Kukkuk, B. 2020. BusyContinent. How ready is your business to abandon the linear model and join the circular supply chain? Available at: https://busycontinent.com/how-ready-is-your-business-to-join-the-circular-supply-chain/. [Accessed 19 July 2021]

Kumar, V., 2015. Evolution of marketing as a discipline: What has happened and what to look out for. *Journal of Marketing*, 79(1):1-9.

Kumar, P. & Polonsky, M.J. 2019. In-store experience quality and perceived credibility: A green retailer context. *Journal of Retailing and Consumer Services*, 49:23-34.

Kushwaha, G.S. & Sharma, N.K. 2016. Green initiatives: A step towards sustainable development and firm's performance in the automobile industry. *Journal of Cleaner Production*, 121:116-129.

Lai, K.H., Cheng, T.C.E. & Tang, A.K. 2010. Green retailing: Factors for success. *California Management Review*, 52(2):6-31.

Lamba, N. & Thareja, P. 2021. Modelling of barriers pertaining to implementation of green supply chain management using ISM approach. *Materials Today: Proceedings*, 43(1):9-16.

Laurett, R. & do Paço, A. 2019. Sustainability Barriers. In Filho, W.l. (Ed.). *Encyclopedia of Sustainability in Higher Education*. Switzerland: Springer, Cham, 1608-1614.

Lavorata, L. & Sparks, L. (Eds.) 2018. *Food retailing and sustainable development: European perspectives*. Emerald Group Publishing.

Lehner, M. 2015. Translating sustainability: The role of the retail store. *International Journal of Retail and Distribution Management*, 43(4/5):386-402.

Liu, Y., Zhu, Q. & Seuring, S. 2017. Linking capabilities to green operations strategies: The moderating role of corporate environmental proactivity. *International Journal of Production Economics*, 187:182-195.

Lu, M., Xie, R., Chen, P., Zou, Y. & Tang, J. 2019. Green transportation and logistics performance: An improved composite index. *Sustainability*, 11(10):2976.

Lumen. n.d. Principles of Marketing. Available at: https://courses.lumenlearning.com [Accessed 13 July 2022].

Luthra, S., Garg, D. & Haleem, A. 2016. The impacts of critical success factors for implementing green supply chain management towards sustainability: An empirical investigation of Indian automobile industry. *Journal of Cleaner Production*, 121:142-158.

Macharis, C., Melo, S., Woxenius, J. & Van Lier, T. (Eds.) 2014. *Sustainable Logistics*. Emerald Group Publishing.

Maditati, D.R., Munim, Z.H., Schramm, H.J. & Kummer, S. 2018. A review of green supply chain management: From bibliometric analysis to a conceptual framework and future research directions. *Resources, Conservation and Recycling*, 139:150-162.

Mafini, C. & Loury-Okoumba, W.V. 2018. Extending green supply chain management activities to manufacturing small and medium enterprises in a developing economy. *South African Journal of Economic and Management Sciences*, 21(1):1-12.

Magnani, G. & Zucchella, A. 2021. The future of sustainability: Value co-creation processes in the circular economy. In S.H. Park, M.A. Gonzalez & D.E. Floriani (Eds.). *The Palgrave Handbook of Corporate Sustainability in the Digital Era*. Switzerland: Palgrave Macmillan, Cham, 503-527.

Maguire, M. & Delahunt, B. 2017. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, 9(3).

Maher, R., Maher, M., McAlpine, C.A., Mann, S. & Seabrook, L. 2018. Overcoming barriers to sustainability by combining conceptual, visual, and networking systems. *Sustainability Science*, 13(5):1357-1373.

Mahmoud, T.O. 2018. Impact of green marketing mix on purchase intention. *International Journal of Advanced and Applied Sciences*, 5(2):127-135.

Malgas, B., Khatle, T. & Mason, R.B. 2017. Job creation in the South African retail sector. *The Retail and Marketing Review*, 13(1):1-13.

Mandal, P.C. 2020. Retailing trends and developments-Challenges and opportunities: Retailing trends and developments. *International Journal of Business Strategy and Automation,* 1(2):1-11.

Mangla, S.K., Govindan, K. & Luthra, S. 2017. Prioritizing the barriers to achieve sustainable consumption and production trends in supply chains using fuzzy Analytical Hierarchy Process. *Journal of Cleaner Production*, 151:509-525.

Mardani, A., Kannan, D., Hooker, R.E., Ozkul, S., Alrasheedi, M. & Tirkolaee, E.B. 2020. Evaluation of green and sustainable supply chain management using structural equation modelling: A systematic review of the state-of-the-art literature and recommendations for future research. *Journal of Cleaner Production*, 249:119-383.

Masojada, M. 2021. The South African retail landscape. *Marketing to South African Consumers,* 87-109.

Merriam, S.B. & Tisdell, E.J. 2015. *Qualitative Research: A Guide to Design and Implementation*. John Wiley & Sons.

Micheli, G.J., Cagno, E., Mustillo, G. & Trianni, A. 2020. Green supply chain management drivers, practices and performance: A comprehensive study on the moderators. *Journal of Cleaner Production*, 259:121024.

Mkhize, N. & Ellis, D. 2018. Consumer cooperation in sustainability: The Green Gap in an emerging market. In S. Idris (Ed.). *Promoting Global Environmental Sustainability and Cooperation*. USA: IGI Global, 112-135.

Mohtar, N.S. & Rajiani, I. 2016. Conceptual model in using ability and opportunity as GHRM. *International Business Management*, 10(17):3840-3846.

Mostaghel, R., Oghazi, P., Parida, V. & Sohrabpour, V. 2022. Digitalization driven retail business model innovation: Evaluation of past and avenues for future research trends. *Journal of Business Research*, 146:134-145.

Nadda, V., Dadwal, S. & Rahimi, R. (Eds.). 2017. *Promotional Strategies and New Service Opportunities in Emerging Economies*. USA: IGI Global.

Naidoo, M. & Gasparatos, A. 2018. Corporate environmental sustainability in the retail sector: Drivers, strategies and performance measurement. *Journal of Cleaner Production*, 203:125-142.

Nara, E.O.B., da Costa, M.B., Baierle, I.C., Schaefer, J.L., Benitez, G.B., do Santos, L.M.A.L. & Benitez, L.B. 2021. Expected impact of industry 4.0 technologies on sustainable development: A study in the context of Brazil's plastic industry. *Sustainable Production and Consumption*, 25:102-122.

Nazir, S. 2021. Retail Gazette. Available at: https://www.retailgazette.co.uk [Accessed 14 May 2022].

Nguyen, M.H., Phan, A.C. & Matsui, Y. 2018. Contribution of quality management practices to sustainability performance of Vietnamese firms. *Sustainability*, 10(2):375.

Nicasio, F. 2022. Vend. Available at: https://www.vendhq.com/blog/sustainability-in-retail. [Accessed 10 May 2022].

NielsenIQ. 2022. Available at: https://nielseniq.com/global/en/ [Accessed 15 May 2022].

Niemann, W., Kotze, T.G. & Adamo, F. 2016. Drivers and barriers of green supply chain management implementation in the Mozambican manufacturing industry. *Journal of Contemporary Management*, 13(1):977-1013.

Netwerk24. 2022. Owning a spaza - the rules. Available at: https://www.netwerk24.com/netwerk24/za/gazette/nuus/owning-a-spaza-the-rules-20220613-2. [Accessed 28 December 2022].

Ögmundarson, Ó., Herrgård, M.J., Forster, J., Hauschild, M.Z. & Fantke, P. 2020. Addressing environmental sustainability of biochemicals. *Nature Sustainability*, 3(3):167-174.

Panacea Logistics. 2020. 10 trends in sustainable logistics for 2020. https://pangea-network.com/news/10-trends-in-sustainable-logistics-for-2020/ [Accessed 16 April 2022].

Papadas, K.K., Avlonitis, G.J. & Carrigan, M. 2017. Green marketing orientation: Conceptualization, scale development and validation. *Journal of Business Research*, 80:236-246.

Parida, V., Sjödin, D. & Reim, W. 2019. Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. *Sustainability*, 11(2):391.

Park, S.H., Gonzalez-Perez, M.A. & Floriani, D.E. (Eds.). 2021. *The Palgrave Handbook of Corporate Sustainability in the Digital Era.* Springer International Publishing.

Pattnaik, S. & Pattnaik, S. 2019. Relationships between green supply chain drivers, triple bottom line sustainability and operational performance: An empirical investigation in the UK manufacturing supply chain. *Operations and Supply Chain Management: An International Journal,* 12(4):198-211.

Pazirandeh, A. & Jafari, H. 2013. Making sense of green logistics. *International Journal of Productivity and Performance Management*, 62(8):889-904.

Petljak, K., Zulauf, K., Štulec, I., Seuring, S. & Wagner, R. 2018. Green supply chain management in food retailing: survey-based evidence in Croatia. *Supply Chain Management: An International Journal*, 23(1):1-15.

Pick n Pay. 2021. Sustainability Report. Available at: https://www.picknpayinvestor.co.za/downloads/doing-good/sustainable-living-report/2021/sustainable-living-report-2021.pdf. [Accessed 05 February 2022].

Rajeev, A., Pati, R.K., Padhi, S.S. & Govindan, K. 2017. Evolution of sustainability in supply chain management: A literature review. *Journal of Cleaner Production*, 162:299-314.

Rakhmangulov, A., Sladkowski, A., Osintsev, N. & Muravev, D. 2018. Green Logistics: A System of Methods and Instruments-Part 2. *An International Journal of Maritime Science and Technology*, 65(1):49-55.

Ramaswani, R. 2020. Gatner. 3 sustainable retailing practices for supply chain leaders. Available at: https://www.gartner.com/smarterwithgartner/3-sustainable-retailing-practices-for-supply-chain-leaders/ [Accessed 19 August 2021].

Ren, R., Hu, W., Dong, J., Sun, B., Chen, Y. & Chen, Z. 2020. A systematic literature review of green and sustainable logistics: Bibliometric analysis, research trend and knowledge taxonomy. *International Journal of Environmental Research and Public Health*, 17(1):261-286.

Riger, S. & Sigurvinsdottir, R. 2016. Thematic analysis. In L. Jason & D. Glenwick. *Handbook of Methodological Approaches to Community-based Research: Qualitative, Quantitative and Mixed Methods*. Oxford University Press, 33-41.

RMIT University. 2017. Future Learn. https://www.futurelearn.com/info/courses/sustainable-business/0/steps/78337 [Accessed 13 August 2022].

Rodrigue, J.P., Slack, B. & Comtois, C. 2017. Green logistics. In A.M. Brewer, K.J Button & D.A. Hensher (Eds.). *Handbook of Logistics and Supply-chain Management*. Emerald Group Publishing Limited, 339-350.

Roehrich, J.K., Hoejmose, S.U. & Overland, V. 2017. Driving green supply chain management performance through supplier selection and value internalisation: A self-determination theory perspective. *International Journal of Operations and Production Management*, 37(4):489-509.

Rogers, D.S. & Tibben-Lembke, R.S. 1999. *Going Backwards: Reverse Logistics Trends and Practices*. Vol. 2, Pittsburgh, PA: Reverse Logistics Executive Council·

Ross, J.E. 2017. *Total Quality Management: Text, Cases, and Readings*. Routledge.

Rossi, T., Pozzi, R., Pirovano, G., Cigolini, R. & Pero, M. 2020. A new logistics model for increasing economic sustainability of perishable food supply chains through intermodal transportation. *International Journal of Logistics Research and Applications*, 24(4):1-18.

Saada, R. 2020. Green transportation in green supply chain management. In T. Banyai & I. Kaczmar. *Green Supply Chain-Competitiveness and Sustainability*. IntechOpen, 25-44.

Saeed, M.A. & Kersten, W. 2017. Supply chain sustainability performance indicators: A content analysis based on published standards and guidelines. *Logistics Research*, 10(12):1-19.

Saha, S., Nielsen, I. & Sana, S.S. 2021. Effect of optimal subsidy rate and strategic behaviour of supply chain members under competition on green product retailing. *Mathematical Problems in Engineering*, 2021.

Sallnäs, U. & Björklund, M. 2020. Consumers' influence on the greening of distribution–exploring the communication between logistics service providers, e-tailers and consumers. *International Journal of Retail and Distribution Management*, 48(11):1177-1193.

Sari, K. 2017. A novel multi-criteria decision framework for evaluating green supply chain management practices. *Computers and Industrial Engineering*, 105:338-347.

Sarkis, J. & Dou, Y. 2017. *Green Supply Chain Management: A Concise Introduction*. Routledge.

Sarkis, J., Gonzalez-Torre, P. & Adenso-Diaz, B. 2010. Stakeholder pressure and the adoption of environmental practices: The mediating effect of training. *Journal of Operations Management*, 28(2):163-176.

Saunders, M., Lewis, P. & Thornhill, A. 2019. *Research Methods for Business Students*. Pearson Education.

Sauvé, S., Bernard, S. & Sloan, P. 2016. Environmental sciences, sustainable development and circular economy: Alternative concepts for trans-disciplinary research. *Environmental Development*, 17:48-56.

Schaltegger, S. & Synnestvedt, T. 2002. The link between ‘green’ and economic success: environmental management as the crucial trigger between environmental and economic performance. *Journal of Environmental Management*, 65(4):339-346.

Schramm-Klein, H., Morschett, D. & Swoboda, B. 2015. Retailer corporate social responsibility. *International Journal of Retail and Distribution Management*, 43(4/5):403-431.

Seroka-Stolka, O. & Ociepa-Kubicka, A. 2019. Green logistics and circular economy. *Transportation Research Procedia*, 39:471-479.

Shafael, A., Nejati, M. & Yusoff, Y.M. 2020. Green human resource management: A two-study investigation of antecedents and outcomes. *International Journal of Manpower*, 41(7):1041-1060.

Shah, K.J., Pan, S.Y., Lee, I., Kim, H., You, Z., Zheng, J.M. & Chiang, P.C. 2021. Green transportation for sustainability: Review of current barriers, strategies, and innovative technologies. *Journal of Cleaner Production*, 326:129-392.

Sharma, V.K., Chandna, P. & Bhardwaj, A. 2017. Green supply chain management related performance indicators in agro industry: A review. *Journal of Cleaner Production*, 141:1194-1208.

Shewmake, T., Siegel, A. & Hiatt, E. 2020. The history and progression of sustainability programs in the retail industry. In S. Ray & S. Yin (Eds.). *Channel Strategies and Marketing Mix in a Connected World*. Springer, Cham, 247-274.

Shukla, A.K. 2019. Green marketing in India: A theoretical perspective. *In Green Business: Concepts, Methodologies, Tools and Applications*. USA: IGI Global, 181-191.

Sima, V. & Gheorghe, I.G. 2019. Customer satisfaction in the consumption of green products. *In Green Business: Concepts, Methodologies, Tools and Applications*. USA: IGI Global, 1161-1194.

Singh, A. & Trivedi, A. 2016. Sustainable green supply chain management: Trends and current practices. *Competitiveness Review*, 26(3):265-288.

Singjai, K., Winata, L. & Kummer, T.F. 2018. Green initiatives and their competitive advantage for the hotel industry in developing countries. *International Journal of Hospitality Management*, 75:131-143.

Sitkin, A. 2019. *Absolute Essentials of Green Business*. Routledge.

Smith, E.E. & Perks, S. 2010. A perceptual study of the impact of green practice implementation on the business functions. *Southern African Business Review*, *14*(3).

Snyder, H. 2019. Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104:333-339.

South African Government. 2017. National Environmental Management Act (NEMA). https://www.google.com/search?q=national+environmental+management+act+on+sustainable+development&sxsrf=ALiCzsYGGM752Mt_csPcrqF4B-U1orMHiA%3A1672126965812&ei=9aGqY9-aMcqV8gL78qKYBw&oq=national+environmental+management+act+on+susta&gs_lcp=Cgxnd3Mtd2l6LXNlcnAQARgAMgUIIRCgATIFCCEQoAEyBQghEKABOgoIABBHENYEELADOgcIABCwAxBDOgUIABCABDoGCAAQFhAeOgkIABAWEB4Q8QQ6BQgAEIYDOgcIIRCgARAKSgQIQRgASgQIRhgAUK0GWOMRYMgiaAFwAXgAgAHaAogBlBSSAQUyLTcuMpgBAKABAcgBCsABAQ&sclient=gws-wiz-serp. [Accessed 16 August 2021].

South African Revenue Service (SARS). 2021. Carbon Tax. Available at:https://www.sars.gov.za/customs-and-excise/excise/environmental-levy-products/carbon-tax/#:~:text=Carbon%20Tax%20gives%20effect%20to,production%2C%20consumption%20and%20investment%20decisions. [Accessed 13 May 2022].

Soysal, M. & Bloemhof-Ruwaard, J.M. 2017. Toward sustainable logistics. In D. Cinar, K. Gakis & P.M. Pardalos (Eds.). *Sustainable Logistics and Transportation*. Springer, Cham, 1-17.

Shoprite Holdings. 2020. Sustainability Report. Available at: https://www.shopriteholdings.co.za/content/dam/MediaPortal/documents/shoprite-holdings/Sustainability-Report/shoprite_holdings_2020_sustainability_report.pdf. [Accessed 06 February 2022].

Shopify.com. 2021. What consumers are expecting from your In-Store retail experience. Available at: https://www.shopify.com/retail/what-consumers-expect-retail-experience. [Accessed 04 June 2022].

Statistics South Africa (Stats SA). 2019. Tracking South Africa's sustainable development goals. Available at: https://www.statssa.gov.za/?p=12813. [Accessed 02 February 2022].

Statistics South Africa (Stats SA). 2021. *Retail Trade Sales (Preliminary). June 2021.* Stats SA. http://www.statssa.gov.za/publications/P62421/P62421June2021.pdf. [Accessed 21 August 2021].

Statistics South Africa (Stats SA). 2022. *Retail trade sales. 2022.* Stats SA. Available at: https://www.statssa.gov.za/?page_id=1854&PPN=P6242.1&SCH=73112. [Accessed 28 December 2022].

Statistics South Africa (Stats SA). 2018. Five facts about the retail trade industry. Available at: https://www.statssa.gov.za/?p=11101. [Accessed 21 August 2021].

Suttle, R. 2019. Chron. Available at: https://smallbusiness.chron.com. [Accessed 13 July 2022].

Tang, A.K., Lai, K.H. & Cheng, T.C.E. 2016. A multi-research-method approach to studying environmental sustainability in retail operations. *International Journal of Production Economics*, 171(3):394-404.

Teuteberg, S. 2021. Labour Research Services. Retail sector report. Available at: https://www.lrs.org.za/2021/11/23/retail-sector-report-2021/. [Accessed on 26 February 2022].

The World Bank. 2020 Pricing Carbon. https://www.worldbank.org/en/programs/pricing-carbon. [Accessed 15 April 2022].

Themba, G., Makgosa, R., Phambuka-Nsimbi, C. & Iyanda, O. 2014 Retailing as a catalyst towards poverty eradication & citizen economic empowerment in Botswana. *Global Journal of Commerce and Management Perspective*, 3(3):66-76.

Thukwana, N. 2020. Business Insider. Available at: https://www.businessinsider.co.za/takealot-sees-sales-growth-over-r6bn-despite-pandemic-effects-2020-11. [Accessed 28 December 2022].

Tighe. D. 2022. Statista. Available at: https://www.statista.com/statistics/233153/total-of-retail-net-sales-in-south-africa/. [Accessed 21 October 2022].

Tofighi, M. & Bodur, H.O. 2015. Social responsibility and its differential effects on the retailers' portfolio of private label brands. *International Journal of Retail and Distribution Management*, 43(4/5):301-313.

Tsai, P.H., Lin, G.Y., Zheng, Y.L., Chen, Y.C., Chen, P.Z. & Su, Z.C. 2020. Exploring the effect of Starbucks' green marketing on consumers' purchase decisions from consumers' perspective. *Journal of Retailing and Consumer Services*, 56:102-162.

Tseng, M.L., Islam, M.S., Karia, N., Fauzi, F.A. & Afrin, S. 2019. A literature review on green supply chain management: Trends and future challenges. *Resources, Conservation and Recycling*, 141:145-162.

Tumpa, T.J., Ali, S.M., Rahman, M.H., Paul, S.K., Chowdhury, P. & Khan, S.A.R. 2019. Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production*, 236:117-617.

Turner, D.P. 2020. Sampling methods in research design. Headache: *The Journal of Head and Face Pain*, 60(1):8-12.

United Nations (UN). 2020. Sustainable Development Goals. Available at: https://sdgs.un.org/publications/sustainable-development-goals-report-2020-24686. [Accessed 12 March 2021].

United Nations Development Programme (UNDP). 2021. What are the sustainable development goals? Available at: https://www.undp.org/sustainable-development-goals [Accessed 11 November 2021].

United Nations. Economic Commission for Africa. 2021. Building Forward for an African Green Recovery. Addis Ababa. © UN.ECA. https://hdl.handle.net/10855/43948 [Accessed 17 February 2022].

University of Alberta. n.d. https://www.su.ualberta.ca/services/sustainsu/about/definition/#:~:text=Sustainability%20is%20the%20process%20of,embedded%20to%20thrive%20in%20perpetuity.

Vanpoucke, E., Quintens, L. & Van Engelshoven, M. 2016. The role of motivation in relating green supply chain management to performance. *Supply Chain Management: An International Journal*, 21(6):732-742.

Wahab, S.N., Sayuti, N.M. & Talib, M.S.A. 2018. Antecedents of green warehousing: a theoretical framework and future direction. *International Journal of Supply Chain Management*, 7(6):382-388.

Wandosell, G., Parra-Meroño, M.C., Alcayde, A. & Baños, R. 2021. Green packaging from consumer and business perspectives. *Sustainability*, 13(3):1356.

Wang, D.F., Dong, Q.L., Peng, Z.M., Khan, S.A.R. & Tarasov, A. 2018. The green logistics impact on international trade: Evidence from developed and developing countries. *Sustainability*, 10(7):22-35.

Wang, Z., Mathiyazhagani, K., Xu, L. & Diabat, A. 2016. A decision-making trial and evaluation laboratory approach to analyse the barriers to Green Supply Chain Management adoption in a food packaging company. *Journal of Cleaner Production*, 117:19-28.

Warren, C.A. & Karner, T.X. 2015. *Discovering Qualitative Methods: Ethnography, Interviews, Documents and Images*. Oxford University Press.

Westerman, J.W., Rao, M.B., Vanka, S. & Gupta, M. 2020. Sustainable human resource management and the triple bottom line: Multi-stakeholder strategies, concepts, and engagement. *Human Resource Management Review*, 30(3):100742.

Wiese, A., Zielke, S. & Toporowski, W. 2015. Sustainability in retailing–research streams and emerging trends. *International Journal of Retail and Distribution Management*. 43(4/5):

Wijethilake, C. & Upadhaya, B. 2020. Market drivers of sustainability and sustainability learning capabilities: The moderating role of sustainability control systems. *Business Strategy and the Environment*, 29(6):2297-2309.

Wild, T. 2017. *Best Practice in Inventory Management*. Routledge.

Wikipedia. n.d. Customer satisfaction. Available at: https://en.wikipedia.org/wiki/Customer_satisfaction. [Accessed 04 January 2023].

Yin, R.K. 2011. *Applications of Case Study Research*. Sage.

Yook, K.H., Choi, J.H. & Suresh, N.C. 2018. Linking green purchasing capabilities to environmental and economic performance: The moderating role of firm size. *Journal of Purchasing and Supply Management*, 24(4):326-337.

Youn, C., Kim, S.Y., Lee, Y., Choo, H.J., Jang, S. & Jang, J.I. 2017. Measuring retailers' sustainable development. *Business Strategy and the Environment*, 26(3):385-398.

Younis, H., Sundarakani, B. & Vel, P. 2016. The impact of implementing green supply chain management practices on corporate performance. *Competitiveness Review*, 26(3):216-245.

Yu, W., Chavez, R., Feng, M. & Wiengarten, F. 2014. Integrated green supply chain management and operational performance. *Supply Chain Management: An International Journal*, 19(5/6):683-696.

Zaid, A.A., Jaaron, A.A. & Bon, A.T. 2018. The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study. *Journal of Cleaner Production*, 204:965-979.

Zhang, Q. & Ma, Y. 2021. The impact of environmental management on firm economic performance: The mediating effect of green innovation and the moderating effect of environmental leadership. *Journal of Cleaner Production*, 292:126-157.

Zhang, S., Lee, C.K., Chan, H.K., Choy, K.L. & Wu, Z. 2015. Swarm intelligence applied in green logistics: A literature review. *Engineering Applications of Artificial Intelligence*, 37:154-169.

Zhang, W., Zhang, M., Zhang, W., Zhou, Q. & Zhang, X. 2020. What influences the effectiveness of green logistics policies? A grounded theory analysis. *Science of the Total Environment*, 714:136-731.

Züll, C. 2016. *Open-ended questions*. GESIS Survey Guidelines, 3.

APPENDIX 1: ETHICAL CLEARANCE

UNISA college of economic and management sciences

COLLEGE OF ECONOMIC AND MANAGEMENT SCIENCE RESEARCH ETHICS REVIEW COMMITTEE

08 April 2022

NHREC Registration # : (if applicable)
ERC Reference # : 2022_CRERC_012 (FA)
Name #: Ms Milvet Kanyongo
Student No#: 50934104

Dear Ms Milvet Kanyongo

Decision: Ethics Approval from 2022 to 2025

Researcher(s): Ms Milvet Kanyongo; Milvert1@gmail.com ; 073 937 9014
College of Economic and Management Sciences
Department of Applied Management
University of South Africa

"Green Logistics in a South African Retailer: A Case Study"

Qualification: Masters

Thank you for the application for research ethics clearance by the Unisa College of Economic and management Sciences Research Ethics Review Committee for the above-mentioned research. Ethics approval is granted for 5 years (**08 April 2022 until 07 April 2025**).

*The **low risk application** was **reviewed** by the College of Economic and management Sciences Research Ethics Review Committee on **21 February 2022** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College of Economic and management Sciences Research Ethics Review Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date **(07 April 2025** Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.
8. Permission is to be obtained from the university from which the participants are to be drawn (the Unisa Senate Research, Innovation and Higher Degrees Committee) to ensure that the relevant authorities are aware of the scope of the research, and all conditions and procedures regarding access to staff/students for research purposes that may be required by the institution must be met.
9. If further counselling is required in some cases, the participants will be referred to appropriate support services.

Note:

*The reference number **2022_CRERC_012 (FA)** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Dr V Sambo
Chairperson, CRERC
E-mail: Esambovt@unisa.ac.za
Tel: 012 429 4355

Prof RT Mpofu
Deputy Executive Dean: CEMS
E-mail: mpofurt@unisa.ac.za
Tel: 012 429 4808

APPENDIX 2: INFORMED CONSENT

UNISA university of south africa

PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: 2022_CRERC_012 (FA)
Research permission reference number (not yet available):

05/10/2021

Title: GREEN LOGISTICS IN A SOUTH AFRICAN RETAILER: A CASE STUDY

Dear Prospective Participant

My name is Milvet Kanyongo, and I am doing research with Prof Hannie Badenhorst, an external supervisor who recently retired from full time lecturing in the Department of Applied Management Sciences towards a MSc Logistics Management at the University of South Africa. We are inviting you to participate in a study entitled: GREEN LOGISTICS IN A SOUTH AFRICAN RETAILER: A CASE STUDY.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to have an in-depth understanding of green logistics in the retail supply chain.

WHY AM I BEING INVITED TO PARTICIPATE?

The researcher chose your organization to conduct the research because your organization specialize both in food and clothing retailing. This will allow the researcher to gather more information and understanding of the green logistics practices within the retail supply chain particularly your organisation.

Participants contact details were provided by the gatekeeper (Andre Nel, Sustainability Manager). The contact details shall be only used for the purpose of this research, once the research is done all information will be permanently destroyed. The researcher was targeting any personnel that has knowledge and working on green logistics projects, and your profile falls

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA, 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

into the category in question. The researcher is looking forward to interview as many participants as he/she can.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study involves *semi-structured interviews*. Questions to be asked will be relating to environmental sustainability specifically focusing on green logistics. The interview will take approximately forty-five minutes and communication regarding the interviews will be send out in time to allow the participants to prepare.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The rapid depletion of natural resources, climate change and excessive gas emissions have posed a threat to the environment. The purpose of this study is to create awareness to the benefits of implementing green practices in the retail supply chains at the same time protecting our planet. The researcher believe that retail organisations can positively influence the adoption of green practices from both upstream and downstream supply chain participants that will help protect the environment.

ARE THEIR ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The researcher does not foresee any potential physical harm to the participants. Also, there will not be any personal information that might leave the participant in a compromising position. The only thing that the researcher foresee is inconvenience and the researcher will well in advance arrange meetings with participants to avoid any inconveniences. The interviews will be audio recorded, and the researcher will request or inform the participants before recording. Participants will be emailed the copy of the questions so that they familiarize themselves to avoid participants being caught off-guard

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

You have the right to insist that your name will not be recorded anywhere, and no one will be able to connect you to the answers you give. Your answers will be given a code number, or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. The report may be submitted for publication, but individual participants will not be identifiable in such report

Your answers may be reviewed by people responsible for making sure that research is done properly, including the researcher's supervisor, transcriber, external coder, and members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for a minimum period of five years in a locked compartment for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. After a period of five years all information kept will be permanently destroyed. Electronic information will be permanently destroyed, and any hard copies will be set on fire to destroy them.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There is no reward or compensation given in taking part of the study

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study is still pending written approval from the Research Ethics Review Committee of the Unisa. A copy of the approval letter will be emailed once approved upon your request.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Milvet Kanyongo on +27739379014. The findings are accessible for five years after that they will be destroyed. Should you require any further information or want to contact the researcher about any aspect of this study, please contact same contact above

Should you have concerns about the way in which the research has been conducted, you may contact Prof Hannie Badenhorst: email address is hanniebw@gmail.com and phone number +27824497507. Contact the research ethics chairperson of the <insert name of the committee,

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

the name of the research ethics chairperson and contact details here, including email, internal phone number and fax number> if you have any ethical concerns.

Thank you for taking time to read this information sheet and for participating in this study.
Thank you.

Milvet Kanyongo

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
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www.unisa.ac.za

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the <insert specific data collection method>.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname..... (please print)

Participant Signature.....Date.....

Researcher's Name & Surname MILVET KANYONGO

Researcher's signature

Date: 05/10/2021

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

APPENDIX 3: RESEARCH QUESTIONS

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RESEARCH QUESTIONS

1. What is your understanding of Green Logistics?
2. What areas are part of your Green Logistics drive?
3. What practices do you implement in your part of the organisation to improve GL?
4. Is there a specific framework, programme, or processes to incorporate GL in different areas in your organisation?
5. What challenges or obstacles do your organisation face in the implementation of Green Logistics?
6. What benefits do you think can be accrued by implementing Green Logistics?
7. How does your organisation create awareness of the importance of Green Logistics for your organisation?
8. How does your organisation create awareness or require *suppliers* to consider/implement green logistics?
9. Does your organisation use technology to assist in implementing and improving green logistics? If yes, what technologies do you use? To what extent have these technologies assisted in achieving or improving on green logistics objectives?
10. How do you consolidate green practises in the existing structures of your organisation?
11. How and how often do you report on progress in GL, and what is your experience and opinion about GL reporting (benefits, drawbacks, and importance)?

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www.unisa.ac.za

SUB-QUESTIONS

1. GREEN TRANSPORTATION

- What transport modes mostly used within your organization?
- What are the effects associated with these modes?
- What are the strategies being used to minimize these effects?
- Are they any technological tools being used to implement green transportation?

2. GREEN WAREHOUSING

- How many distribution warehouses does your organization have?
- What are the material handling equipment being used?
- How efficient are these equipment in terms of energy use and gas emissions
- What are the strategies implemented to improve the efficiency of the warehouses

APPENDIX 4: EDITOR'S DECLARATION

l 'Avenir Consulting

Monica Botha
T/a l'Avenir Consulting
Postnet Suite 043
Private Bag X9
QUEENSWOOD
0121

Cellular: 083 269 0757
E-mail: monicabo@lantic.net

TO WHOM IT MAY CONCERN

This serves to confirm that I have edited and proofread the dissertation entitled

GREEN LOGISTICS IN A SOUTH AFRICAN RETAILER: A CASE STUDY

prepared by Ms Milvet Kanyongo in accordance with the requirements for the degree of MCom Logistics in the Department of Applied Management, University of South Africa, according to the specifications of the University, where available, and the latest standards for language editing and technical (computer-based) layout.

Editing was restricted to language usage and spelling, consistency, formatting and the style of referencing. No structural writing of any content was undertaken.

As an editor I am not responsible for detecting any content that may constitute plagiarism.

To the best of my knowledge all references have been provided in the prescribed format.

I am not accountable for any changes made to this dissertation by the author or any other party after the date of my edit.

(Electronically signed – actual signature withheld for security reasons)
MONICA BOTHA
11 April 2023