To Investigate the Influencing Factors for Sustainable Packaging in a Multinational SME Supply Chain

Abiodun Adigun

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Salford Business School

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Abbreviations

MNE	Multinational Enterprise
SME	Small- and Medium-sized Enterprises
GDP	Gross Domestic Product
SPA	Sustainable Packaging Alliance
SPC	Sustainable Packaging Coalition
ADE	Ades Ltd
BMC	Bmac Food Processing Co
NFA	Niji Farms and Allied Services
CEO	Chief Executive Officer / Director / Owner
DTI	Department of Trade and Industry
EC	European Commission
EL	Environmental Leader
SCRC	The Supply Chain Resource Cooperative
NCSU	North Carolina State University
EPA	Environmental Protection Agency
SCD	Supply Chain Digest
UNEP FI	United Nations Environment Programme Finance Initiative
STOA	Science and Technology Options Assessment
UWE	University of the West of England
CAGR	Compound Annual Growth Rate
FMCG	Fast Moving Consumer Goods

Abstract

Sustainability has become a buzzword that occurs everywhere in this global economy. Governments continue to lay emphasis on its importance by steering policies favourably in that direction. Organisations, both public and private, are becoming more aware of the economic, social and environmental advantages it brings them in the global landscape in which they operate. Academic institutions have not been left behind, on the evidence of the volume of research in this area.

The aim of this research has been to investigate the barriers and enablers to sustainable packaging within an international, closed loop supply chain of Small Medium Enterprises (SMEs) in the food Industry. It is important to mention that two-thirds of all packaging is used in the food industry, and the close relationship between the food sector and packaging explains the focus of this research on the food sector.

Whilst there has been research into sustainability or sustainable development, emphasis has always been on Multinational Enterprises (MNE). The role of Small- to Medium-sized Enterprises (SMEs) in the global economy is significant, according to the statistics available. SMEs represent more than 99% and 80% of enterprises in the United Kingdom and the United States of America, respectively, and provide over 75 million jobs in the European Union. Furthermore, 90% of global businesses are SMEs. The research is therefore focused on Small Medium Enterprises (SMEs).

The use of a qualitative approach for the study was justified by the focus on gaining a profound understanding of the barriers and enablers for sustainable packaging, for SMEs, in the real world. A case study strategy was also deemed to be appropriate because of the importance of contemporary events, over which the researcher has no control. In addition, the use of interviews, direct observation and the examination of documents as methods of data gathering was also justified in as much as the use of a number of approaches supported data triangulation, which thus strengthened the research.

The intention of this research was to highlight the issues SMEs face when embarking on a sustainable packaging journey. This research has therefore contributed to the existing body of knowledge by investigating the various barriers that this type of organisation faces, and why. Existing barriers identified within the literature, as detailed in Chapter 2, and new findings detailed in Chapter 5, concerning the system, corruption and culture, make a contribution to the existing body of knowledge.

Chapter 1. Introduction

Sustainability is a key word that occurs everywhere in this dynamic, global environment, and continues to dominate discussion in every sphere of our life (Environmental Leader, 2014). It dominates all media channels (CIPS, 2008; SMI, 2012). Academic institutions have not been left behind, on the evidence of the increasing amount of research in this field (Gunasekaran and Spalanzani, 2013). Sustainability is also well established in the political arena, considering the increasing body of related legislation (Jones and Hollier, 2002; IISD, 2014). There will continue to be pressure on available resources, due to the projected growth in the middle class, to over five billion by 2030, and so innovation in sustainability will become important in order to remain competitive (SCM World, 2014). Whilst there is a common understanding of the concept in different countries and sectors, with the same principles being used, there may be variations due to the applications or peculiarities of a particular industry.

There has been much debate about the adequacy of the definition of sustainability (Constanza and Patten, 1995; GreenBiz, 2009). According to Brown et al. (1987), societies "conceptualise" sustainability in different ways, and seek to achieve it according to different needs.

In addition, ever-increasing awareness globally about issues such as climate change, resource depletion, global financial meltdown and population growth has triggered the need for sustainable activities. In view of the above, organisations are beginning to understand that embracing sustainable practices is the key to long-term success (Porter and Kramer, 2006; Hecht et al., 2014).

The "Stern Review Report on the Economics of Climate Change", for the British Government's Treasury, emphasised and highlighted the effect of climate change, warning that the cost could spiral from 5% to 20% of Gross Domestic Product annually if nothing were done (The Stern Review, 2006). Increasing legislation created by governments, and growing research in this area, can also be seen as an indication of its importance. Therefore, all organisations, whether public or private, need to play a role to support sustainable development.

President Obama's 4 billion dollar retrofit plan can be seen as a direct initiative by a government to drive the message home to businesses; while this project will save a great deal of money for the taxpayer, it will also create many jobs for the economy (Lime Energy, 2012). The Prime Minister of the United Kingdom also, in May 2010, set a target for reducing carbon emissions from the government's estate by 10% in the following twelve months, and this is a further example of an attempt by a government to support an initiative to promote sustainability.

A socially responsible organisation must acknowledge the fact that it needs to improve its performance by not making profit the ultimate objective (Matten and Crane, 2005; Porter and Kramer, 2011). It is also important to note the number of sustainability standards has increased recently. In fact, it was estimated, in 2008, that there were more than 400 sustainability standards (Giovannucci, 2008).

According to Bansal and Clelland (2004) and HBS (2013), firms that have engaged in sustainable practices have gained legitimacy and an increase in their market value. This has also been corroborated by leading investment banks Deutsche and Credit Suisse, and has been reflected in share price changes: Members of Winslow Green Index, in a four-year period, outperformed the Russell 2000 Index by more than 50%; National Stock Exchanges have been outperformed by companies in the World Council for Sustainable Development, and Dow Jones Sustainability Index has performed better than other market indices (Savitz and Weber, 2006).

Research conducted by Harvard Business School monitored the stock market performance of two matching sets of companies, with one set showing high sustainability and the other low sustainability. It was found that one dollar invested, in 1993, in a company with high sustainability would have grown to $22.60 by 2010, whilst a dollar invested in the portfolio of company with low sustainability would have grown to only $15.40. It was concluded, therefore, that a company can be socially and environmentally responsible without impacting on shareholder wealth creation negatively (Savitz and Weber, 2014).

The influence of shareholders and investors on sustainability practices can also be seen in the corporate boardroom, where there is a growing trend for linking executive compensation with sustainability performance. Tonello (2010), in a survey of US public companies carried out for conferenceboard.org, showed that 11.1% linked compensation to sustainability in their

business operation objectives. The Glass Lewis (2010; 2013) study of public companies in a sample of developed countries, including the United Kingdom, Australia, the United States of America, France and The Netherlands, confirmed that up to 29% of companies showed some relationship between compensation and sustainability in 2010, and this rose to 44% in 2013.

Sustainability is also seen as an important competitive strategy for survival, in the current economic climate, by most major retailers. It should be noted that the retail sector generates more than 8% of the total Gross Domestic Product of the United Kingdom, and employs more than 3 million people (BIS, 2012); these figures are forecast to grow by 1.9% in 2016, and 1.7% in 2017, respectively (Centre for Retail Research, 2016). Whilst, according to the National Retail Federation in 2009, 7.9% of the USA's total GDP was attributed to the retail sector, in 2015, retail trades were the leading contributor to the USA's economic growth (BEA, 2016). Retailers' activities cover many products, from small food items to large household items; in general, they serve as the final link to the end consumer, and so are part of the overall supply chain. Therefore, their activities are very much part of the process of improving sustainability.

Moving a product from the initial stage of manufacturing, to the end consumer, entails proper storage, protection and distribution, supported by appropriate packaging materials as products move through the supply chain within the global community.

One of the key environmental concerns for people and governments is the issue of packaging. Its visibility has created much negative reaction from the media and governments alike. According to The Packaging Federation (2006), its carbon footprint is less than 2% of the UK's footprint, and, in the past seven years, has been growing at the slowest rate of about 3% less than one fifth of the GDP and growth in consumer spending in the period in question. This may be due to the increased efforts of the government, organisations and individuals in contributing to improving sustainability, and the benefits are already being seen.

1.1 Research Background

Organisations are becoming increasingly aware of the benefits of embracing sustainable activities, and continue to find ways of embedding these in their various programmes. An example is The Sustainable Agriculture Guidance Principles Programme embarked upon by Coca-Cola includes guidelines for suppliers on how to acknowledge and protect the

legitimate right of society and its customs to preserve access to land and natural resources (Coca-Cola, 2012).

Technological innovations embarked upon by Technology Company include production of energy efficient products, using renewable materials, and embedding sustainable practices into their operations (FirstCarbon Solutions, 2015).

Organisations are also coming together to share ideas and collaborate, which encourages the development of more effective strategies (Rainforest Alliance, 2015).

One of the many key strategies that organisations are using, to boost their sustainability programme, is sustainable packaging. Building sustainable packaging into the strategic vision of the organisation is on the increase, and continues to be an indispensable part of the operation (Tyssen et al., 2011). It has been estimated that the sustainable packaging market will grow to about 244 billion dollars by 2018 (Smithers Pira, 2013), and projected to grow at a CAGR of 7.17% from 2015 to 2020 (PRNewswire, 2016).

The impact of packaging can be felt all along the supply chain and its distribution networks, and it is even more pronounced at a global level; it continues to be associated with our modern way of living (World Economic Forum, 2009; Incpen, 2011). According to Incpen (2011), packaging enhances the modern lifestyle, and promotes and supports its existence and convenience. Therefore, it is an essential part of modern living because of its significant functions.

An average household in the United Kingdom purchases approximately 4,000 items of goods yearly, weighing about 3 tonnes, and these are protected using packaging materials weighing only 130kg. While packaging waste is one of the components of the 10 million tonnes of solid waste generated each year, it accounts for about one-third of this figure (Zhang and Zhao, 2012).

Organisations' involvement and commitment to the reduction of waste generated by packaging is an essential part of the agenda which supports the transition to sustainable packaging. The continuous increase in global consumption, resulting in a gigantic volume of packaging waste, and a growing awareness of environmental issues, are encouraging a new way of thinking, in this context (Selke and Nordin, 2010).

Continuous bombardment by the media on the negative impacts of packaging on the environment has been on the increase, lately, and has prompted many organisations to reconsider this agenda (Supply Chain Digest, 2013; BBC, 2014).

Emphasis has always been on large, multinational organisations (Quinn, 1997), and continues to be, even in the present climate, and so there is a need to shift attention to SMEs and include them in the new paradigm (Larinkeviciute and Stasiskiene, 2010; Revell, Stokes and Chen, 2009; Arbaciauskas et al., 2010; NBS, 2012).

The activities of Multinational Enterprises (MNEs) are more often reported, as they have the resources to do so, and also because they operate in many countries and regions, and so are known nationwide and globally. In addition, to be able to adequately involve SMEs in the continuum would mean understanding their heterogeneous nature and structure, and how they function differently to MNEs (Moore and Maring, 2009). However, there continues to be ongoing research on SMEs, accompanied by an emphasis on calling to do more to encourage a transition to sustainability (NBS, 2012; Parker et al., 2009; White et al., 2011; GRI, 2011).

1.1.1 SMEs in the Global World:

SMEs in this macrocosm cannot be underestimated, because of their significant contribution to wealth creation, GDP, earnings from exports, poverty reduction, redistribution of income, and providing a breeding ground for entrepreneurship, creativity and innovation (Aremu and Adeyemi, 2011). Greater attention has been focused on their activities since the 2009 financial crisis, because of the fact that SMEs are an engine for job creation (Ardic et al., 2011).

According to Jenkins (2006), 90% of businesses in the world are SMEs, providing more than 50 to 60% of total employment. This was confirmed by UNIDO (2000), cited from a UNEP Industry and Environment publication. It has also been confirmed that, in European Union (EU) countries, SMEs are responsible for more than 75 million jobs, and represent 99% of all enterprises (Vasilenko et al., 2011), while, in the USA, they constitute more than 85% (Moore and Maring, 2009). The above statistics confirm their importance.

Loucks et al. (2010) argued that there should be a separate tool designed to assist SMEs in their sustainability journey, because they have different resources and profiles to MNEs. Therefore, the policy of "one size fits all" will not work. For example, while MNEs can run

very different packaging projects or programmes at the same time, because they have adequate financial resources, SMEs have to be more meticulous, and assessing what they can afford for their product, identifying the options available and adopting one of them. They need to prioritise (NBS, 2012).

Investigating the sustainability efforts of SMEs in the packaging context will shed more light on the importance of these organisation in our societies, and on the hurdles they face in the context of sustainable development. The decision to choose organisations in both developed and developing countries will enrich this research, because cultural differences, and other domestic differences, may have an impact on findings relating to the nature of the supply chain in this global economy (Vasilenko et al., 2011; Jenkins, 2006; Parker et al., 2009).

In addition, the decision to focus the study on the food sector was a result of the importance of the sector, its close relationship with packaging and the increase in food packaging as a result of the demands of smaller families. It should also be noted that the range of products of most retailers is expanding, necessitating more packaging (USDA, 2013). Two third of packaging is also used in food industry (Incpen, 1996; Nofima, 2013).

1.2 Aims, Objectives and Research Questions

The aim of this research is to investigate the barriers and enablers to sustainable packaging within an international network of food supply chain SMEs.

1.2.1 Research Questions:

- What are the drivers for sustainable packaging in SMEs?
- What are the barriers to sustainable packaging in SMEs?
- How are these barriers affecting sustainable packaging development in SMEs?
- Why do the barriers exist in the context of SMEs?
- What are the potential avenues for improving the situation within those SMEs?

1.2.2 Research Objectives:

- Review and explore barriers reported in the pertinent academic literature, and identify potential enablers.
- Critically examine the argument for sustainable packaging development in the supply chain. This study is focused on food sector business.

- Investigate what sustainable packaging means to each organisation in the supply chain.
- Explore the interaction between three SMEs in the supply chain, in order to understand, in depth, how and why they affect the overall sustainability effort.
- Review and explore enablers and barriers reported in the pertinent academic literature, and develop a framework to capture and outline them.

1.3 Contribution of the Study

This research fills gaps identified within the literature. According to Ageron et al. (2011), there have been calls for further research on the different impacts of both MNEs and SMEs in relation to sustainable supply chain management. Similar calls were also identified by Vasilenko et al. (2011), Revell et al. (2009) and Willard (2006). In the research conducted by Walker et al. (2008), where drivers and barriers to environmental supply chain management were examined, there were calls for further research on SMEs, recognising the emphasis that had always been placed on MNEs. This was also supported by Jenkins (2006) and Arbaciauskas (2010).

Jasma et al. (2011), in their paper entitled "Sustainable SMEs' network utilisation", focused on SMEs' utilisation of their networks as a source of opportunities and resources within their sustainability experience, in a study based on two Finnish SMEs. They called for further research into SMEs internationally, and in different socio-economic contexts (Zhu and Sharkis, 2006; Parker et al. 2009). Lastly, White et al. (2011), in their research on the impact of packaging material regulations on small- to medium-sized manufacturing enterprises in the UK, examined the barriers that SMEs face in a packaging context. They called for future research regarding the impact of packaging regulations on SMEs. This was also corroborated by Masurel (2007) and White and Lomax (2011). It should be noted that one of the most common barriers facing SMEs is the issue of regulations.

This research thus contributes in the following ways:

Whilst various studies consider SME organisation in isolation, this study features organisations within the same supply chain (closed loop).

In addition, this research, while investigating organisations in the same supply chain, also encompasses two regions, with two SMEs being in the United Kingdom and one in Nigeria.

Lastly, these organisations have been investigated in an empirical manner, while most other studies have been theoretical in nature. Appendix 10 highlights the contributions, as discussed.

Whilst there has been considerable research on the issue of barriers to sustainability, emphasis has always been on MNEs, with a few studies of SMEs focusing on individual organisations, and not on a network that comprises two regions, as in the current study.

In summary, most SMEs are viewed through the same lens as MNEs (Lambert and Cooper, 2000; Revell, Stokes and Chen, 2010). The majority of these SMEs form part of the supply chain of another organisation, and their contribution cannot be overlooked. A smooth supply chain needs the effort and coordination of all parties, large or small, which will provide a "win-win" situation for all stakeholders.

While sustainable packaging continues to be one of the key issues in this dynamic environment, it is important to continually investigate, and enhance our knowledge in, this area, considering the dynamic nature of the environment in which we live. This will create a better understanding, and provide knowledge with which to improve and direct scarce resources efficiently, and guidance on dealing with known and emerging barriers in a proactive and timely way.

In addition, the dynamic nature of modern life calls for continuous improvement in the area of packaging, to support the changes we are making in all other areas of development and growth. Packaging is also increasingly becoming an important part of marketing to the end consumer.

The current research will assist policy makers in sharpening various strategies used in dealing with issues concerning SMEs, and will highlight various problems therein. It will also assist SMEs in understanding their own business better, and assist them in finding a way forward in their sustainable development journey. Whilst providing a basis for further research, this also serves as a conduit of information which can enhance learning on the part of the consumer.

1.4 Methodology Summary

The study seeks to examine and investigate different barriers and potential enablers that SMEs encounter when implementing sustainable packaging practices in a supply chain covering two regions. This investigation entails a qualitative exploration and analysis of data

collected from interviews and other methods of data collection such as documentation and observation.

In order to meet the objectives of this research and to be able to ask the type of questions needed, (i.e. how, why, what, etc.), a case study approach was adopted, as this does not require control over behavioural events, and because the research is contemporary in nature. According to Saunders et al. (2009), research strategy is foundational, and thus helps the researcher in achieving the research objectives. The choice of case study was also supported by Yin (2009), who stated and clarified different research strategies and characteristics of the case study.

Using a qualitative method in this type of research provides more depth (Booth et al., 1998), and using semi-structured interviews presents an opportunity to capture various perceptions and judgements. It therefore strives to achieve "depth" rather than "breadth" (Blaxter et al., 1996). The researcher prepared a set of questions as a guide, making sure that certain key questions were asked. There was also the opportunity to interrupt the interviewee and ask extended questions, when applicable, and also to give the participant freedom of expression, enabling him or her to speak freely and in detail, and even take the conversation in an unexpected direction.

The case study is an ideal method for researching this type of phenomenon. According to Feagin et al. (1991), it is a suitable method when a thorough and in-depth inquiry or investigation is required. According to Merriam (2009), the case study method is best when investigating complex social units consisting of various variables with a phenomenon in context. Yin (1984:23) defined a case study as:

"…an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used".

It is important to understand the effect of paradigm on the research undertaking; in fact, it is the paradigm that guides how we make decisions in the research undertaking. Kuhn (1970) defined a paradigm as a fundamental hypothesis and pedantic framework on which research and growth in the area of inquiry rest.

1.5 Summary of Chapters

This thesis is structured into eight chapters, as follows:

Chapter 1 presents a synopsis of the research proposition and the research process. It provides a succinct analysis of the research background, research questions (including the aims and objectives of the research), contributions to the study, and a summary of the methodology used for the research in achieving the aims and objectives.

Chapter 2 focuses on the review of available literature. This was to assist the researcher in understanding the field of sustainable development and sustainable packaging in relation to SME activities. It helped the researcher to understand key issues already looked into, and provided deep insight into the research.

Chapter 3 deals with research methodology, philosophies and data collection methods. It also includes the justification of using case study as the best option for studying this type of phenomenon. It includes data analysis and thoroughly examines the issue of reliability and validity of the case study.

Chapter 4 focuses on the research context and framework. It includes an examination of each of the case study organisations and their relationship. It also clarifies the research framework.

Chapter 5 presents the research findings from semi-structured interviews conducted with the CEO and the designated officer in each of the three case study organisations. The empirical findings are also linked, to identify themes within the literature. (This is the original source of the interview questions).

Chapter 6 provides an exhaustive discussion and analysis of the research findings. It attempts to analyse the empirical data generated from the research interviews, and links them to the literature in order to answer the research questions.

Chapter 7 examines the relationships between the barriers identified from the findings of the research. It highlights and analyses their relationships, and sheds light on how they affect one another.

Chapter 8 concludes the study by providing a summary of the research findings. In addition, it offers further suggestions that may assist SMEs in dealing with the barriers, and also gives recommendations for further research.

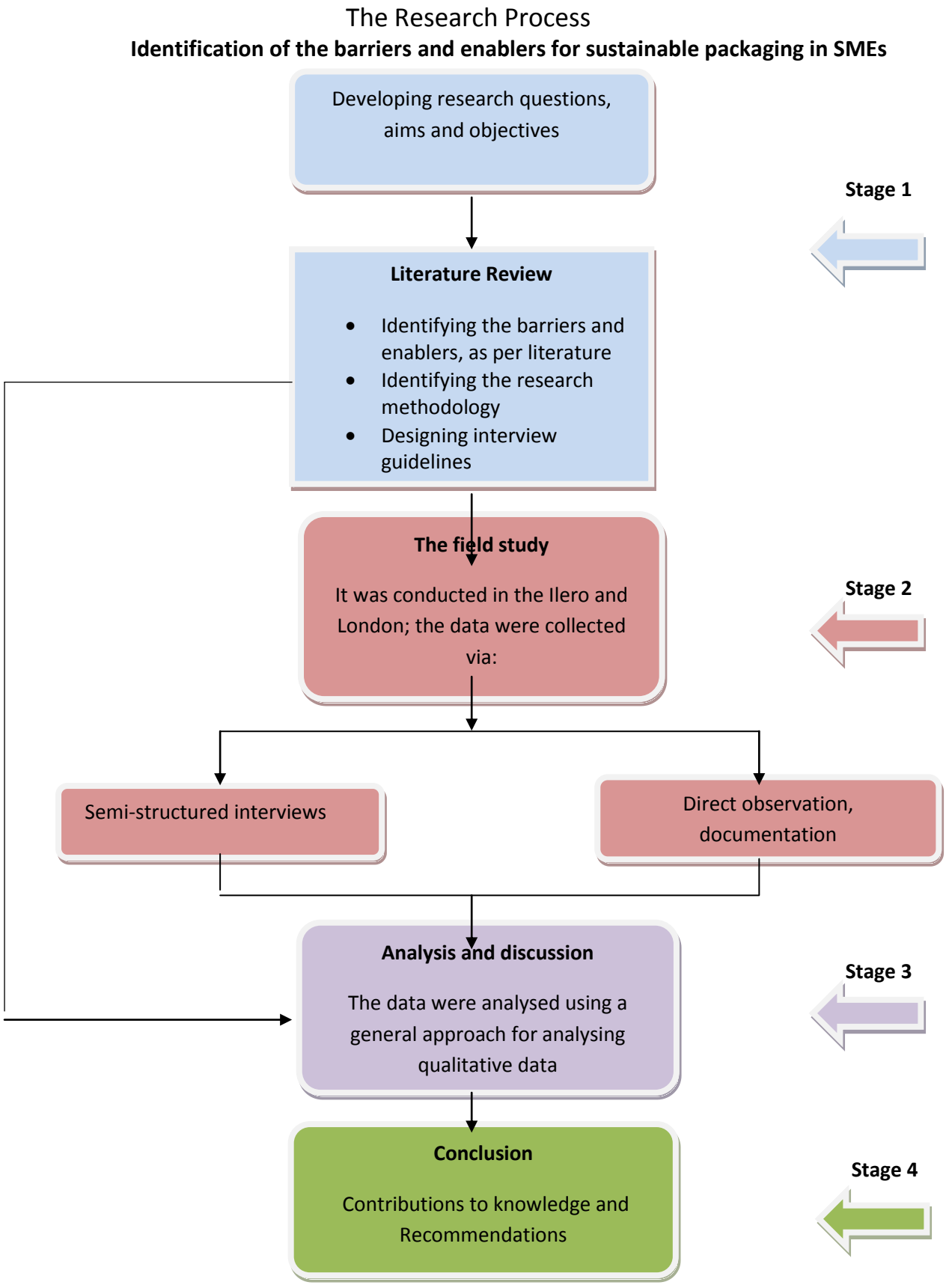

Figure 1. Research process (developed by the researcher).

Chapter 2. Literature Review

2.1 Introduction

Whilst the previous chapter has centred on a description of the background to the research, its aims and objectives, a summary of the methodology, its contributions and a general description of how the objectives of the research will be realised, this chapter is focused on a review of the available literature on sustainable development and, specifically, sustainable packaging.

The chapter starts with the review of various definitions of the word "sustainability", and the meanings attached. It examines and reviews various areas of study as they relate to sustainable activities, especially in the area of packaging; these areas include the food sector, technology, innovation and global logistics, with an emphasis on SMEs, rather than multinational organisations. The main intent of this chapter is to create a conceptual framework through which the cases in this study can be investigated.

2.1.1 Sustainability Defined:

Attempts to define sustainability can be traced back to 1987, when the well-known publication the Brundtland Report, named after the Prime Minister of Norway, was produced, and then adopted by the World Commission on Environment and Development.

The General Assembly of the United Nations constitute the World Commission on Environment and Development, in 1982, from which the following definition emerged:

"*Sustainability means being able to satisfy current needs without compromising the possibility for future generations to satisfy their own needs*"

(World Commission on Environment and Development, 1987; p. 43).

There has been much criticism of this definition, because of its broadness. According to Carter and Rogers (2008), this broadness poses a test for individual corporate bodies to be able to use it as a direction or a guide.

Other important contributions can be traced back to researchers such as Elkington (1998), and "the triple bottom line" concept, which stipulated that, for an organisation to become

sustainable, it needs to include three elements, which are:

- environment
- society
- economic performance

Finding the right balance of these three elements is central to sustainable practices.

The framework for strategic sustainable development proposed by Missimer et al. (2010) is another great contribution, where an attempt has been made to review and scrutinise existing literature from the point of view of its social scope. This framework is also known as "The Natural Step Framework". Another attempt at establishing a definition for sustainable science was made by Kates et al. (2001), where sustainability was defined using the following labels:

- What it seeks to achieve - Goals
- How it is measured - Indicators
- In terms of values as declared in the United Nations Millennium Declaration Resolution 55/2 (Kates et al., 2005); the goal, in this context, is defined in terms of setting targets within a certain time frame.

Table 1, below, sheds further light on this understanding:

Table 1. Sustainability defined by Kates et al.

Indicator initiative	**Number of indicators**	**Implicit / explicit definition?**	**What is to be Sustained?**	**What is to be developed?**	**For how long?**
Commission on Sustainable Development	58	Implicit, but informed by Agenda 21	Climate, clean air, land productivity, ocean productivity, fresh water and biodiversity	Equity, health, education, housing, security, stabilised population	Sporadic references to 2015
Consultative Group on Sustainable Development Indicators	46	Same as above	Same as above	Same as above	Not stated; uses data for 1990 and 2000

Wellbeing Index	88	Explicit	"A condition in which the ecosystem maintains its diversity and quality, and thus its capacity to support people and the rest of life and its potential to adapt to change and provide a wide change of choices and opportunities for the future"	"A condition in which all members of society are able to determine and meet their needs and have a large range of choices to meet their potential"	Not stated; uses most recent data as of 2001 and includes some indicators of recent change (such as inflation and deforestation)
Environmental Sustainability Index4	68	Explicit	"Vital environmental systems are maintained at healthy levels, and to the extent to which levels are improving rather than deteriorating"	Resilience to environmental disturbances	Not stated; uses most recent data as of 2002 and includes some indicators of recent changes
Genuine Progress Indicator	26	Explicit	Clean air, land and water	Economic performance, families and security	Not stated; computed Annually (1950-2000)
Global Scenario Groupf	65	Explicit	"Preserving the essential health, services and beauties of the earth requires stabilising the climate at safe levels, sustaining energy, materials and water resources, reducing toxic emissions and maintaining the world's ecosystems and habitats"	Institutions to "meet human need for food, water and health and provide opportunities for education, employment and participation.	Through 2050
Ecological Footprint	6	Explicit	"The area of biologically productive land and water required to produce the resources consumed and to assimilate the waste produced by humanity"	As above	Not explicitly stated; computed annually
US Interagency Working Group on Sustainable Development Indicators	40	Explicit	Environmental, natural resources and ecosystem services	Dignity, peace, equity, economy, employment, safety, health and quality of life	Current and future generation
Costa Rica	255	Implicit	Ecosystem services and natural resource	Ecosystem and social development	Not stated; series dating back to 1950
Boston Indicator Project	159	Implicit	Open/green space, clean air, water and land, valued ecosystem biodiversity and aesthetics	Civil Society, culture, economy, education, health, housing, safety, tech.	Not stated; recent data as from 2000, plus recent changes
State Failure Task Force	75	Explicit		Intrastate peace / security	Two years
Global Reporting Initiative	97	Implicit	Reduced consumption of raw materials and reduced emissions of environmental contaminants from production or produce use	Profitability, employment, diversity, dignity, health and safety of workforce and customers' privacy	Current reporting year

(Adapted from Kates et al. (2005)).

Dyllick and Hockerts (2002) also defined three pillars to sustainability as business case, natural case and societal case, which corresponds to the economic, environmental and social framework of Elkington, mentioned above.

According to Gunasekaran and Spalanzani (2011), the concept of sustainability can be compared to the concepts of lean and agile. These can be seen as operational strategies, and they have been used as strategic tools for improving performance by organisations in both service and manufacturing industries.

The issue of sustainability was also recently visited by Khuman (2011), a senior research fellow at Indira Gandhi Open University. As well as connecting the concept of sustainability

to economist Thomas Malthus, (who studied the issue of population explosions exceeding natural resources), he also made reference to the writing of Keith Nurse, (2006), who claimed that cultural diversity is the central backbone and is fully embedded into the other three pillars: the economy, society and ecology. In his words,

"*it is the human culture of production, extraction and consumption to be maintained or altered to the changing ecological, socio-political and technological context"* (see Figure 2).

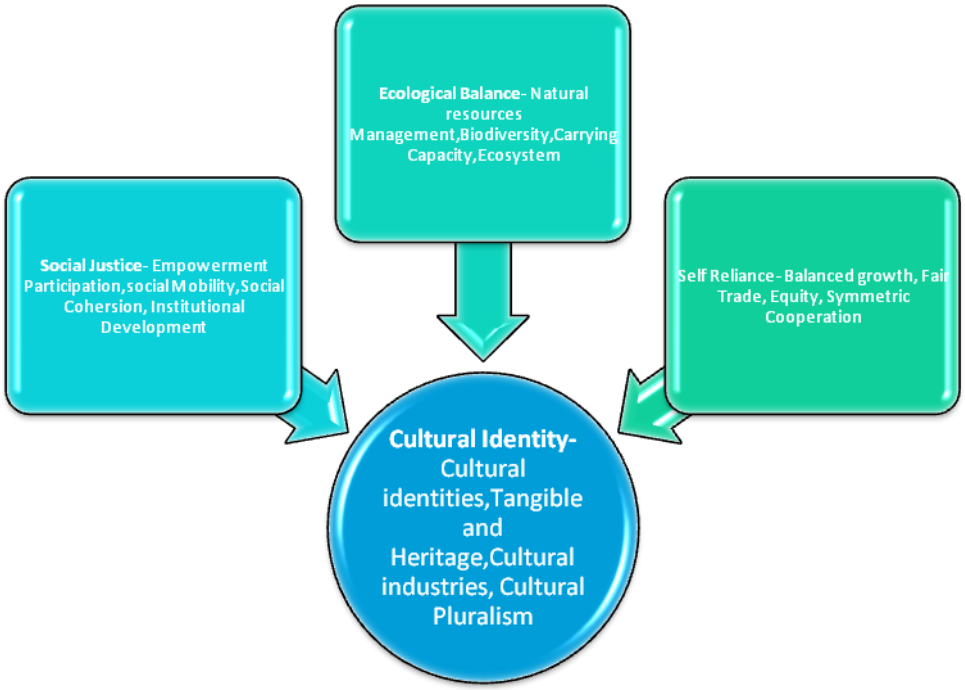

Figure 2

(Adapted from Keith Nurse (2006)).

According to Morelli (2011), various professionals have tried to personalise and structure the definition in the context of their own individual profession. While there are many definitions of sustainability or sustainable development, the important thing is that the fundamentals are the same, and all are related to the popular 1987 World Commission on Environment and Development (Glavic and Lukman, 2007).

Brown et al. (1987 p.p.716-717) suggested important keywords in the definition of sustainability:

"*Continued support of human life on earth, Long-term maintenance of the stock of biological resources and the productivity of agricultural system, Stable human populations, limited growth economies, an emphasis on small-scale and self- reliance and continued quality in the environment and ecosystems".*

Collins et al. (2006) acknowledged that there were many definitions of sustainability, and made reference to the work of Murcott, who pinpointed 57 different definitions of sustainability. This was also corroborated by Kirby et al. (1995), who noted that more than 70 definitions of sustainable development could be cited from 1972 to 1974.

There have also been recent attempts to look into previous definitions, and, according to Christen and Schmidt (2011 p.400), arbitrariness is one of the major issues in the definition of sustainability:

"we find great arbitrariness in the understanding of this idea and in the attempts to answer its principal organising question"

The research by Baumgartner (2011) also highlighted the importance of sustainability research in enhancing our understanding of the phenomenon and helping us to understand the problem and issues associated with it. It is in this light that we understand that the synergy between process and aspects of the environment creates a string of counteraction on environmental pollution (Madu et al., 2002).

Clark (2007) emphasised the importance of maintenance of the economy by encouraging sustainable consumption, along with sustainable products and industrial operations. Therefore, where there is efficient use of resources and waste is reduced, sustainable production is being practised. Even in a developing country, this can be a tool for alleviating poverty, as wastage is used positively to benefit the less privileged and contribute to growth. Growth in itself has been identified as a main route to sustainability (Dingler, 2003).

While there has been continual highlighting of the importance of sustainability in society, a key area is to work on streamlining its definition by creating a set of rules or norms that can be used in different contexts. This will help in creating a generic framework which, in the

long run, will help towards achieving the goal of sustainability (Lindsey, 2010). Lindsey further emphasised that an improved system which reduces wastage, combined with better products and processes, is the key to achieving sustainability.

As mentioned above, reducing wastage is one element of achieving the goal of sustainability. This is even more pronounced in the food sector. According to Hunt (1990), food is the only product that is conventionally consumed three times a day, and so its contribution to municipal waste is enormous. Sustainable packaging is therefore an essential part of achieving the objectives of sustainability, and needs to be prioritised. Whilst the relationship between sustainability and packaging is seen as being in vogue among various stakeholders, it is also important to comprehend the principle of sustainability as it applies to packaging communities (Packaging Digest, 2011).

In this resesearch, we define sustainability as reinforcing fairness in the context of the economy, society and the environment. This advocates sustainable packaging that will be cost effective and functional, in the optimal sense, for society, without harming the environment; and this ultimately translates to the reduction of wastage of limited resources, a view supported by Eklington (1998) and Dylick and Hockerts (2002).

2.1.2 Packaging in Context:

Directive 94/62/EC from EPCD (1994) highlighted a definition of packaging, in relation to all materials and products, as having the following functions:

- Protection
- Containment
- Handling
- Presentation
- Delivery

It specifies that it includes above activities, from the initial transfer of the product from the producer, to delivery to the end consumer. The definition also provides details of certain key requirements that member states must adhere to. It is interesting, at this juncture, to touch

briefly on the history of packaging, so as to provide an understanding of how changes in modern living are having an impact on everything in this context.

The earliest packaging can be traced back to primitive men, many years ago, in a hunting society, when it was realised that protecting food can make it last longer. In these times, leaves, animal skins and coconut shells were used (SCRIB, 2014; Soroka, 2000). (See Packaging Timeline in Appendix 1). Much has happened since, and there have been many breakthroughs and changes, due to the dynamic nature of the world we live in. This demonstrates how human continue to seek new ways of doing things within their environment.

The increase in the use of packaging materials was a result of the Industrial Revolution, which launched a new era of production methods and processes. Since then, society has risen to the challenges that the modern world has brought in terms of new ways of living. Changes of lifestyle as a result of industrialisation have affected demand and production (Cornaz, 1945); the working population of the agricultural sector dropped significantly, while the service and industrial sectors grew (Veyrassat, 2007). Packaging was therefore needed, since the working population that moved from the agricultural sector had to buy food.

2.1.3 The Packaging Industry:

Packaging can take the form of a flexible carrier bag, a semi-flexible cardboard box, a toys package, a rigid crate or a glass bottle. While the use of flexible packaging can be traced back to the Chinese, as early as the first century, the first paperboard carton was produced in England in 1817 and the first commercial paper bags were produced in England in 1844 (Berger, 2002). Glass also plays a prominent role in food packaging, and is estimated to have come into use in 3000 BC (Sacharow and Griffin, 1980). Other packaging materials include:

Metal - This includes aluminium and steel. While aluminium is mostly used for cans and foil, it has little corrosion and provides a good barrier against the effects of chemicals and moisture which may damage a product. In order to improve its strength, manganese and magnesium may be added (Page et al., 2003). It is easy to recycle, so it is easy to reclaim. Aluminium is used in the food and drinks industry, and may not be cost effective when compared with other forms of packaging.

Plastics - According to the Environmental Protection Agency (2006), cited from Marsh and Bugusu (2007), there are two types of plastic, known as thermosets or thermoplastics. Thermoplastics can be easily remoulded and are usually used in the food industry; they are easily recyclable and cost effective.

According to Soroka (2002), all materials and technologies that are used for the protection, wrapping for sale, storage and distributions of goods are referred to as packaging.

Advancements in science and technology have added a new dimension to the packaging development timeline, with ground breaking discoveries in the packaging industry continuing to cause new and innovative products to enter the market every day. It should be noted that initial breakthroughs in the packaging industry were not meant for the food industry, although they provided a perfect fit for the industry's purposes (Risch, 2009). Packaging demonstrates the way we live, the way we eat, and the packaging industry comprises of suppliers and user with pressure from different angle (The Packaging Federation, 2006). (See packaging industry breakdown, Figure 3, below).

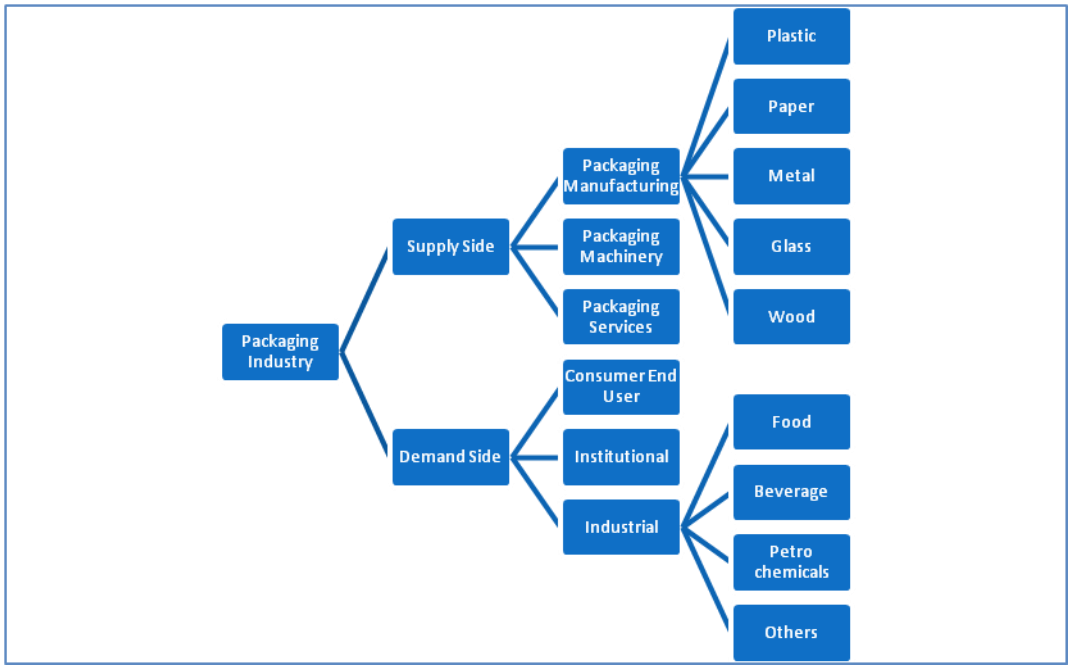

Figure 3. Packaging industry breakdown.

(Source: FAO (2014)).

2.1.4 Food packaging:

The perishable nature of food in the agro-allied business necessitates a sound strategy to reduce lead times and waste reduction (Food and Agriculture Organization of the United Nations, 2007). It is therefore important for an organisation to include packaging as part of the key processes, both at the strategic and operation level. The importance of packaging for food can be traced back to the early ages, when packaging in form of leaves and animal skins helped to preserve food stocks (SCRIB, 2014). This is now even more pronounced, considering the globalisation of the economy: food planted in Africa and other emerging economies is consumed in western countries, such as the United Kingdom, the United States of America, Canada, Australia and others. These goods travel thousands of miles before they get to the final destination, the end consumer, and, because of this, organisations are faced with many strategic decisions in order to be able to minimise cost, minimise wastage, present the goods in the best possible condition, conveying important information to the end consumer and, most importantly, be aware of the impact on the environment.

One of the roles of packaging in the modern day is protection of the quality of goods by serving as a barrier to moisture, oxygen and other gases that may be working against the product (Cole, 2003). What is even more evident nowadays is losses at every stage of the food supply chain, which can be minimised by using suitable packaging that considers environmental, economic and social consequences (FAO, 1989). Reduction in losses will eventually enhance food production and productivity, which will lead to economic development and growth.

According to the World Economic Forum (2009), it was estimated that about a billion people lived in hunger, globally, that year. Whilst it is good to continuously engage agriculture in producing more food in order to alleviate hunger, it is also important to engage in food loss reduction strategies; packaging is seen as one of the key elements of this initiative, not only in terms of food losses, but also in terms of protecting food and boosting international and global trade (Olsmats and Wallteg, 2009). Pira (2009) estimated that 50% of global consumer packaging was used for food. (See Figure 4, below).

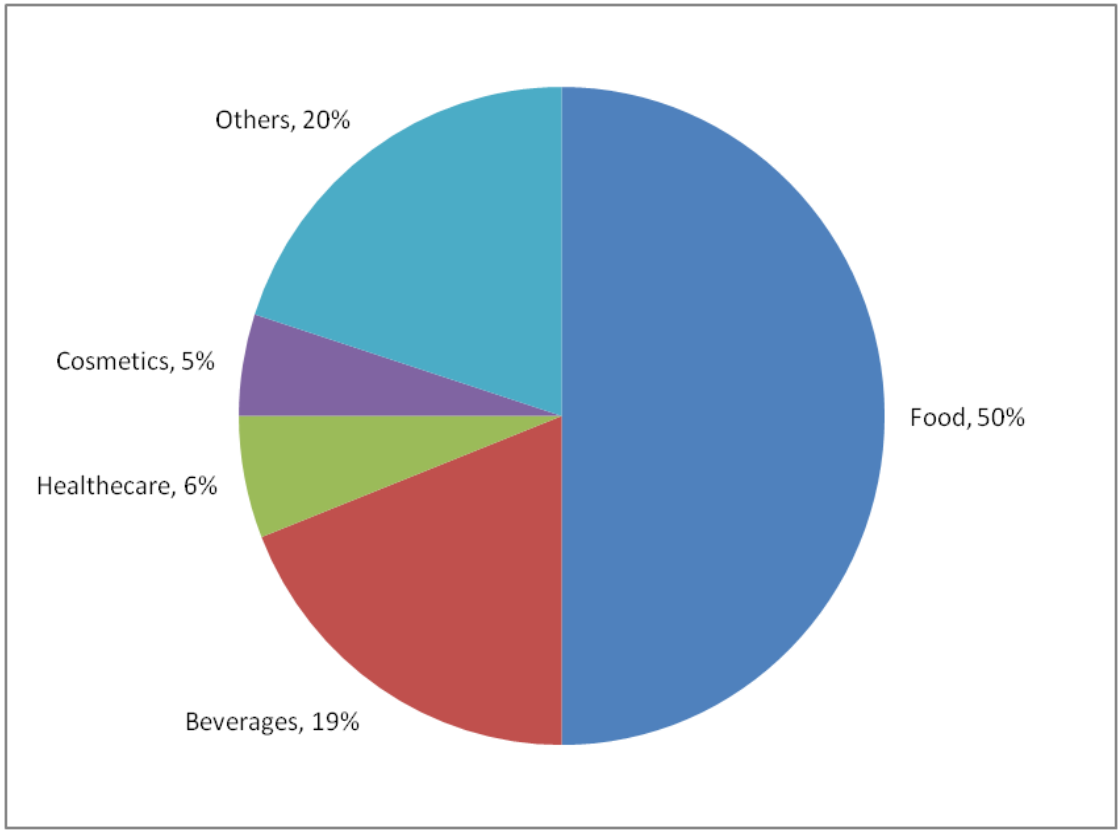

Figure 4. Global consumer packaging – end use.
(Source: Pira International (2009)).

2.1.5 Sustainable packaging:

The lifestyle of the 21st century has highlighted the importance of using packaging to achieve some aspects of the sustainability goals set in the Brundtland Report of 1987. According to ECR, cited by Nordin and Selke (2010), the importance of packaging for environmental, social and economic sustainability, in meeting the objectives of product protection, waste prevention and safe use of the product was recognised. According to Paine (2002), packaging is perceived as being an indispensable evil, because of its basic functions and because of the way it presents products.

The increase in packaging for food items can be linked to demographic change in the world, as families are getting smaller and so require purchases in smaller quantities; this eventually leads to an increase in food packaging. It is also important to note that more than two-thirds of packaging is actually used for food (Incpen, 1996), although the same rule covers all other types of packaging, for other various products and industries.

Sustainable packaging should be viewed holistically, considering the raw materials producer, converters and manufacturers, users within the distribution system, and distributors; furthermore, it is important that packaging does not increase the environmental burden (Lee and Xu, 2005). The use of life cycle assessment has also been suggested as a means of assessing or estimating the environmental impact of packaging (Levy, 1999).

2.1.6 Sustainable packaging defined:

While there is agreement among experts in the field of packaging that, in absolute terms, sustainable packaging cannot be defined, the lack of a general consensus has generated much discussion (Verghese et al., 2012).

The two most popular definitions of sustainable packaging are those of the Sustainable Packaging Alliance (SPA), in Australia, which was formed, in 2002, by the Victoria University of Technology, and the Sustainable Packaging Coalition (SPC), in the USA, who have made an attempt to unify understanding within the industry.

The SPA, in 2002, made an attempt to define sustainable packaging by postulating four fundamental classifications - effective, efficient, cyclic and safe - but this was redefined in 2007, in spite of the fact that these four dimensions provided a good general guideline for the industry. The SPC (2011), on the other hand, summarised eight principles to describe their understanding of sustainable packaging:

"*A. Is beneficial, safe & healthy for individuals and communities throughout its life cycle*
B. Meets market criteria for performance and cost
C. Is sourced, manufactured, transported, and recycled using renewable energy
D. Optimizes the use of renewable or recycled source materials
E. Is manufactured using clean production technologies and best practices
F. Is made from materials healthy throughout the life cycle
G. Is physically designed to optimize materials and energy
H. Is effectively recovered and utilized in biological and/or industrial closed loop cycles"

This encompasses business considerations and industrial ecology, and considers environmental issues with an emphasis on the life cycle of packaging. In other words, it takes a holistic view, from the extraction of raw materials to the final product reaching the consumer.

Also, the SPA, in recognising the complexity of the packaging system, has claimed that:

"*the environmental impacts of a particular packaging system will depend heavily on specific issues relating to its purpose, the length and nature of the supply chain, and recovery, re-use and disposal options. The interaction between environmental, commercial and social performance requirements also needs to be considered on a case-by-case basis. However, the aim was always to develop a set of principles which could guide decision-making rather than providing a 'black and white' description of the ideal package" (Sustainable Packaging Alliance, 2007).*

The organisation issued Framework 1.0, in July 2010, which included principles, strategies and Key Performance Indicators for sustainable packaging. (See Appendix 8). Advances in technology have enhanced packaging systems very rapidly, providing opportunities for many improvements.

2.1.7 Packaging, innovation and technology:

The world is witnessing breakthroughs in the field of packaging, and this is changing the landscape and controlling future directions. According to Oki and Sasaki (2000), technological innovations and breakthroughs in sustainable packaging have led to savings of 15% in packaging material use. The newly developed packaging technology that uses 15% less plastic is a breakthrough by Unilever, and it is estimated that it saves 275 tonnes of plastic every year (CSRWire, 2014**).**

There continue to be technological advancements in the area of resource reduction. Packaging material reduction can have a substantial effect on energy use, because using less material requires less energy, and this reduces costs within the production process (MacKerron and Hoover, 2015).

There has been continuous innovation in the use of biodegradable materials, such as new biodegradable polyester materials that are more flexible than those used for conventional packaging (Leaversuch, 2002); the use of bio-plastics has reduced energy consumption and greenhouse gases (Bastioli, 2001); intelligent packaging has been developed which can measure variations within the environment, its contents as well as the packages and content to the consumers and this can be tracked using Radio Frequency Technology (RFID) (Brody, 2001; 2002). In addition, technology has continued to enhance and support the efficiency and

flexibility of packaging and its design, and this has improved the robustness of the whole supply chain.

Sustainable packaging has also helped to communicate information to various parts of the supply chain, as in addition to its primary function of food safety. It has also enhanced traceability within the supply chain (Marsh and Bugusu, 2007), and has encouraged new ways of thinking, in the modern world, and provided tools to support researchers in various fields, such as the philosophy developed by German chemist Dr Michael Braungart and William McDonough, in their book entitled "Cradle to Cradle". The quest for sustainable packaging has altered the landscape, and has a very significant relationship with innovation. According to Porter (1985**),** the main driver of economic growth is innovation, which intensifies the competitiveness of organisations and of the sectors and industries in which they operate.

There have been various innovations in the context of sustainable packaging, in recent years, and these continue to have different effects on social behaviour and consumption. Various innovative types of packaging have both served their primary functions of protecting the product and conveying important information, and had other purposes. Innovative sustainable packaging products include interactive paper, packaging that can change shape and colour in response to certain stimuli, and self-opening packaging materials **(**Trending Packaging, 2015).

In the context of SMEs, with their own, distinct characteristics, the driver of innovation is the owner and/or the managers, who will decide whether or not innovation will be embraced. In addition, the issue of limited resources must be considered, as sustainable packaging will need to compete with other needs for each organisation's limited resources.

2.1.8 Cradle to Cradle versus Cradle to Grave:

Cradle to Grave is associated with Life Cycle Assessment. It highlights the impact of production processes from product creation to the end of production. According to the EPA (2010), this is also called Life Cycle Assessment. The Sustainability Dictionary defines Cradle to Cradle (C2C) as:

"A phrase invented by Walter R Stahel in 1970 and popularized by William McDonough and Michael Braungart in their 2002 book of the same name. The framework seeks to create

production that is not just efficient but is essentially waste free. In Cradle to Cradle production, all material inputs and outputs are seen either as technical or biological nutrients. Technical nutrients can be recycled or reused with no loss of quality and biological nutrients composed or consumed. By contrast, Cradle to Grave refers to a company taking responsibility for the disposal of goods it has produced, but not necessarily putting products' constituent components back into service"

In Cradle to Grave, the products goes through processing and the remnants end up in landfill, which, while harming the environment, also has a cost attached to it. This is different from Cradle to Cradle, where there is no waste; waste is technically eliminated, which is good for the environment, and there is no cost attached to it. Cradle to Cradle is the brainchild of William McDonough and Michael Braungart.

This concept of Cradle to Cradle continues to have an impact on sustainable packaging design. It emphasises the importance of material selection and combination, and the introduction of technologies that help in the transition from Cradle to Grave to Cradle to Cradle, which contributes to eradicating detrimental effects on the environment. There continues to be a shift towards the adoption of 100% recyclable packaging materials, which resonates with the concept of Cradle to Cradle. (See Figure 5, below).

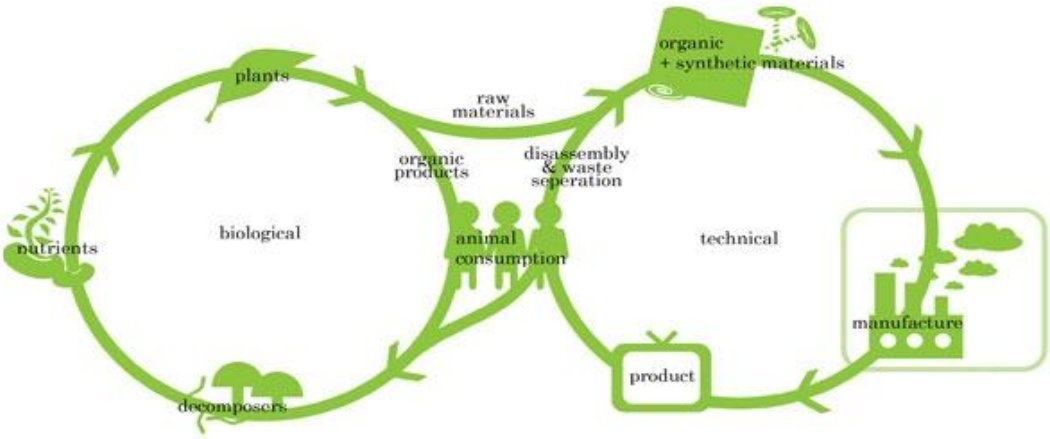

Figure 5. C2C design.
(Adapted from Sustainablebrands.com).

It is therefore essential to consider the environmental impact of packaging materials when selecting materials, as stated in the EPA guidelines. In the context of food packaging, it is

important to consider the quality and safety of the food being packaged, convenience in terms of ease of use, the cost of the packaging materials, the properties of the packaging materials, the food's shelf life and storage conditions. All of these factors are an essential part of what needs to be considered in order for products to reach the end consumer in the desired way. It is more complicated when delivery involves an international supply chain, such as the one featured in this research.

2.1.9 Global Logistics' impact

Packaging continues to play a dominant role in global logistics. While fuel and transportation costs continue to increase, sustainable packaging is seen as playing a major role in the reduction of waste and the elimination of energy use, which, overall, reduces transportation cost (Supply Chain Digest, 2009). It is important to highlight the importance of packaging in the supply chain of organisations, as it may enhance its efficiency or affect it negatively.

There continues to be increased complexity within the global logistics environment, an example of which is the creation of sustainable packaging to meet the needs of all stakeholders in the system. As organisations realise that they are part of a network, their activities becoming more complex as the activities of others in the supply chain affect their decisions (Handfield et al., 2013). In this light, it can be argued that decisions regarding sustainable packaging made by one of the organisations in the supply chain will have an influence on the decisions of the others, as products move within the supply chain. At this juncture, it is important to recognise what is driving continuous awareness of sustainable packaging within this global community.

2.2 Drivers in Context

There has been continual growth in the amount of government legislation recognising the impact of packaging on the environment. For example, the UK government introduced the Producer Responsibility Obligation (Packaging Waste Regulation) 1997, and also the Packaging Regulations 1998, through the Environment Agency, with the goal of the reduction and recovery of packaging material by organisations involved in a packaging system or chain (Environment Agency, 2011).

The Producer Responsibility Obligation (1997) came into force in the United Kingdom to implement the European Union Packaging and Waste 1994 Directives (94/62/EC). It ensures that organisations take responsibility for recovering packaging waste they are responsible for

when selling products. Whilst the EU directives set targets for recycling for Member States at between 25% and 45%, the United Kingdom sets recovery rate at 38%. It should also be noted that, initially, the legislation was meant to cover only large organisations, but this changed, in 2000, to cover small organisations, the turnover threshold being reduced to £2 million, from £5 million (Fernie and Hart, 2001). This meant that both types of organisation became subject to the same regulations, which is seen as being unfair to small SMEs, considering the cost of implementation (The Grocer, 1999).

This regulation has more significance to the food sector, considering the amount of packaging used for food, and this is even more pronounced when considering the effect on SMEs of implementation.

The Packaging (Essential Requirements) Regulations (1998), which were revoked by the 2003 version of these regulations, aim to reduce waste entering the market by minimising amount of packaging used for goods, control of heavy metal contents and information on their packaging. This is an important legislation ast if applies to all types of business- small or large organisation. It is thus an important legislation for the case study organisation.

Recent reports have also highlighted the influence that sustainable packaging has on consumer choice of product. According to Datamonitor, cited in an Environmental Leader report, consumers are beginning to make their choice of product based on their concern for excessive packaging (Environmental Leader, 2009).

This shows the positive impact that sustainable packaging is having on consumers, by providing accurate and necessary information to enable them to make informed purchasing decisions, thereby promoting sustainable consumption (Nordin and Selke, 2010). It is more important, in this context, to understand the above with reference to SMEs, as emphasis has always been on MNEs.

2.3 SMEs and MNEs Defined

There have been various attempts at defining SMEs, with different approaches having been used. According to Jenkins (2006), there has never been a universal definition within the literature. Whilst some have used turnover to define an SME, others have used the number of employees and profit levels. Storey (1994) confirmed that SMEs accounted for the largest proportion of business all over the world.

It should be noted that the definition of an SME follows the same pattern in both the European area and the United States of America, by using the number of employees. While an SME is defined in the European Union as an organisation employing fewer than 250 employees, in the USA it is fewer than 500. In addition, while the definition may vary within developing countries, it follows the approaches mentioned above. The diverse nature of SMEs in developing countries is recognised when defining them, as they range from small craft shops to well exposed firms producing for the foreign market (Reuber and Fisher, 2003).

The first general definition was proposed in 1996, by the European Commission, followed by a 2003 recommendation which came into force in 2005 (User Guide and Model Directives, 2003/361/EC). This publication defined what an enterprise is, in terms of staff numbers and a financial ceiling, and clearly spelled out how to apply the stipulated formula when determining the status of an organisation as an SME. (See Appendix 2).

According to Rugman and Verbeke (2001), an MNE is an organisation with activities, or an operation, encompassing more than one country. There are many yardsticks used in defining what an MNE is, and criteria such as ownership and nationality have been used in the past. According to Vernon (1971), an MNE is seen as a central organisation that shelters a collection of companies emanating from different regions. While the focus of the current research is SMEs, it is also important to recognise the existence of MNEs and their contribution to economic development, and to highlight how they differ from SMEs. This will enhance the understanding that both have distinctive characteristics and should be looked at differently.

In this research, while the definition of various SMEs has been examined above, it should be noted that the SMEs in this study all have fewer than 50 employees, and so they are smaller than most SMEs that have been studied previously. The SMEs had not been studied before, and there was no study available for this specific type of SME, although all SMEs face the same barriers in any industry.

2.3.1 MNEs versus SMEs:

Whilst there are many criteria available to distinguish between the two types of organisation, the following will be used:

Equity

Equity in SMEs is usually held by the founder and/or his or her family. Typically, there are few shareholders, who bear 100% of the risk. In this light, growth is limited by the size of the contribution of the founder or the family members, prior to other finance being sought. This was corroborated by Miller et al. (2003), who confirmed that most organisations globally are SMEs and are family owned. On the other hand, equity in MNEs is held by public investors; there are many shareholders, and the management of the organisation is accountable to these shareholders. This means that the owner's beliefs and values play a major role in decision making in an SME.

Management

Most SMEs are managed by their owner and his or her family, although there may be support from other, recruited managers, with key strategic decisions being made by the owner. In the context of sustainable development, if the owner of the business considers sustainable packaging to be high on the company's agenda, the business that he or she represents is more likely to adopt sustainable practices (Jenkins, 2006; Graafland et al., 2003). On the other hand, MNEs are managed by professionals in various fields, and decision making takes place within the hierarchy of the organisation (HBR, 1992).

Whilst research into sustainability has a long history, the emphasis has been on large organisations (Quinn, 1997; Arbaciauskas et al., 2010). There is now an increasing amount of research into SMEs in this context, and it is important to note that SMEs' position in the modern world is significant, because of their contribution.

Many traditional methods for tackling the sustainability issue were created for large organisations (Jenkins 2006), so an attempt to apply such methods to SMEs will not produce accurate results. According to Hillary (2004), the complex nature of SMEs needs to be recognised, and requires special analysis for understanding to be achieved.

According to Loucks et al. (2010), SMEs constitute a major component of the world's business, but had been ignored for a very long time in the context of sustainable development. It is therefore very important to accept this type of organisation as being a major player, considering these organisations' importance to the world economy.

Emphasis has always been on MNEs, because of the belief that they have the capability and resources (financial and technical) to embark on any project. It is equally important to

highlight the uniqueness of SMEs, and how this uniqueness plays to their advantage over MNEs. It is believed that recognising and highlighting these enablers will allow this type of organisation to be viewed differently and taken seriously in their sustainable journey.

2.3.2 Potential enablers:

At this juncture, it is important to highlight the key strengths that SMEs have over MNEs in embracing sustainable activities. This is important, as it educates other stakeholders on the importance of this type of organisation, and on SMEs' worth in the global economy. According to Hillary (2000), SMEs are ignorant of their impact on the environment and of the importance of embarking on sustainable activities.

Structure and Ownership

Most SMEs are small in size when compared to MNEs. The definitions of both types of the organisation have already been discussed above. Whilst SMEs are usually owned by one individual or a very limited number of shareholders, MNEs are usually large and accountable to many shareholders through a board of directors which is responsible for steering the direction of the organisation. Aragon-Correa et al., (2008) stated that the smaller nature of the SME may be an advantage in executing sustainable innovation expeditiously, when compared with MNEs with a hierarchy of command and authority. This can be translated to quick decisions and results.

In addition to the above, SMEs are nimble in structure and less orderly than the more formal, well defined and well structured MNEs (Fassin, 2008), which means that they are flexible, adapt to change easily, are agile and can influence their operations, which can make it easier for them to embrace sustainable activities. This position was also corroborated by Moore and Maring (2009), who highlighted the problems of management culture and dynamic processes within MNEs in relation to executing sustainable policies.

The Nature of SMEs

SMEs' nimble structure tends to reflect on other strategic areas of operation (White et al., 2009). According to Aragon-Correa et al. (2008), because of their simple structure, they also tend to have a simple capital structure, which may facilitate access to internal financial assets. MNEs have a complex capital structure, and many constraints and regulations, which may militate against the organisation's access to internal financial assets or resources. The issue of

MNEs' capital structure is a complex one, and involves many stakeholders and organisational decision mix. A nimble and less formal structure avoids the issue of bureaucracy, which is a major issue facing multinational organisations. SMEs are flexible, and their responsiveness to changing market conditions is greater than that of MNEs (Afolabi and Ehinomen, 2015).

Risks and Commitment

The nature of SMEs, as mentioned above, entails just the owner or a few members of the family taking all the strategic decisions in the organisation, which is different when compared with MNEs. Most of the time, there is no real separation between personal and business assets, which means that the owners or the family have a higher stake in the business, and so the risk they take is higher than that of the board of directors of an MNE. This gives them a sense of commitment to succeed in any projects they embark upon (Aremu and Adeyemi, 2011). Therefore, it is believed that, in an area like sustainable packaging, the risk they take will actually help in this new area, and this may explain why so many SMEs are increasing their involvement in research and innovation in the area of sustainability, especially in the area of packaging. According to Fassin (2008), SMEs risk all they have, so that, if things go wrong, they bear the brunt of any failure; on the other hand, if things go wrong on the part of an MNE, then liability is probably limited to job loss.

Planning

In addition to the above, whilst SMEs always plan in the short term, due to limited resources, their focus being on day to day operations (Seidel et al., 2008), MNEs tend to plan for the long term, having the resources to do so. SMEs' ability to respond to market conditions easily, responsiveness to customers' preferences and reduced product life cycle give them an edge over larger organisations and can give them a first mover competitive advantage (Loucks, 2008; Hoffman, 2005; Wicklund and Shepherd, 2003). These advantages can also support strategies to win new customers, as can ease of bringing new products to the market. A multinational organisation may need the approval of the board, with time taken for the decision to spread along a bureaucratic line of command.

Community Advantage

Most SMEs are regionally based, and are deep rooted in the community where they are actively involved most of the time; this includes the employees, and there are many

advantages for this type of organisation. Trust is built, and, according to Niehm et al, (2007), this can improve their financial performance. This type of organisation might have advantages over an MNE when launching a new product in a new area like sustainable packaging. This is because the SME has built trust with members of the community, and the community will accept any product from this organisation without question. Most multinational organisations are more independent of the community, especially if it is a division, and most of their decisions to invest in an area may have to be justified financially.

Engine of Job Creation

SMEs are known to be an engine of job creation, all around the world (Jenkins, 2004; Ardic et al., 2011; Aremu and Adeyemi, 2011). There is also the potential for an SME to attract the best employees (Rodriguez, 2006). This is actually true when the type of organisation at the forefront of sustainable packaging innovation breakthrough and research is considered. Organisations such as Ryback and Ryback, Colour Label Solutions packs are at the forefront of sustainable packaging innovations, despite the fact that they are smaller organisations and are winners in Easpack 2016 innovation award. It was estimated by The Packaging Federation, as cited in the PIRA Report produced for the DTI, that there were over 2,000 companies involved in the production and manufacture of packaging materials in the UK, and that 60% of these companies actually engaged fewer than 20 employees, which falls within the definition of an SME. This corroborates the importance of this type of organisation, as compared to multinational organisations.

Ease of Working with Stakeholders

SMEs, as mentioned above, are usually small in size, but can execute gigantic project in a smart and lean way. Every customer of an SME is important, which increases interaction on both sides. This usually translates to a competitive advantage, as the organisations are close to their customers, and so have easy access to knowledge of what the customers want. For example, it is easy and cost effective for an SME to roll out new, sustainable packaging that will be acceptable, as it is easy for the company to understand the perception of all stakeholders, as they are close to them. It is usually more complex for MNEs to achieve buy-in from all stakeholders before a project can be implemented. In addition, SMEs are open to all markets. The presence of SMEs can be felt in many contexts – marketing, business development, research and development, and many more (OECD, 2000), and this list might

continue to grow. Markets are easily accessible to this type of organisation, as compared to MNEs.

Innovation

According to the OECD (2000), some 30 to 60% of SMEs in a defined OECD area are innovative, and they tend to do this in a unique way - product re-engineering, new technique development and the enhancement of productivity by introducing new organisational approaches to those used by MNEs, in the area of sustainable packaging. The global arena continues to feel the presence of SMEs in the various groundbreaking innovation approaches, giving rise to new product development (Schiliro, 2011). The world is characterised by brisk and disruptive changes, global competition, and constant customer demand for performance more than ever before (Vanhaverbeke and Peeters, 2005). SMEs rising to this challenge can be recognised by the fast and nimble way in which they achieve things, compared with MNEs. According to Sirmon et al., (2011), various studies have stated that, because of their nature, SMEs are capable of initiating significant innovation more than MNEs. This places this type of organisation at the forefront of innovative advancement. Whilst there is evidence of this innovative attitude, there is still the impediment of limited resources (Mensah and Acquah, 2015).

In the European Union, SMEs provide more than 75 million jobs (Vasilenko et al., 2011), and are responsible for between 60 to 70% of OECD countries' employment, and deliver more than half of the European Union's Gross Domestic Product (OECD, 2000).

SMEs constitute more than 99% of enterprises in the United Kingdom, and more than 80% in the United States of America (Moore and Manring, 2009). According to Schaper (2002), some 95% of all private sector firms are SMEs. In China, many big organisations outsource many of their products, with SMEs contributing approximately 40% of China's GDP (Kanamori et al., 2007).

It can be concluded that, with the huge representation of SMEs, their activities have a substantial impact on the issue of unsustainable practices in the global environment. According to Parker et al. (2009), SMEs are responsible for approximately 60% of carbon dioxide emissions and some 70% of all pollutants.

SMEs feature prominently in the supply chain of most successful organisations, such as Wal-Mart, Apple and Tesco etc., and so have to embrace regulations in order to enhanced their position and align with the larger organisations that they serve with their packaging systems.

Transitions

Many large organisations are continually making headlines in the news, publicising their various efforts regarding sustainable packaging; these include Twining's compostable packaging, Marks & Spencer changing their wine bottles from glass to plastic, and many others (Environmental Leader, 2010). It is equally important to investigate SMEs, to discover their importance and their contributions.

Data from the UK Packaging Manufacturing Industry estimated that turnover increased from £9.3 billion in 2000, to £9.6 billion in 2005, and that packaging represented some 5.5% of manufacturing sector turnover (The Packaging Federation, 2006).

Whilst it is known that the drivers of the agenda for sustainable packaging include governments, (through the use of various regulations), as well as retailers, packaging companies and customers (Selke and Nordin, 2010; PricewaterhouseCoopers, 2010), this may also present a challenge for continuous improvement to sustainable packaging, should there be over-regulation, or should unsuitable regulations be put in place. (See Figure 6, below).

The fact that more than two-thirds of packaging is used for food emphasises the importance of this research to the food manufacturing sector.

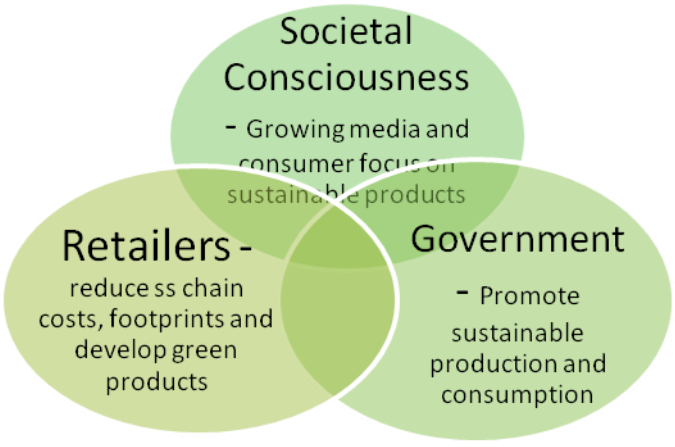

Figure 6. Merger of interest in sustainable packaging.

(Source: Five Winds International (2008)).

2.4 Barriers in Context

A survey of available literature for the past 15 years has revealed the following key barriers and enablers to SMEs' sustainable packaging activities. While the emphasis of this research is on sustainable packaging for SMEs, an attempt will be made to consider generic barriers and enablers to sustainability, as, regardless of the industries in which the SME operates, there are common issues (Churchill and Lewis, 1983). The issue of barriers will be discussed first, followed by a discussion of enablers.

Cost

Various studies of the sustainable activities of SMEs have pointed to cost as being one of the leading barriers. Lawrence et al. (2006), in their study of 800 SMEs in New Zealand, concluded that cost is one of the barriers hindering SMEs in their sustainable journey. Revell et al. (2009), in their own study of SMEs, reported that two-thirds of the participants in their study specified cost as a barrier. Taylor et al. (2003) cited a study of SMEs conducted in 1995, where 73% of the participants confirmed that they would engage in sustainable activities if the cost were to decline.

One of the issues facing SMEs is limited resources, (Hilton, 2000; Hervani and Helms, 2005; Wycherley, 1979); they manage what they have, and so incurring costs has to be well thought out, and relevant to their area of operation. They tend to avoid expenditure if a return is not visible in the short run.

In addition to the above, the goal of an organisation is to be able to offer a product that customers want, and which is within their reach. Consumers are knowledgeable about the market, and are continually looking for lower prices (Orsato, 2006; Revel et al., 2009). As a consequence, this leaves no margin, and so SMEs have a limited ability to incur cost.

Some eco-management and audit schemes are cumbersome, and a voluntary scheme is a big challenge for an SME, having a very high cost implication in view of limited resources (White and Lomax, 2010).

In the context of packaging, regulation requires a detailed analysis of materials used; where an international customer is involved, an additional specification is required, and the cost of

such compliance can be exorbitant for SMEs (White et al., 2011). An organisation's engagement in sustainability activities is known to add substantial value to the organisation, although it always comes at a cost (White and Lomas, 2001).

In research conducted by a Denver-based organisation in the USA, cost ranked high as one of the barriers facing SMEs (Sustainability4SME, 2015).

From the above, it is clear that cost is one of the major barriers facing SMEs in their sustainable development journey.

Customer Demand for Performance and Convenience, and Price Sensitivity

Continuous demand for lower prices, without compromising performance, is putting too much pressure on the ability of organisations, especially SMEs, to control costs. Generally, initial investment for sustainable activity is usually high, and this increases cost (Revel et al., 2009; Jenkins, 2006). Technology has opened up the market considerably, and has provided better tools to enable the consumer to analyse the market and obtain the best information for making informed decisions. Therefore, organisations have to remain competitive, both in terms of pricing and quality.

Financial

The issue of finance as a barrier to SMEs' sustainable activities features prominently in many empirical studies. It is very important to distinguish between cost and finance in this context. Whilst finance relates to funds available for sustainable packaging projects, cost relates to the expenses incurred when embarking on projects. Empirical studies have highlighted finance as one of the barriers facing this type of organisation.

Okpara and Wynn (2007), while researching SMEs in developing countries, highlighted lack of finance as one of the barriers limiting their growth in these parts of the world. Aremu and Adeyemi (2011), in their research into SME activities in one particular developing country, identified finance as being a barrier. They went further by drawing attention to commercial banks' nervousness about assessing risk premiums properly.

Hassanien and Aldy (2008), in their study of SMEs in Egypt, affirmed that the lack of access to finance was a major problem. The OECD (2000), in its policy brief of more than 15 years ago, recognised a 'funding gap' in respect of SMEs. Wyrick and Natarajan (2011) also confirmed finance as being a barrier, when researching into the activities of SMEs in the USA. The Network for Business Sustainability (2012) also mentioned finance as a barrier to SME sustainability activities, a view that was earlier supported by Hilton (2000).

It is also important to recognise limited source of finance to this type of organisations, which then increases their exposure to dynamic nature of market credits. In the case of Multinational Enterprises, they have the luxury of access to various sources of finance-Equity, Debt, IPO (OECD, 2013). In addition, when compared with the Multinational Enterprises, Small Medium Enterprises (SME) face harsh credit requirements in form of higher interest rate, additional request for collateral and personal guarantee (OECD, 2012).

Whilst there are other grants and funding available to SMEs to augment their sources of finance, these are not within their reach, as it is difficult to access the relevant information; even if they had the information, they have no knowledge of how to access funding (DEFRA, 2006). According to Lam and Shin (2012), risk based financing like sustainable packaging projects are most of the time attract fixed asset collateral and personal guarantee.

Embarking on a sustainable packaging project may require additional capital, which may not be available to SMEs, which can prevent projects from taking off. A project may necessitate changing a whole packaging system, and this can be expensive. According to Vasilenko et al. (2011), who researched SMEs' sustainable innovation implementation in the Baltic region, confirmed finance as being one of the major barriers threatening this type of organisation. They went on to recognise various administrative lapses in the management of the various financing programmes initiated in the region to support them. Inadequate financial resources were also highlighted by Yu and Bell (2007).

Finance ranked as the second-most important barrier hindering SMEs' growth, according to the World Bank Group (2010). Whilst the issue of finance is well recognised as one of the main barriers to SMEs embracing sustainable packaging, it is more pronounced in developing countries (World Bank Group, 2010). It is also recognised that certain dynamics at play in developing countries make things even harder.

Furthermore, whilst the availability of finance enables MNEs to hire professionals for various departments, this is not the case with SMEs (Business Link, 2011).

Lack of Funds for Research and Development

Lack of finance has caused the lack of availability of funds for research into many areas of sustainable packaging (Sellahewa et al., 2011). Research into new areas such as sustainable packaging requires funding, which SMEs do not have at their disposal. As mentioned above, financial institutions find it difficult to divert funds into this area, because of the uncertainty of returns. The financial crisis has also contributed to this, as demand for goods and services has been affected, and the on-going toughening of credit terms for SMEs (OECD, 2009) has made it difficult for them to embark on sustainable research activities. There continue to be threats posed, with the recent oil price slump and substantial losses on stock markets suggesting that the world economy is still ailing. Europe's largest economy has also been thrown into dissaray after over 14 billion euro was wiped off the value of Germany's two biggest lenders - Commerzbank and Deutsche Bank (Express, 2016). Such unsettling activity affects the ability of organisations to embark on sustainable research and development.

Regulations

Regulations are known to provide a level playing field for all participants within a system. According to Revell and Blackburn (2007), regulations place businesses on the same level, thus preventing any of them from having an undue advantage over others. The government has the responsibility of formulating policies. According to Porter and Van de Linde (1995), regulation may help in reducing product cost, and getting rid of costly materials. Sustainable activities may also be hindered by various regulations on production practices (Luetkenhorst, 2004).

In the United Kingdom, the reduction of packaging materials and waste is controlled by the imposition of targets on individual organisations (White et al., 2011). According to Comply (2011), an organisation may incur a penalty of up to £250,000 for non-compliance with packaging regulations.

Packaging is an essential component of the supply chain of most businesses retail, manufacturing and distribution. It is of particular importance to the food sector, because food packaging represents approximately 50% of total packaging sales (Marsh and Bergusu, 2007). Therefore, its contribution to landfill is significant. Regulation is needed to encourage reduction and the recovery of packaging materials used (Environment Agency, 2011).

There continues to be modification of regulations, and this has made targets more complicated, especially for SMEs (White et al., 2011). There is also the problem of the low level of awareness of regulations and their interpretation (Gerstenfeld and Roberts, 2000). According to Williamson and Lynch-Wood (2001), there are too many regulations, and it is difficult for SMEs to keep track of what is needed to be complied with. The process is also seen as being too cumbersome. In addition, having the same regulations for both large and small organisations is seen as being a concern. It is expected that there should be separate regulations for SMEs, considering their unique nature (Hillary, 2004).

There is also the issue of voluntary regulations. Whilst there is provision for packaging in the European Parliament and Council Directive on Packaging and Packaging Waste 94/62/EC, of 1994, as amended to date M6, 2015, which stipulated guidelines for packaging activities within the EU area in general, there is also The Packaging (Essential Requirements) Regulations 2015 in the United Kingdom, which support the EU Directives (BIS, 2015). These documents provide details of obligations and enforcement under the regulations, but it should be noted that these are voluntary, and that using alternative means to achieve compliance is allowed.

Whilst voluntary compliance has its own advantages - which is why it is widely used in the UK, as well as by the Environmental Protection Agency (EPA) in the USA - there has been criticism about relying entirely on voluntary actions. According to Parker et al. (2009), the full benefits of voluntary compliance may not be realised when it exists in isolation and also where the benefit gained is less than the challenges encountered. The issue of using regulation as a protectionist tool has also been highlighted; domestic organisations might be required to follow strict guidelines before products are exported to a destination, and there might be unnecessary impositions, or bans on some components, which are irrelevant in the country of origin (Marsh, 1993). There is a need for more effective regulations, to boost voluntary compliance.

Having too many regulations and too much complexity can incur unnecessary costs, making the whole process of compliance costly, especially for SMEs, who are already struggling to manage their resources and weigh their priorities.

Regulation can be even more complicated where an operation cuts across many regions, as in the current study. Different regions' regulations might differ, and, according to Tyssen et al. (2011), the non-alignment of regulations can be costly for the exporter, with compliance required both at home and at the export destination.

Alignment of regulations is therefore important, so as to reduce costs and lower prices overall for the consumer. This can also assist in the smooth running of the supply chain by removing unnecessary bottlenecks within. In the context of an international supply chain, as in the current research, which involves three organisations, in two regions, there continues to be pressure on organisations to comply with international packaging regulations and environmental design, as required. One key bottleneck is in the area of material definition and material thresholds.

Whilst voluntary regulations have their own shortcomings, there are groups that advocate a more stringent regulation model. According to Hillary (2004), SMEs are more prone to compliance where there is a direct influence of regulators. It is believed that a lack of compulsory regulation may affect organisations' propensity to prioritise compliance, and that, where there is no direct and effective enforcement and administration system and tools in place, compliance will be reliant on the owner's or designated manager's commitment to the sustainable packaging concept and vision (Parker et al., 2009; Siedel et al., 2008).

In addition, whilst efficient and effective regulation enforcement is paramount, it is also important for the process of compliance to be nimble, not cumbersome and not too costly, as it is known that most available tools are tailored towards MNEs (NBS, 2012; Studer et al., 2006). Whilst mandatory regulation may have its own advantages, in encouraging or motivating businesses to be compliant, it may only encourage them to satisfy the minimum requirements (Revell and Blackburn, 2007).

Time

Various studies have identified time as being one of the barriers hindering SMEs in their sustainable journey. Revell et al. (2011) confirmed that approximately 53% of the

organisations in their survey singled out time as a barrier. This was supported by Jenkins (2006) and NBS (2012). The fact that SMEs see time as a limited resource means they have to manage their time well. Because they have "a lot on their plate" in terms of what to do, they have to prioritise. MNEs, on the other hand, are in a better position than SMEs. They would prefer to use their time for their core business - sustainable activities are perceived to be non-core to their business (Fassin, 2008). According to UNEP (2003), SMEs are mostly concerned with surviving economically in the short term, and so they would rather devote their limited time to running their day to day business.

Lack of time remains a distinct barrier because most SMEs do not make time to engage in learning and training that may benefit them in the long run. Acquiring appropriate skills in the sustainable development area needs time, which they are not prepared to spare, as their business is their priority - a view supported by Hilton (2000).

It should be noted that the lack of time might also affect compliance with regulations. As mentioned above, because most regulations are too cumbersome and complicated, SMEs may see spending valuable time on these activities as not being productive (Walker and Preuss, 2008). The issue of time as a barrier applies to any SMEs, regardless of the business they undertake.

Size

SMEs are usually small in size, compared with MNEs, and their small size does affect the way they are perceived. There is always the assumption that MNEs have better resources available for investment in sustainable activities. Even when SMEs request funds from a financial institution, they are not given a better rate, because of the perception that they are small and so do not have the same requirements as MNEs. According to Revell et al. (2010), most sustainable business opportunities are tailored for bigger organisations.

There is a perception that small organisations are risky and do not have the required skills to manage a business very well (UNEP FI, 2007), and that this is more pronounced in developing parts of the world, such as Africa. As a consequence of this, they are being denied access to funding, and also may not be taken as seriously as an MNE in a new area like sustainable packaging. Most sustainability tools and verification procedures are tailored to MNEs (Willard, 2005; Petts, 1999).

Lack of Information

This was referred to during the discussion of finance, above. There is a general lack of information and awareness about available procedures and best practices that may help SMEs on their sustainable journey (Condon, 2004; Parker et al., 2009). The issue of the lack of easy access to available information and the support that is needed was also highlighted by Compass Inc. (2003).

In addition to the above, there is a lack of concise definition and interpretation of available tools for SMEs (Vasilenko et al., 2011). The knowledge and training needed to engage research and development activities, to boost growth, is lacking among SMEs (STOA, 2013), and this lack of knowledge means that SMEs have no information to help them to innovate in their sustainable packaging efforts.

It should be noted that the perception that "bigger is better" may be misleading, in the present landscape, as there are many initiatives and innovations in the area of sustainable packaging, worldwide, that are now being led by SMEs.

Transportation and Supply Chain Conditions

Transportation, which is one of the infrastructure and logistics barriers recognised in the literature, is an essential part of the supply chain, and is at the forefront of supply chain decision making in every organisation. Transportation enables the delivery of materials to the production unit, and delivery from the production unit to the end consumer. Goods are transported locally as well as internationally, and transportation is at the centre of it all. Moving goods from one location to another has its own physical challenges and demands. It is therefore a challenge for SMEs when embracing sustainable packaging activities, and there is a trade-off between embracing sustainable materials and protecting products from the rigours of transportation (PWC, 2010).

According to White et al. (2011), some modes of transportation are guided by rules and regulations, and this may hinder sustainable packaging. For example, transportation by sea using a container has certain rules, e.g. pallet size may not exceed 2.05 metres (ITC, 2012), and wooden crates need to be treated with chemicals which may not be good for the environment. Other types of product, such as poultry products, may also need special packaging and temperatures, and this may restrict the use of some sustainable materials.

Ultimately, goods need to be transported to the final destination, and this is at the heart of transportation. Different modes of transportation are faced with different physical demands, which require containment using appropriate packaging, and such packaging has many constraints (Business Link, 2011). It can therefore be said that sustainable packaging decisions can be dependent on the mode of transportation within the supply chain (Carter and Easton, 2011).

Support for the Sustainability Concept and Management Buy-in

This can be a barrier to the development of sustainable packaging. According to Yu and Bell (2007), embracing sustainable packaging may be subject to the influence of the owner. Where the owner favours, and is interested in, the concept, there is a belief that this will affect the concept positively; on the other hand, if the owner is not interested, there will be the opposite effect.

Consumers also have a role to play by familiarising themselves with the concept (Young, 2008). It is hoped that this will help to put the required pressure on SMEs, and there are indications that consumers are becoming more aware of the concept (Selke and Nordin, 2010).

Lack of External Support

According to Simpson et al. (2004) and Burke and Gaughran (2007), there is a lack of external support, considering that, because of their nature, SMEs need special support. Governments and their agencies have a role to play in formulating policies to support the sustainable efforts of SMEs. There is a need to recognise their special nature and the issues they face, and agencies need to meet them at the "point of their needs". For example, multinational organisations have various resources to help them in the course of their business, and it is easy for them to attract the best talent, because they have resources to do so. In the context of sustainable packaging, they have the resources to pursue various innovative products, without affecting their daily production. This is not the case with SMEs.

Training

In the fast-paced, changing environment in which organisations are presently operating, the success of the economy is dependent on the ability to adapt and on the development of new

learning. It is therefore important for owners and managers of SMEs to be exposed to training and development that can equip them for the challenges of the modern world (Gray, 2006). According to Hilton (2000), SMEs are faced with a lack of training needs analysis (TNA). According to SEECEL (2013), the lack of available training, the needs of organisations and the inadequate availability of data on the training needs of SMEs all need to be addressed with the help of TNA.

In addition, whilst MNEs have the resources to enable them to engage in various training activities, including employees training, SMEs, because of limited resources, may find this difficult. Whilst identifying the reasons for business failures among SMEs in a developing country, the lack of training was identified as a major factor (Okpara and Wynn, 2007).

SMEs are Oblivious to Their Own Environmental Impact

SMEs are oblivious of their own environmental impact (Schaper, 2002; Hillary, 2000). Many surveys have shown that they feel that their activities are not that harmful to the environment, although, according to NetRegs (2009), improvement occurs as they grow in size.

Industry-specific Barriers

There are industry-specific barriers which may hinder SMEs' sustainable packaging efforts (Zhu and Sarkis, 2006). There are some industries that have been advocating reusable and refillable packages, but health issues have been raised and it has been difficult to push through various packaging suggestions, especially in the food sector. There is concern, for example, about traces of the chemical diisopropylnaphthalene (DIPN) being found in the cardboard used for food packaging, and dioxins have been seen to form in plastic bottles (Daily Mail, 2016).

Below is a table summarising the literature that has been discussed above. Whilst the emphasis has been on SMEs and sustainable packaging, literature has also highlighted the generic issues they face when embarking on sustainable activities.

Table 2. SMEs' barriers to sustainable development (packaging) identified in the literature.

S.N	Reference Details	Barriers	MNE	SME	Packaging Specific
1	Revell et al. 2009; Taylor et al. 2003; Wycherley 1999; Hervani and Helms 2005; Williamson and Lynch-Wood 2001; Briscoe et al. 2005; Orsato 2006; Gaukler et al. 2007; Nwakwo 2000; Guilhon et al. 1998; Hillary 2004; White and Lomax 2010	**Cost**. Smaller firm will prefer to avoid cost, especially if the return is not visible in short run.		✓	✓
2	Vasilenko et al. 2011; Hilton 2000; Ageron et al. 2011; Natarajan and Wyrick 2011; OECD 2010; Okpara and Wynn 2007; Aremu and Adeyemi 2011; Hassanien and Aldy 2008; White and Lomax 2011; Business Link 2011; White et al. 2011	**Financial**. New tools to embrace sustainable development usually involve high initial outlay. Difficult to assess finance for sustainable (packaging) projects.		✓	✓
3	Hilton 2000; Carter and Dresner 2001; Defra 2006	**Training and commitment issue**. Majority of SMEs are not aware of training, advice and support available to them.		✓	✓
4	Orsato 2006; Revell et al. 2009; Jenkins 2006; Selke, S. and Nordin, N. 2010	**Customers' demand for performance and convenience, and price sensitivity**. Pressure from customers.	✓	✓	✓
5	Porter and van de Linde 1995; Masurel 2007; Environmental Agency 2011; Gerstensfield and Roberts; White and Lomax	**Regulations.** Studies found that voluntary compliance is ineffective, especially when it is the only strategy used.	✓	✓	✓
6	Taylor et al. 2003; Revell and Blackburn 2007; Revell et al. 2009; Hilton 2000; Vasilenko et al. 2011; Selke, S. and Nordin, N. 2010; Rutherfoord et al. 2000; DEFRA 2006; Lee 2008; Parker et al. 2009	**Lack of information and awareness.** One study conducted involving 220 SMEs; one-third of the sample actually pointed to lack of information on how to go about it.		✓	✓
7	Zhu and Sarkis 2006	**Industry-specific barriers.** There are some barriers peculiar to some industries or sectors.	✓	✓	✓
8	Zhu and Sarkis 2007; Sarkis 2009; Whalley 2000; Greer and Bruno 1996; Parker et al. 2009; Vives 2005	**Management buy-in / commitment.** The owner / managers of the SME hold the key to many decisions, and this may be determined by the vision of the owner / managers.		✓	✓
9	Revell et al. 2011; Jenkins 2006; Lee 2008; NBS 2012; Fassin, 2008; UNEP 2003; Hilton 2000	**Lack of time.** Most SME resources, including time, are limited.		✓	✓
10	Yu and Bell 2007; Parker et al. 2009; Rutherfoord et al. 2000	**Size.** SMEs are usually very small in size, but when combined may have a very large impact. Individually they have limited resources.		✓	✓
11	Simpson et al 2004; Burke and Gaughran 2007	**Lack of external support.** Because of their nature, SMEs need specific support in order to		✓	✓
12	Schaper 2002; Netregs Benchmarking Survey 2002; Netregs SME-nvironment Survey 2009; Hillary 2000; Holland and Gibson 1997	**SMEs are ignorant of their own environmental impact**		✓	✓
13	Sellahewa et al. 2011	**Lack of funds for research and development**. The Financial meltdown of the global world also contributed to this.		✓	✓
14	PWC 2010; White et al. 2011; ITC 2012; Business Link 2011	**Transportation and supply chain conditions.** Regulations and rules in force may affect packaging specification.		✓	✓

Table 3. SME enablers of sustainable development (packaging), as identified in the literature.

S.N	Reference Details	Enablers	MNE	SME
1	Aragon-Correa et al. 2008; Fassin 2008; Moore and Maring 2009	**Structure and ownership**. Nature of SMEs enables them to avoid issues around bureaucracy that plague MNEs.	Bureaucratic and structured. Very complicated	Unstructured and simple
2	Aremu and Adeyemi 2011; Fassin 2008	**Risk and commitment**. SME risk is higher and there is also higher commitment, because of the stake in the business.	Risk limited	Unlimited risk
3	Seidel et al. 2008; Loucks 2008; Hoffman 2005; Wicklund and Shepherd, 2003	**Planning.** Short term planning helps with flexibility and being easily adaptable.	Planning is usually long term	Short term planning
4	Niehm et al. 2007	**Community advantage**. Because SMEs are rooted in the community, this helps them to build trust. This translates to a quick roll-out of a sustainable product, which would otherwise have been difficult.	Not rooted in the community	Rooted in the community
5	Jenkins 2004; Rodriguez 2006; Ardic et al. 2011; Aremu and Adeyemi 2011	**Engine of job creation**. Various studies have confirmed SMEs as being far in front in terms of job creation, supporting innovation and development	Create jobs	Create more jobs
6	White et al. 2009	**Nature of SME**. Usually nimble, and have a unique nature.	More complex and well defined.	Special nature
7	OECD 2000; Winch and Gill, 2003	Open to all markets where MNE does not want to go; can operate in highly specialised niche markets.	MNE market may be selective	Open to all markets
8	Jenkins 2006, 2011	**Ease of working with stakeholders**	May be difficult to satisfy every stakeholder	Easy to deal with stakeholders
9	Talbot et al. 2007	**Innovative**.	Not as flexible	Flexible and adaptable

2.5 Summary

This chapter is inevitably wide ranging, as it has reviewed details regarding the available literature on various definitions of sustainability, in particular sustainability as observed through the lens of this study. In addition, various issues connected with packaging have been examined, as well as the differences between MNEs and SMEs. Furthermore, various barriers identified in the relevant academic literature have been reviewed in the context of sustainable development, most importantly sustainable packaging.

Chapter 3. Methodology

This chapter presents the procedures that were used for achieving the objectives of this research and enabling the research questions to be answered adequately. The first part will cover identification of an appropriate methodology for the research objective. The research has used qualitative research approaches, namely interviews, documentation and direct observation. The interview processes also include the procedure and analysis including the strategy used. The chapter substantiates and justifies the endorsement of the research philosophy, the approach, the data collection methods and the analysis of data.

3.1 Methodology in Research

The word "Methodology" originated from Greek, and is a combination of two words: "*methodos*" and "*logos*". It makes reference to exhaustive, philosophical deliberations about the methods of an enquiry; the term methodological, on the other hand, describes the rational process of arriving at a conclusion about a phenomena or event. Therefore, research methods constitute a subset of the above two terms, referring to the various methods available for collecting information or data, and they are only applicable when consensus has been reached about the research methodology and the methodological approach that will be adopted. In addition to the above, there are many definitions, in the literature, relating to research methodology. Saunders et al. (2009:3) defined research methodology as:

"*Something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge".*

Kruger (2001) defined research methodology as the utilisation of multifarious systematic methods and techniques to create scientifically obtained knowledge, which highlights the methodical way that researchers go about their work, using suitable methods of collection and analysis of data, diligently studying issues to be discussed and the objectives of the study in question or under investigation.

Choosing a suitable research method is important, as it is the key to acquiring relevant knowledge about, and excellent access to, the phenomena in question. Hussy and Hussy (1997) elucidated that research investigation and the process of enquiry in a systematic way was to build up knowledge. The research must also embrace suitable methods for the collection and analysis of data, where data and the research problem must be dealt with

appropriately. In addition, Collis and Hussey (2009) emphasised that the purpose of research is to review and harmonise existing knowledge, to challenge an existing situation or problem, to provide solutions to a problem, to explore and analyse more general issues, to construct or create a new procedure or system, to explain a new phenomenon, to generate new knowledge, or a combination of all of these. According to Blaxter et al. (2001), choosing the best method is not just about the technicality or practicality of the question, but is more about understanding the social reality and being able to choose the right technique for studying it. It is therefore important for the researcher to use a suitable method to investigate the phenomenon in this context. This also explains why the researcher must review the literature and use it as the basis of the investigation.The current research followed a route suggested by Saunders et al. (2012), as it is important to have a roadmap that the research can follow, as illustrated in Figure 7, below:

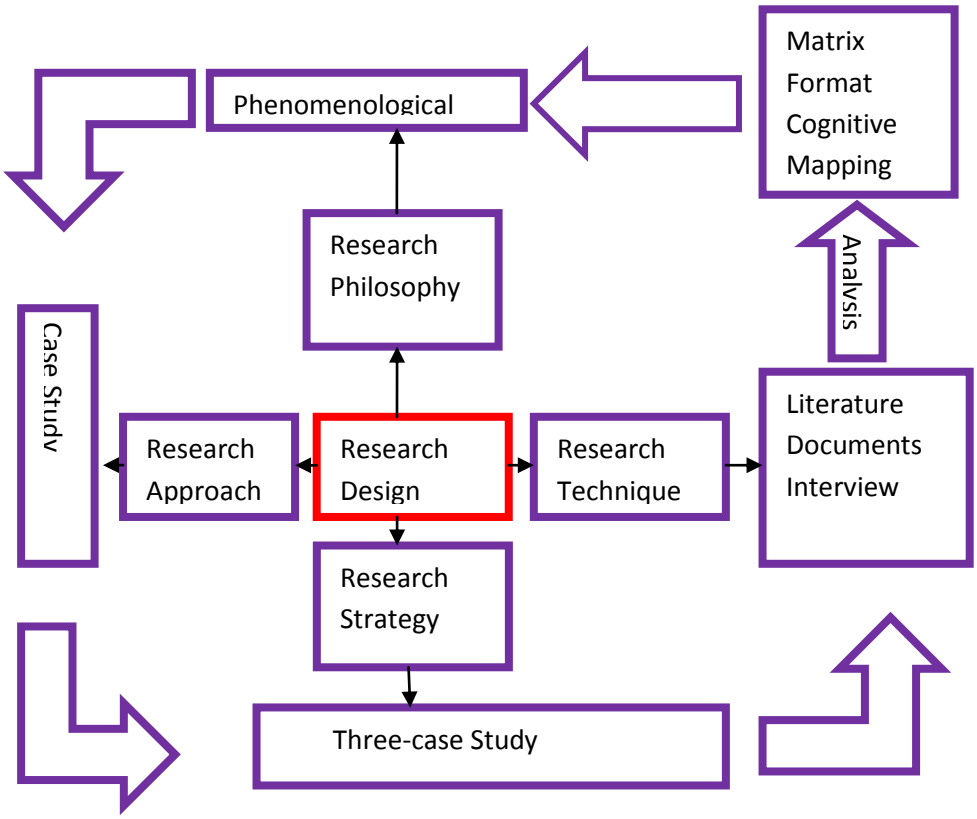

Figure 7. The research design route.

3.2 Research Classification

According to Hussy & Hussy (1997), research can be categorised by method and procedure used for data collection, area of discipline or by its purpose. Easterby-Smith et al. (2004) classified research in a different way, into Pure Research, Applied Research and Action Research.

Pure Research - This type of research may or may not lead to theoretical development, and theoretical connotation may take one of three forms, which are:

- Discovery - where a new idea or new evidence emanates from empirical research, and may remodel reasoning and thinking;
- Invention - where a new idea, technique or method is conceived to deal with a particular type of problem;
- Reflection - where an existing ideas technique is re-examined in a new social context or organisation. According to Easterby-Smith et al. (2004), research of this type is popular and used extensively, especially for graduate studies.

Applied Research - This type of research mostly involves working with clients who have identified a problem and may readily bear the cost of the research, in which case it is necessary to report findings back to the client. Normally, applied research is meant to lead to a solution to a specific problem.

Action Research - According to Easterby-Smith et al. (2004), this type of research should lead to change; in a nut shell, change should be associated with the process of research.

In light of the above discussion, the current research is pure reflection research, because, whilst it is known that the phenomenon studied has been investigated before, the current research has investigated it in a different context, to add to the body of knowledge and provide a different perspective. Whilst research has been conducted before on SMEs, the current research is focused on three organisations within the same supply chain, spread across two regions. This is unique in its own right, and will add to the existing body of knowledge.

3.3 Important Philosophical Considerations

It should be noted that the way in which researchers select a methodology and make related methodological decisions depends very much on how instinctively and/or intuitively they approach knowledge advancement. In this context, the two most advanced research paradigms are "positivism" and "phenomenology" (Collis and Hussey, 2003; Saunders et al., 2003; Walsham, 1993). According to Saunders et al. (2009), research philosophy resonates with how the researcher thinks about knowledge development, which, in turn, affects the way that he or she undertakes the research.

3.3.1 Positivist and Phenomenological Reflections:

There are two main views on the nature of knowledge: the positivist paradigm and the phenomenological one. Easterby-Smith et al. (2002 p.29) described positivism as assuming that:

"*…the social world exists externally, and that its properties can be measured through objective methods rather than being inferred subjectively through sensation, reflection or intuition"*.

Phenomenology, on the other hand, emphasises understanding human experiences in context-specific settings (Amaratunga et al., 2002).

3.3.2 Positivism:

Positivism has been identified as an epistemology that advocates the application of the method of natural science to the study of social reality (Bryman, 2001). The paradigm has also been cited as the "traditional", "empiricist" or "experimental" paradigm. The epistemological realist contends that the world is "knowable" and that theories can actually describe reality. According to Outhwaite (1987), the most important task of the researcher is to show the existence of an explanatory structure in the real domain. The positivist philosophy embraces an ontological assumption that sees "reality" as being external and objective (Easterby-Smith et al., 2002).

Rationally, it takes the philosophical position of a physical or natural science, with the end result being a law-like generalisation (Saunders et al., 2003; Remenyi et al., 1998). Consequently, this philosophical approach in relation to management research is mostly associated with quantitative methods and quantitative data collection. The researcher, in this

instance, progresses from theory to data, and tries to explain the causal relationships between variables (Saunders et al., 2003; Johnson and Duberley, 2000). It is also notable that the researcher is independent of what is being researched, and human interest is extraneous, with general approach becomes structured by its disposition.

3.3.3 Phenomenology:

This philosophical approach is closely related to understanding human behaviour and actions (Collis and Hussey, 2003). It originates from the Greek words "*phenomenon*" and "*logos*", and has been linked with the study of organisations and people. According to Creswell (2003), it has been cited as a constructivist, interpretive, naturalistic, post-positivist and post-modern perspective. It supports an attempt to understand social reality in terms of the exact way in which it has been established in people's experiences throughout the course of their life, including through business or employment within organisations and nations.

Phenomenology broadly tries to understand a particular phenomenon by recreating the meaning that people assign to it (Walsham, 1993). It thus highlights the importance, and the acknowledgement, of different constructs, and the meaning that people place on their experiences in their entire life and business. According to Easterby-Smith et al. (2002), it consists of a comprehensive explanation of how and why people perceive different experiences, instead of searching for external causes and fundamental laws to explain their behaviour.

The phenomenological approach is usually associated with enhancing existing theories and originating new ones. This means there may not be a need for a predetermined hypothesis, which may even be unsuitable, since the emphasis of the research may require changes as the research advances, bringing new findings (Saunders et al., 2003). There are three main types of phenomenology, starting from the earlier work of Edmund Husserl; these are Realist, Constitutive and Existential phenomenology (Philosophy Basic.com, 2016). The current research adopts a constitutive phenomenological approach, which takes the visceral experience of a development as the beginning, and then seeks to extract the generic features of the experience. This has involved a review of the literature relating to the barriers to, and enablers for, sustainable packaging, as the starting point of the study, and this has allowed the researcher to gain insights into the phenomena been studied. More specifically, the current research has sought to investigate the meaning that the three organisations in the study assign

to the barriers to, and enablers for, sustainable packaging. Below is a summary of the major differences between the two approaches (see Tables 4 and 5).

Table 4- Positivist vs Phenomenology

Positivist Paradigm	**Phenomenological Paradigm**
• Mostly quantitative data • Large sample used • Concerned with hypothesis testing • Data are highly specific and precise • Artificial location • Reliability is high • Validity is low • Generalises from sample to population	• Mostly qualitative data • Small samples used • Concerned with generating theories • Data are rich and subjective • Natural location • Reliability is low • Validity is high • Generalises from one setting to another
Deduction (Quantitative) Emphasis	**Induction (Qualitative) Emphasis**
• Scientific principles • Moving from theory to data • The collection of quantitative data • Highly structured approach • The necessity to select samples of sufficient size in order to generalise a conclusion • Application of control to ensure validity of data • The operationalisation of concepts to ensure validity of data • Researcher independence of what is being researched • Need to explain causal relationships between variables	• Gaining an understanding of the meanings humans attach to events • Close understanding of the research context • The collection of qualitative data • Less concern with the need to generalise • More flexible structure to permit changes of research emphasis as the research advances • A realisation that the researcher is part of the research process

(Sources: Collis and Hussey (2003); Saunders et al. (2003)).

Table 5. – Positivist vs Phenomenology using various elements

Elements	Positivism	Phenomenology
The Observer	Must be independent	Part of what is being observed
Human Interest	Should be irrelevant	Is the main driver
Explanation	Must demonstrate causality	Aims to increase general grasp of the situation
Concepts	To be operationalised to support measurement	Should incorporate stakeholder perspectives
Sampling	Large number, randomly selected	Small No. of cases, chosen for specific reason
Unit of Analysis	Should be reduced to simplest terms	May include complexities of the whole situation
Research Progress	Through hypothesis and deduction	Gathering rich data from ideas induced
Generalisation	Through statistical probability	Through theoretical abstraction

(Adapted from Easterby-Smith et al. (2002)).

3.4 Research Approach

Important elements when making a choice of research approach are the research questions and the objectives of the research. The decision to choose an approach is related to its appropriateness (Oppenheim, 2000). Saunders et al. (2009) and Bryman (2008) stated that there are two main research methodological approaches, namely deductive and inductive.

Deductive Approach - This is where the researcher develops a hypothesis and a research strategy is developed to test the hypothesis in question. It relates to the positivism philosophy.

Inductive Approach - This is when the researcher gathers data and then develops a theory from his or her data analysis. It usually relates to the phenomenological philosophy (Saunders et al., 2012). According to Yin (2009), the inductive approach is mainly for obtaining an in-depth understanding or comprehension of both social and human problems from various viewpoints. It commences with empirical investigation and develops theory in relation to the phenomenon, and finally refers to theory that has been established. This is why the researcher initially reviews the available literature, and then develops interview questions from this literature.

3.4.1 Inductive versus Deductive:

It should be noted that making a distinction between inductive and deductive is difficult when research is been conducted. According to Miles and Huberman (1994), both approaches are closely related. Pure induction that is not based on a prior theory may prevent the researcher from gaining from theories already in existence; similarly, pure deduction might not allow the development of new and useful theory (Perry, 1998). Parkhe (1993) observed that both approaches are interrelated, and that the process of continuous theory advancement requires continuous interplay between the two approaches.

The selection of an appropriate research approach is crucial to the success of any research project. According to Sekaran (2009), the combination of deductive and inductive approaches is possible in the same piece of research. Therefore, in the current research, both approaches were adopted; a deductive approach was used in analysing the list of barriers to, and enablers for, sustainable packaging, from the literature, and then an inductive approach was adopted for the fieldwork, in order to achieve the research objectives.

3.4.2 Qualitative versus Quantitative Insight:

The tenet of qualitative research highlights the significance of processes and meanings (Denzin and Lincoln, 2003). Process and meaning are not explored or measured in terms of amount, quantity, intensity or frequency. The understanding of the way an individual perceives the world is central to qualitative research. It is more about insight seeking than statistical analysis (Bell, 1999).

Quantitative research, on the other hand, focuses mainly on relationships among variables (Ragin, 1994). According to Bryman (2008), a quantitative researcher focuses on careful control and measurement, thereby assigning numbers to measurements. This was also corroborated by Johnson et al. (1997), who stressed that the quantitative researcher is concerned with data aggregation, the majority of which are referenced with numerical values. The relationships between these different approaches are shown in Table 5, above.

3.5 Justification for Qualitative Research

This research is focused on accounts, and the profound understanding, of the natural setting of the phenomena in relation to the barriers to, and enablers for, sustainable packaging in SMEs. The best approach for this study is a qualitative approach, as overwhelmingly

supported by Arksey and Knight (1999), Moore (2000), Bell (1999), Naslund (2002) and Denzin and Lincoln (1998).

This research is exploratory in nature, and deals with meanings and experiences of organisations and peoples. This will assist in the development of an understanding of why and how barriers and enablers affect sustainable packaging in SMEs. It should also be noted that this research concentrates on words, and not numbers or predictions, and focuses on sequences of events, interactions and behaviours. This is achieved using qualitative methods, including in-depth, semi-structured interviews which provide the opportunity to capture different perceptions and judgements.

The current study seeks to identify known barriers and enablers from the literature, and then investigate the organisations to assess whether their responses align with the literature. The study also notes any other barriers that emerge, to both add to the existing body of knowledge, and further enhance our understanding. Whilst the interview is the major method used in this research, other methods used include direct observation and documentation, to enhance and support the analysis of the data.

3.6 Research Strategy

Adopting a research strategy is foundational, because it assists the researcher in answering precise research questions in order to meet the research objectives (Saunders et al., 2009 p.141):

"*the choice of research strategy will be guided by the research questions and objectives, the extent of existing knowledge, the amount of time and other resources available, as well as the researcher philosophical underpinnings"*

According to Yin (2009), while there are many research strategies in the social sciences - experiments, case studies, histories, surveys and archival information - the following three factors should be considered when choosing a suitable research strategy:

- The nature of the research question posed,
- The intensity of control the investigator has over actual behavioural events, and
- The extent of focus on contemporary, as opposed to historical, events

Table 6, below, summarises various research strategies and characteristics, as described by Yin.

Table 6. Characteristics of research strategies.

Strategy	Form of research question	Requires control over behavioural events ?	Focuses on contemporary events ?
Experiment	How, Why	Yes	Yes
Survey	Who, What, Where, How many, How much	No	Yes
Archival	Who, What, Where, How many, How much	No	Yes/No
History	How, Why	No	No
Case Study	How, Why	No	Yes

(Source: Yin (2009)).

3.7 Justification for Adopting a Case Study Research Strategy

Case study research has been seen as a suitable strategy where questions like "how" and "why" are being asked (Yin, 2003), as this approach provides the researcher with insights into not only what happens, but also the reasons why something happens. Yin also saw the case study strategy as being an appropriate option where the focus is on contemporary events, and where the researcher has no control over these events. This was also corroborated by Robson (2002 p.178), who stated that:

"case study is a strategy for conducting research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence"

It is therefore mandatory if the researcher is attempting to gain insight into the processes being enacted and the context of the research (Morris and Wood, 1999). Therefore, case study research better addresses the research questions of the current study, which are: what are the barriers to sustainable packaging?; why do these barriers exist?; how do these barriers affect sustainable packaging?

According to Yin (2003 p.2):

"The case study allows an investigation to retain the holistic and meaningful characteristics of real life events such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations and the maturation of industries"

3.7.1 Single versus Multiple Case Study:

Single and multiple case study design shares the same methodological architecture, while differences relate to their unique characteristics; each use is dependent on the aims and objectives of the study, as well as its explicit review (Yin, 2003). According to Voss et al. (2002), while a single case study offers enormous depth of understanding, it is limited in terms of the generalisability of the conclusions drawn from it. This may lead to biases and exaggeration of the available data, and misjudgements as to the representativeness of such a single event. They further stressed the importance of multiple case studies, in order to augment external validity and guard against the bias of the observer.

Yin (2009) stated his preference for multiple case studies, and suggested that there must be a strong rationale for the choice of a single case study, where a researcher has opted for one. Perry (1998), on the other hand, asserted that there is no exact standard in terms of the number of cases to be included.

In the context of the current study, three organisations were selected, enabling the researcher to enhance external validity and present robust evidence. It is also felt that using multiple case studies reinforces the depth of the study.

3.7.2 Justification for the Choice of Case Study Organisation:

A key decision that a researcher has to make is case selection. According to Denscombe (2007 p.40), there are four justifications for selection of a case study:

Typical instance: "*The most common justification to be offered for the selection of a particular case is that it is typical. The logic being invoked here is that the particular case is similar in crucial respects with the others that might have been chosen and that the findings from the case study are therefore likely to apply elsewhere";*

Extreme instance: *"A case might be selected on the grounds that, far from typical, it provides something of a contrast with the norm. An illustration of this would be the selection of an organisation which is notably smaller or notably larger than usual";*

Test-site theory: "*The logic for the selection of a particular case can be based on the relevance of the case for previous theory";*

Least likely instance: *"Following the idea of test-sites for theory, a case might be selected to test the validity of 'theory' by seeing if it occurs in an instance where it might be least expected".*

The first criterion (Typical instance) has been used for the current study. It is important, at this point, to examine the attributes of the three organisations used in the case studies.

ADEs – An SME formed by Mr Michael Adedipe, specialising in manufacturing flexible packaging materials and product marketing for the Fast Moving Consumer Goods (FMCG) sector. ADEs had 21 to 50 employees. The variation in the number of employees was due to the fact that some were temporary staff that were needed only when the organisation was in full production. This seasonal variation in the number of employees also applied to BMC and NFA. The company also engaged in repackaging and marketing, mainly of food products.

BMC - also an SME, formed by Mr Michael Omodara, specialising in the manufacturing and processing of food products. The organisation employed between 19 and 45 people. Whilst dealing in many food products, BMC specialised in the processing of plantain chips and bean flour, their signature products.

NFA - an agro-allied organisation specialising in the production of green products. The number of employees ranged from 30 to 50 people. NFA specialised in the growing of cassava, puna yam, beans, plantain and many other products. This organisation also specialised in the semi-processing of raw food into finished, or semi-finished, products.

These organisations will be discussed in detail in Chapter 4. All three organisations conformed to the "Typical instance" described by Denscombe (2007); they were all small- to medium-sized organisations founded by an individual entrepreneur, and their number of employees was in line with the definition of an SME.

One of the most important issues in the selection of cases for research is the issue of accessibility and convenience (Silverman, 2002). While accessibility will facilitate the collection of suitable and sensitive data, it is rational to select cases with less expense, least travel and, generally, relatively easy access (Denscombe, 2007).

The fact that all three organisations were within the same supply chain made access easy. Initial introductions and a relationship with one of organisations made access to the other two easier. While two of the organisations were based in the UK, and so within reach, the fact that all were within the same supply chain made access to the third organisation easier.

3.8 Data Collection Methods

There are various tools available to researchers for defining, exploring, understanding and describing phenomena. Galliers (1992) described data collection methods as a process of evidence collection in the course of data gathering.

The data collection methods include the following:

Interview - A formal meeting where one party queries the other; this was the primary method of data collection in the current research.

Direct observation - Field visits when conducting an investigation.

Document review - Letters, memoranda, newspaper articles.

Archival records - These include organisations' records and past correspondence.

Participation - The observer seeks to be one of the people, or part of the process, being observed, but this can lead to bias.

In Case study research strategy, it allows researcher to structure collection methods in different ways (Robson, 2002). One important fact to note is that all data collection methods have their own strengths and weaknesses, Table 7, below, shows:

Table 7. Strengths and weaknesses of sources of evidence.

Source	**Strengths**	**Weaknesses**
Documentation	➢ Stable - can be reviewed repeatedly. ➢ Unobtrusive - not created as a result of the case study. ➢ Exact - contains exact names, references and details of an event. ➢ Broad coverage - long span of time, many events and many settings.	➢ Retrievability can be low. ➢ Biased selectivity, if collection is incomplete. ➢ Reporting bias - reflects (unknown) bias of author. ➢ Access may be deliberately blocked.
Archival records	➢ (Same as above, for documentation). ➢ Precise and quantitative.	➢ (Same as above, for documentation). ➢ Accessibility, due to privacy reasons.

Interviews	➢ Targeted - focus directly on case study topic. ➢ Insightful - provide perceived causal inferences.	➢ Bias due to poorly constructed questions. ➢ Response bias. ➢ Inaccuracies due to poor recall. ➢ Reflexivity - interviewee says what interviewer wants to hear.
Direct observation	➢ Reality - covers events in real time. ➢ Contextual - covers context of event.	➢ Time-consuming. ➢ Selectivity - unless broad coverage. ➢ Reflexivity - event may proceed differently because it is being observed. ➢ Cost - hours needed by human observer.
Participant observation	➢ (Same as above, for direct observation). ➢ Insight into interpersonal behaviour and motives.	➢ (Same as above, for direct observation). ➢ Bias due to investigator's manipulation of events.
Physical artefacts	➢ Insight into cultural features. ➢ Insight into technical operations.	➢ Selectivity. ➢ Availability.

(Source: Yin (2009 p.102))

3.8.1 Justification for Triangulating Data Collection Methods:

Data triangulation is the most suitable method or technique that a researcher can use to enhance confidence in his or her analysis and evaluation of the observation (Campbell and Fiske, 1959). It involves the gathering of data from various sources, at different times. According to Robson (2002 p.52):

"*The use of evidence from different sources, of different methods of collecting data and of different investigators, where feasible, are all triangulation techniques which enhance credibility"*

According to Denzin (1984), there are four aspects of triangulation: Data source; Investigator; Theory and Methodological Triangulation. In light of the above, the current study was based upon open-ended, semi-structured interviews as the primary method of data collection, supported by additional sources, such as direct observation and document review, to enhance data triangulation.

While no single source has an advantage over the others, using multiple sources of evidence does assist the researcher in clarifying the authentic meaning of the phenomena under study (Yin, 2009). It also helps in guarding against bias that may occur in the course of using any single method (Collis and Hussey, 2009). Using multiple sources of data can also massively enhance the quality of the research (Golafshani, 2003).

In addition, using different sources gives confidence that the research is concentrating on the most important issues (Saunders et al., 2012). However, according to Sekaran (2009), the choice of collection method depends on experience of the researcher, the time and extent of

the study, the degree of accuracy required and other costs and resources connected with data gathering. According to Yin (2009), researchers need to draw on a wider collection of documentary information and interview data to be able to know 'how' and 'why' something has occurred.

In this study, interviews were used as the primary source, while direct observation, archival records and documentation were selected and used as a secondary method, for gathering the relevant data in the case studies. Participant observation was **excluded**, because the researcher was not involved in any of the case study activities, and physical artefacts were also not suitable, because of the focus of this study. Combining various methods in this research encouraged an in-depth understanding of the study.

3.8.2 Data Collection Methods:

Interviews

The interview is a powerful tool for capturing data, especially in the context of a qualitative case study approach. According to Yin (2009), the interview is one of the most valuable sources of information in case studies. It is a purposeful discussion between two or more people (Saunders et al., 2009). It is defined by Amarantuga (2002 p.25) as a practice:

"whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena"

Types of Interview

According to Robson (2002), there are three types of interview, namely: fully structured interview, semi-structured interview and unstructured interview. This was corroborated and supported by Saunders et al. (2012):

- Structured interviews: a standard set of questions is presented, with the use of a questionnaire.
- Semi-structured interviews: whilst there is a list of questions, there may be variation from one interview to the other.
- Unstructured interviews: There may not be a restriction on the list of questions asked, so the researcher may comprehensively explore areas of interest.

Justification for Choosing Semi-structured Interviews, Documentation and Observation

One justification is the interaction between the interviewer and interviewee in a modifiable and agreeable mode, which provides the opportunity for meaning to be probed, with the respondent being complicit in this process. This interaction also allows the subject matter to be considered from a number of angles. The validity of the semi-structured interview is therefore very high (Saunders et al., 2012). Easterby-Smith et al. (2008) pointed out that the validity of the semi-structured interview also relates to the degree to which the researcher can have full access to the knowledge and meaning of interviewees.

As part of the case study strategy and phenomenological approach, the semi-structured interview has been deemed to be relevant, and so has been used in the current research.

According to Ghauri et al. (2005), more qualitative techniques come into play when qualitative methods are involved, such as semi-structured interviews and conversations.

In addition, Patton (2002) suggested that the transcripts of in-depth interviews may be included as part of the data of qualitative research. Sekaran (2009) and Oppenheim (2000) both stated that in-depth, semi-structured interviews can help researchers to understand the connotations of people's activities, and they allows them to explain the purpose of the study, clarify any doubt and avoid any misunderstanding.

Jankowicz (2005) acknowledged that semi-structured interviews are a strong and effective data collection method when used within the context of a case study research strategy. The semi-structured interview has been selected as the main method of data collection in the current study because its flexibility allows the researcher to adjust the questions in order to comprehend the phenomenon under investigation. In comparison to an unstructured or conversational approach, a number of pre-determined questions have to be included, rather than leave the respondents to give more details about the research problem.

Saunders et al. (2012) stated that in-depth, semi-structured interviews are used in qualitative research to place more emphasis on the 'how', as well as the 'what'. The current research has placed emphasis on words, rather than numbers, on interactions and behaviour, on cultural

responses and on people's experiences and attitudes. Jankowicz (2005) asserted that the semi-structured interview allows the flexibility required for such a study.

It can be seen that the semi-structured interview is acknowledged to be the most suitable method for the current research study, because it focuses on examining barriers to, and enablers for, sustainable packaging in SMEs. Although the same questions were used for all participants, the semi-structured interview made it easy to probe further, and also allowed interviewees the flexibility to express themselves in any way they chose, enabling in-depth understanding and exploration of new areas efficiently and effectively.

The choice of method is supported by researchers such as Yates (2004), who confirmed that the interview is a good way of exploring participants' subjective meanings. The interviewer can adapt questions to ongoing concerns of the participants, who can talk about things the interviewer might not have thought about before, which may be of particular benefit to the study.

Documentation

Mason (2004) stated that documentation, as a research method, is acknowledged as a meaningful and useful tool for collecting qualitative research data. According to Yin (2009), documentary information is likely to be relevant to every case study topic. Documentary evidence is used in the current research to mitigate the low level of reliability of the data generated from the interviews.

Documentation includes the minutes of meetings, plans, reports, attendance records, training file samples, work and project schedules, visitor records, stock data, sales records, shipping schedules and waybills, communication documents, records of the organisational structure and job description documents. Appendix 9 shows various documents from different units, gathered from all three of the organisations that the researcher visisted. (*The researcher was only allowed to use the documents on the premises of the case study organisations, as they were classified as confidential*).

Direct Observation

Delbridge and Kirkpatrick (1994) mentioned some of the benefits of direct observation, such as the ability to observe how different processes interact, and how some documents are processed and recorded. According to Sekaran (2009), direct observation is a means to:

"provide rich data and insights into the nature of the phenomena observed".

Furthermore, Ben-Japer (2010) and Al-Haj (2006) are among those who have adopted direct observation as one of the methods of data collection in their case studies. The current research used some formal direct observation, such as attending some meetings in all three of the organisations, observing personal communication among employees, and also observing the processes of the organisation and how they impacted on the organisation's sustainability experience, especially in relation to packaging. The details of this will be reviewed in Chapter 5.

Whilst the researcher had scheduled interview dates with the participants, access to various units in order to physically observe various operational processes was also requested. Although participants were mainly managers and heads of various departments, access was granted to other employees who personally showed the researcher various operations and how they were carried out. Figure 17 shows the researcher visiting one of the farm units of NFA; he was also given access to finished goods departments, and was also able to observe how various products are bagged and palleted. Figure 18 shows the packaging used for various products; the components of various packaging materials was explained and demonstrated. Whilst visiting Ades and BMAC, the researcher was also given access to various packaged products and their components. See Figure 13 and 14, from ADEs and BMAC, respectively. Appendix xxx also shows various documents that were provided for the researcher.

Archival Records

Yin (2009) described archival records as being appropriate for many case studies. Examples of archival records include maps and charts, organisational and personal records, lists of names and other relevant items, including survey plans. For the current research, an examination was made of records related to efforts on sustainable packaging, such as improvement charts, and the organisations' history and hierarchical structure.

Appropriate permission was sought before undertaking any of the methods of data gathering described above.

3.9 Ethical Considerations

The Ethics Policy of The University of Salford requires researchers to apply for ethical approval prior to conducting any field study. According to Cooper and Schindler (2008, p.34), research ethics is defined as:

"norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others"

The application was submitted following all the necessary procedures, and was approved accordingly. Consent was adequately sought from the participants and the issue of confidentiality was addressed, including the signing of agreements on both sides. Approval was duly received. See Appendix 3 for the approval letter. Other necessary accompanying letters were submitted in the course of the ethical application.

3.10 Pilot Case Study

The purpose of the pilot case study was to authenticate and develop interview patterns, related to the layout, format, content and wording of the statement (Yusof and Aspinwall, 2009). Mason (2004) emphasised the importance of the pilot case study, stating that conducting, reviewing and analysing the pilot case study is essential in order to advance judgement on the subsequent study. Saunders et al. (2012 p.677) defined a pilot study as:

"A small-scale study to test a questionnaire, interview checklist or direct observation schedule, to minimise the likelihood of respondents having problems in answering the questions and of data recording problems as well as to allow some assessment of the questions' validity and the reliability of the data that will be collected"

According to Oppenheim (2000), the key objective of the pilot study is not just to seek to generate findings, but also to make sure that the questions and procedure are adequate and appropriate. It thus serves as a tool for providing sound feedback which may help the researcher in fine tuning the real interview questions (Gill and Johnson, 1997).

Pilot interviews were conducted in order to ensure comprehension and understanding by the interviewee, and to mimic the real interview, so as to provide a sense of its duration and to

observe the reaction of the interviewee. Feedback from this pilot interview was used to modify the interview protocol.

The first pilot interview was with the CEO of Nottingham Investment, an organisation with 50 employees, which satisfies the criteria for an SME; this happened to be the organisation for which the researcher worked, whilst carrying out the research. The interviewee had had many years of experience as a CEO of an SME, and was also the lead consultant of the organisation he founded. Interviewing the CEO gave the researcher the opportunity to gauge the effectiveness of the interview questions, and to be conscious of time when the real interview was taking place. The transcripts from the interview were reviewed by the researcher to ensure that sufficient questions had been asked to enable him to collect the data required.

Two experts in the area were also contacted, so as to review the interview questions. Mr Edwards, who is the Executive Director of the North Carolina Centre for Global Logistics, and who has been involved in much research in this sector, reviewed the interview questions and provided positive feedback regarding the content of sub-questions, also offering suggestions for fine tuning some of the questions. In addition, Mr Clyde Crider, who is a Director at SCRC, of North Carolina State University, reviewed the interview questions and provided feedback; he also gave some useful supporting ideas for this study.

Lastly, Dr Yiannis Polychronakis, who is the researcher's supervisor, also reviewed the interview questions and gave feedback. Necessary adjustments in terms of wording, construction and content of questions were made, before the real interviews. The pilot study thus provided the researcher with excellent feedback regarding the questions, which enhanced the validity of the questions for the real interview, because of the rigorous scrutiny that took place. Visits were also made to the organisations prior to each interview date, in order to become familiar with each organisation.

3.11 Validity and Reliability

Validity is the degree to which research findings precisely represent what is really happening in a situation. According to Collis and Hussey (2009), validity in positivist research is very low; phenomenological research attempts to capture the essence of phenomena, extracting data that are rich in terms of explanation and analysis, so that validity is high under such a philosophy. It does not attempt, by any means, to pre-determine the data or structure of the

research. In qualitative research, validity attracts more support than reliability. In positivist research, the researcher needs to design the measurement parameter, the means of measuring and also the framework for data collection. Therefore, validity will be affected by how well the framework is designed.

Reliability relates to the findings of the research, and is one aspect of the credibility of the findings. If the research is repeated, then the same results should be obtained. Reliability in positivist studies is usually very high, while in phenomenological studies it is very low, and researchers should follow a number of procedures to ensure reliability (Collis and Hussey, 2009). The problem with this is that it is not possible to be sure that the individual, and other factors, have not changed between the two occasions. Ideally, a test for validity and reliability should be made at the pilot stage of an investigation, before the main phase of data collection (Easterby-Smith et al., 2008).

Cavana et al. (2001) concluded that validity is concerned with whether the researcher measures the right concept, and reliability is concerned with stability and consistency in the measurements.

Yin (2009) acknowledged that there are four tests used to establish the quality of empirical research:

- **Construct validity:** establishing the correct operational measures for the concepts being studied. In order to strengthen construct validity, three tactics are available:
  - ❖ Use multiple sources of evidence: this is relevant and very important during data collection. In order to increase construct validity, the researcher makes use of many sources of evidence, such as semi-structured, face-to-face interviews as the main source of data, in addition to other sources, such as documentation, archival records and direct observation.
  - ❖ Create or establish a chain of evidence: this is also very important during data collection.
  - ❖ Have the draft case study report reviewed by key participants: this relates to a review and validation of the draft interview by the respondents to reconfirm their expression during the interview. This will confirm their comprehension of the interview questions as well.

- **Internal validity (for explanatory or causal studies only, and not for descriptive or exploratory studies):** establishing causal relationships, whereby certain conditions are shown to lead to other conditions, as distinct from spurious relationships. Riege (2003) stated that the emphasis, in constructing an internally valid research process in case study research, is on establishing phenomena in a credible way. He added that the researcher does not only highlight major patterns of similarities and differences between respondents' experiences or beliefs, but also tries to identify the components that are significant for the patterns observed, and the mechanisms that produced them. Yin (2009) suggested four tactics for achieving internal validity (see Table 8). In this research, internal validity was achieved by using explanation building methods to analyse the data gathered. The use of the theoretical framework developed also helped to increase the internal validity.
- **External validity:** establishing the domain to which a study's findings can be generalised (Yin, 2009). Riege (2003) argued that case studies rely on analytical generalisation as a means of achieving external validity, whereby specific findings are generalised to some broader theory. Yin (2009) warned that the external validity problem has been a major barrier in conducting case studies, and recommended two tactics, (as shown in Table 8), to overcome this. In the current research, three case studies were adopted, to achieve replication and theoretical (analytical) generalisation.

- **Reliability:** if the same phenomenon is measured more than once, with the same instrument, then the same results should be obtained (Mason, 2004). Whilst quantitative studies lead to higher levels of reliability, qualitative studies would be difficult to repeat exactly to obtain the same results (Maylor and Blackmon, 2005). Yin (2009) suggested two tactics to achieve reliability, and all are associated with the phase of data collection, (as shown in Table 8. In the current research, a case study protocol was developed, to enhance reliability. All steps taken in carrying out case studies were also clearly explained.

Reliability can be enhanced by interview training for the interviewers, and by checking interview guides or generative questions in test interviews or after the first interview (Flick, 2007). In this respect, the researcher did attend most of the training seminars or sessions held and organised by Salford Business School, and attended some research conferences, both local and international.

To increase the validity of the research, the interview questions were carefully prepared, piloted and refined, with the help of the researcher's supervisor, until both the researcher and the supervisor were convinced that a satisfactory structure was in place. The literature search was conducted for the period of the past 15 years, focusing on the findings of research into the barriers to, and enablers for, sustainability in general and sustainable packaging in particular. Interview questions were designed to reflect this. Table 8 illustrates the four widely used tests and recommended case study tactics.

Table 8. Case study tactics for four design tests.

Tests	**Case study tactics**	**Phase of research in which tactics occur**
Construct validity:	• Use multiple sources of evidence; • Establish chain of evidence; • Have key informants review draft case study report.	Data collection; Data collection; Composition;
Internal validity:	• Pattern matching; • Explanation-building; • Address rival explanations; • Use logic models.	Data analysis; Data analysis; Data analysis; Data analysis;
External validity:	• Use theory in single-case studies; • Use replication logic in multiple-case studies.	Research design; Research design;
Reliability:	• Use case study protocol; • Develop case study data base.	Data collection; Data collection.

(Source: Yin (2009)).

Increasing the validity and reliability of the current research has been achieved as follows:

- The researcher has generally adopted research processes that promote reliability and validity (supported by Saunders et al., 2007);
- A multiple case study strategy, rather than a single case study strategy, has been used, to enhance reliability and validity, (supported by Yin, 2009 and Amaratunga et al., 2002);
- Multiple sources of data collection (triangulation) were used, such as semi-structured interviews, documents, direct observation and archival records, at the three organisations, in order to enhance reliability and validity (supported by Yin, 2009

and Saunders et al., 2009); Sutrisna (2011; 2010) argued that the validity of qualitative methods refers to the appropriateness of the method for tackling the research questions;

- The interview questions were carefully prepared and refined, with the help of the researcher's supervisor, two experts in the field and the pilot studies that were conducted before the actual study was carried out (see Appendix 4);
- In order to promote confidence between the researcher and the interviewees, the researcher drafted a letter, authorised by his supervisor, to verify the research that was being undertaken. In addition, before starting the interview, the researcher spent time with the interviewees to explain the purpose of the study and to confirm that their personal information would remain confidential, using the information letter and consent form (see Appendix v and vi), to enhance validity and reliability, (supported by Ghauri and Gronhaug, 2005); it was also confirmed to the participants that they could withdraw from the study at any time;
- Draft transcripts of interviews were validated by respondents to confirm that they accurately represented what they had said, (supported by Ghauri and Gronhaug, 2005).

3.12 Conducting the Case Study

Fieldwork for this study was conducted during late 2013, both in London, UK, and in Ilero, in Oyo state of Nigeria. The question as to the required number of interviews required for a case study arose, and it should be noted that, according to Patton (2002), there is no rule on this, with the number of interviews subject to the amount of time available, the resources available and the purpose of the study.

Based on the nature and purpose of the case study research, it was decided that, to get the best out of this research, interviews should be limited to senior management in the three organisations. It should also be noted that, because of the nature of SMEs, most strategic decisions are made by the owner, who is usually the CEO, or the senior manager acting on behalf of the CEO or in an assigned capacity, and these people hold the key to much of the decision making (Parker et al., 2009).

The researcher decided that 20 people, in total, would be interviewed, which translated to six or seven people from each organisation. It was also decided that involving employees with no designated responsibility might distort the data collected, because they have no clear

authority or responsibility. The interviews were scheduled to take place at the premises of the case study organisations, at a time convenient for the interviewees. Conducting the interviews in the organisations' premises provided the opportunity for the researcher to gain access to some documents that might be used to buttress interviewees' responses. Below is a table summarising details of the respondents and their designation:

Table 9. Interviewee Categories from the Three Case Study Organisations

TITLE OF RESPONDENT	NO. OF RESPONDENTS				
	ADES	BMC	NFA	TOTAL	YEARS OF EXPERIENCE
CEO	1	1	1	3	15 - 20
DEPARTMENTAL HEADS	5	5	5	15	5 - 8
OTHERS*	1	1	0	2	4 - 12

*Held strategic positions in the organisation (Assistant Heads)

The CEOs of the three organisations had been in business for 15 to 20 years, and were supported by heads of department who were professionals in their field. Some departmental heads had assistants, who were also professionals in their respective discipline. The decision to limit the interviews to CEOs, departmental heads and their assistants has already been mentioned, above.

ADE

The CEO of ADE started his business 15 years ago. He was supported by the following personnel:

Marketing Managers - This role was fulfilled by two individuals, one responsible for domestic markets and the other responsible for international markets. They both handled all advertising and customer relationships, and were also responsible for communication between the organisation and other stakeholders. They held a strategic position in the organisation because they were part of the management team. They were supported by an assistant who had been with the organisation for seven years.

Production Managers - This position was also filled by two individuals. The production managers were responsible for managing different lines of products of the organisation. They managed all the resources within the production units. Both worked closely with other managers.

The Quality Control Manager - This manager worked closely with the Production Unit and other managers, and was responsible for testing the final product and its compliance with relevant standards. The Quality Control Manager also worked closely with other units, and was part of the management team.

BMC

The CEO of BMC started his business 20 years ago, in North London, UK. He was assisted by his son, the Chief Operating Officer, and they were supported by the following:

Operations Manager - This person was responsible for all production and the management of suppliers, also doubling as the Quality Control Director. He held a very important position in this organisation, being a member of the management group and managing staff recruitment.

Sales Manager - The Sales Manager handled all sales and marketing operations, and worked closely with the CEO and other managers. He had been working in the organisation for the past six years, and, at the time of the interview, he was supported by an assistant.

Stock Controllers - There were two stock controllers. They were both responsible for safeguarding all goods, (both work in progress and final products), and worked closely with the Operations and Sales Departments. They had been in the organisation for eight years.

NFA

The CEO of NFA started his business 18 years ago, in Lagos, Nigeria. He managed all the marketing himself, and was supported by the following functional heads:

Farm Managers - Two Farm Managers were responsible for coordinating activities at the farm sites, and were also responsible for the recruitment of labourers. They were also responsible for working with other research organisations in introducing new crop species.

Transport and Logistics Managers - The two managers in this department were responsible for managing the movement of raw materials from the farms to the factories, and of finished

goods to the distributors and end consumers. They were responsible for timely and accurate dispatch to both domestic and UK customers, and for determining the best packaging that would reduce waste in transportation.

Quality Control and Research Manager - This person was responsible for ensuring compliance with standards, by making sure that the required tests were performed on goods before they were dispatched to their various destinations. This manager also worked with research organisations in introducing hybrid crops and seeds. He had eight years of experience.

3.13 Data Analysis and Methods

According to Bryman (2004), there are no standardised rules as to how qualitative data should be analysed. While there are many accepted ways of doing this, according to the norms, analytical strategies are the most commonly used (Hussey and Hussey, 1997). This position was also corroborated by Saunders et al. (2007). According to Yin (2009), the final goal, or the deliverable, is to deal with the evidence reasonably and generate fascinating and logical conclusions, while ruling out alternative interpretations or translations. Therefore, analysis of data encompasses examining, tabulating, categorising and general evidence interpretation, to substantiate, repudiate or amend a theory, and/or generate a new one. Yin (2003) also stated that data analysis includes the processes mentioned above.

The following stages of qualitative data analysis were suggested by Miles and Huberman (1994 p.10):

- *Data reduction: Data reduction is the process of selecting, focusing, simplifying, abstracting and transforming the data obtained in order to focus on emergent constructs.*
- *Data display: Data display is the organisation of the compressed data, thus assembling the information from which conclusions may be drawn. The organisation and compression of the data is considered a means of making visible the themes that run through the data.*
- *Conclusion drawing and verification: These involve the researcher's interpretation of the data, extracting meaning out of the data displayed, identifying patterns and themes and using strategy to develop theory.*

The researcher used the pilot study as a tool for data reduction, by eliminating irrelevant data, thus keeping a focused approach and concentrating on the relevant data. This was done by carefully reviewing and reading the transcript many times, in order to gain an understanding

and a familiarity with the data, which helped in recognising the important data in the context of the interviews. By abstracting and categorising the data into a meaningful theme, it was possible to embark on the proper process of data reduction. This was carried out using NVIVO Software.

In addition to the above, the themes generated from the literature review and the pilot study provided direction as to the identification of expected themes, and this helped in organising and categorising data, which, in turn, then helped in simplifying the display of data. The themes generated became an enabler for organising the compressed data, and aided and supported data reduction and data display processes.

The above assisted the researcher in classifying data appropriately, which then provided the basis for drawing valid conclusions. The process of conclusion drawing and verification is an important process when generating and developing appropriate and valuable evidence from the findings, and this involves verification and continuous checking in order to generate new knowledge and understanding. This then translates to the establishment of valuable data and improved meaning in the findings. The experience and knowledge of the researcher is then used to extract meaning and explanations from the data. Through this process, the barriers to environmentally sustainable packaging, in the context of the international supply chain network of the three organisations studied, were established.

At this juncture, it is important to describe the methods that were available for analysing the data collected in the study. Two methods were used, in this study, as put forward by Yin (2009), to analyse qualitative case study data:

Pattern Matching: The pattern matching method is used to compare an empirically observed pattern with a predicted one. Where the case matches the predicted patterns, then the case supports the theory; if the pattern coincides, then the results help to strengthen the internal validity of a case study (Yin, 2009). In this light, it was possible to compare the patterns of the results from the current study with the results from previous theory, knowledge and studies. The results from the study were compared with various barriers mentioned in the literature. Some barriers identified in the study concurred with findings from the literature.

Explanation Building: This is a special, or exceptional, type of pattern matching. The main goal of this technique is to analyse case study data by building explanation about the case (Yin, 2009). Yin (2009) also suggested that, in the explanation building process, findings are

compared to a statement or proposition put forward. The interview questions were generated from the literature, in the first instance

Other techniques suggested by Yin (2009) included Time Series, Logic Model and Cross-case Synthesis, which were not used in this research.

Time Series: The Time Series technique is a special, and more rigid, form of process tracing, in which the researcher attempts to establish the existence, sign and magnitude of each model link expected, and the sequence of events relating to the variables in the model (De Vaus, 2002). Yin (2009) argued that, if events over time have been traced in detail and with precision, then the Time Series analysis technique may be appropriate.

Logic Model: The Logic Model intentionally specifies a chain of events over an extended period of time. The events are in a repeated "cause-effect-cause-effect" pattern, whereby a dependent variable (event) at one phase becomes the independent variable for the next phase. This process can help define the sequence of programmatic actions that will accomplish goals (Yin, 2009).

Cross-case Synthesis: Cross-case Synthesis is a technique that is particularly relevant to research consisting of at least two cases. This technique treats each individual case study as a separate case (Yin, 2009).

The choice of techniques selected for the current study was justified, because, during the data collection, evidence of alignment with the literature was found, and emergent theme may also evolve.

3.14 Evaluating the Research Outcomes

The final step in analysing qualitative data is the evaluation of the analysis, along with the researcher's interpretation of the value of the analysis of the qualitative data (Collis and Hussey, 2009). There are many principles and yardsticks that can be used to evaluate phenomenological research, which can, in turn, be used to measure the quality of the analysis. Three criteria were suggested by Guba and Lincoln (1989). These are discussed below:

- Dependability - This relates to the extent to which the process used in the research is rigorous, systematic and, above all, well documented.

- Transferability - This relates to the extent to which the findings can be generalised or be applied to any other situation or context.
- Conformability - This relates to the way that the whole process is fully described and referenced, and to the assessment of the relationship that exists between the findings and the data, (i.e. whether the findings flow and emanate from the data).

In addition to the above, the researcher participated in various organised seminars, both in the UK and in the USA, as well as the Salford Postgraduate Annual Research Conference (SPARC), which is a two-day event where researchers have the opportunity to exchange ideas and receive positive criticism.

The researcher also participated in one of the semi-annual Supply Chain Resource Cooperative (SCRC) conferences organised by Poole College of Management, in North Carolina State University, where papers related to various supply chain strategies, presented by industrialists and students alike. It is believed that participating in these seminars improved the quality of the research, through enhancing the researcher's knowledge of methodologies and approaches used in research, and providing insights from other participants, especially some of the experts in the field.

3.15 Chapter Summary

In this chapter, an overview and analysis has been provided of the research methodology, in line with the aims and objectives of this study. A justification has also been presented of the use of a phenomenological philosophy. The strategy of using multiple cases has also been justified, as has the choice of the three cases selected, and the use of face-to-face interviews as the primary sources of data, triangulated with the use of direct observation and document review. Finally, it has been explained that the data have been analysed using pattern matching and explanation building techniques, supported by the use of NVivo software.

Chapter 4. Research Context and Framework

Three Organisations were selected, with one being in developing country (NFA, in Nigeria) and the other two in a developed country (Ades and Bmac, in the United Kingdom), using Denscombe case selection criteria, as mentioned in Chapter 3. It is also important to note that these organisations were within the same supply chain network, as shown in Figure 8, below:

Figure 8. Supply chain network of the three organisations.

In addition, it is relevant to note that these three organisations had employee numbers ranging from 35 to 50, which qualified them as SMEs. Whilst the yearly turnover might have differed between them, they all fell within the definition of an SME, as clearly stated in Chapter 2. It is also important to note that, while there are many aspects of sustainability, the current study focuses on the packaging area of manufacturing.

The review of available literature in Chapter 2 has provided facts about established and known barriers that affect SMEs in this context. The results of the current research will be

compared with the available literature, to assess whether there is any alignment in terms of the respective findings.

Other findings that may emerge will also be noted. The findings are of major importance because they empirically address interaction within a single international supply chain, which is a closed loop, and little research results in this context are available. It is also important to note the effect of cultural, social and economic factors in both developed and developing countries, as these may have an effect on some findings. Figure 9, below, illustrates the research framework.

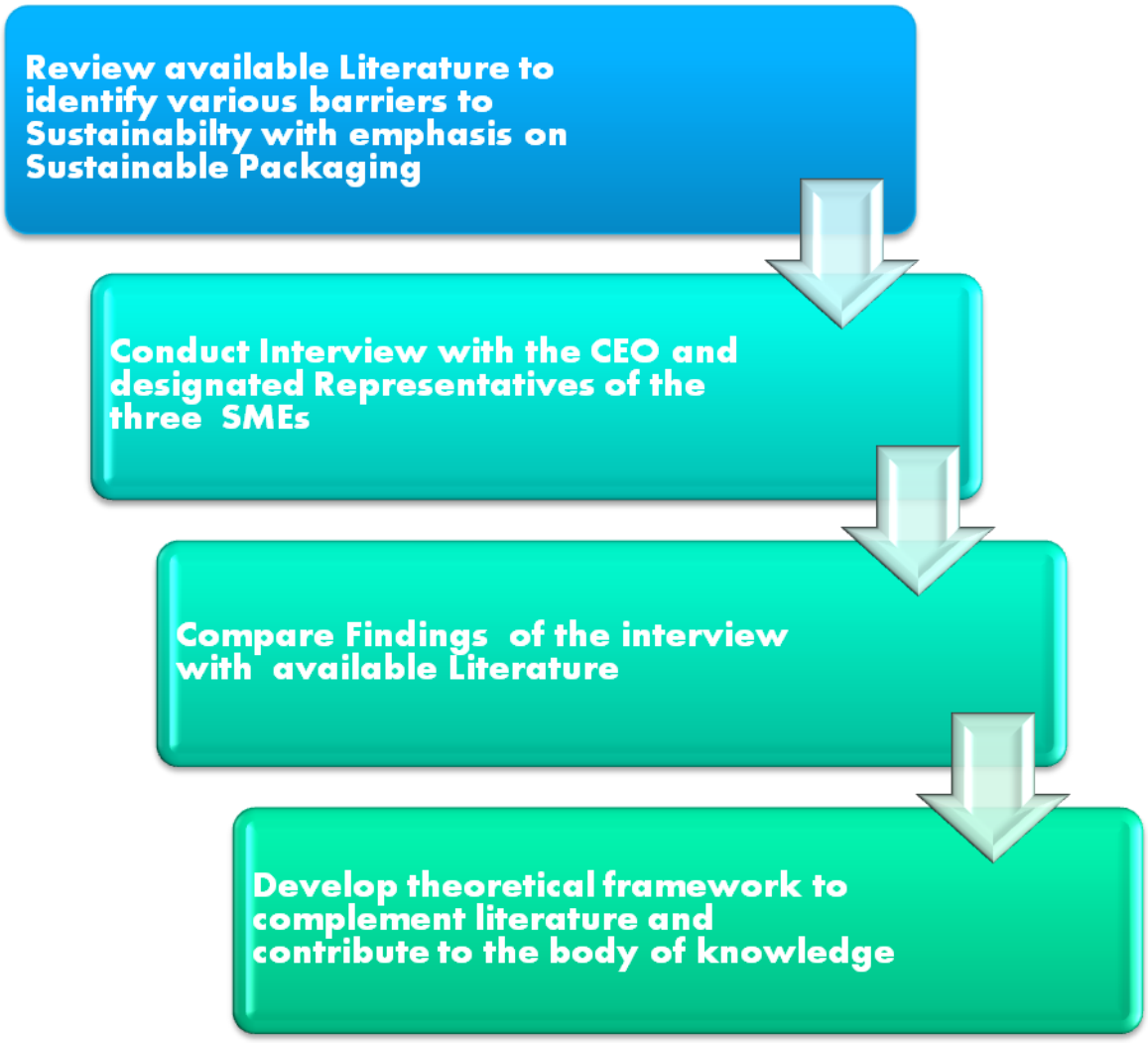

Figure 9. Research framework.

4.1 The Networks and Interactions

4.1.1 ADEs:

This organisation is based in Greenwich, South East London, in the United Kingdom, (see Figure 10, below). It was founded by Mr Ade Adedipe, with 38 employees. The number of employees often reaches 50 when the organisation is at full production, and temporary staff are employed as needed. The organisation's speciality is in the area of food packaging, marketing and engineering. ADEs supplies packaging products to the other two SMEs in the supply chain, and receives products from them for repackaging and marketing. Some products are received in bulk and stored in the company's warehouse (see Figures 11, 12 and 13); these are then reprocessed or repackaged, before being delivered to the market direct, or through other retailers.

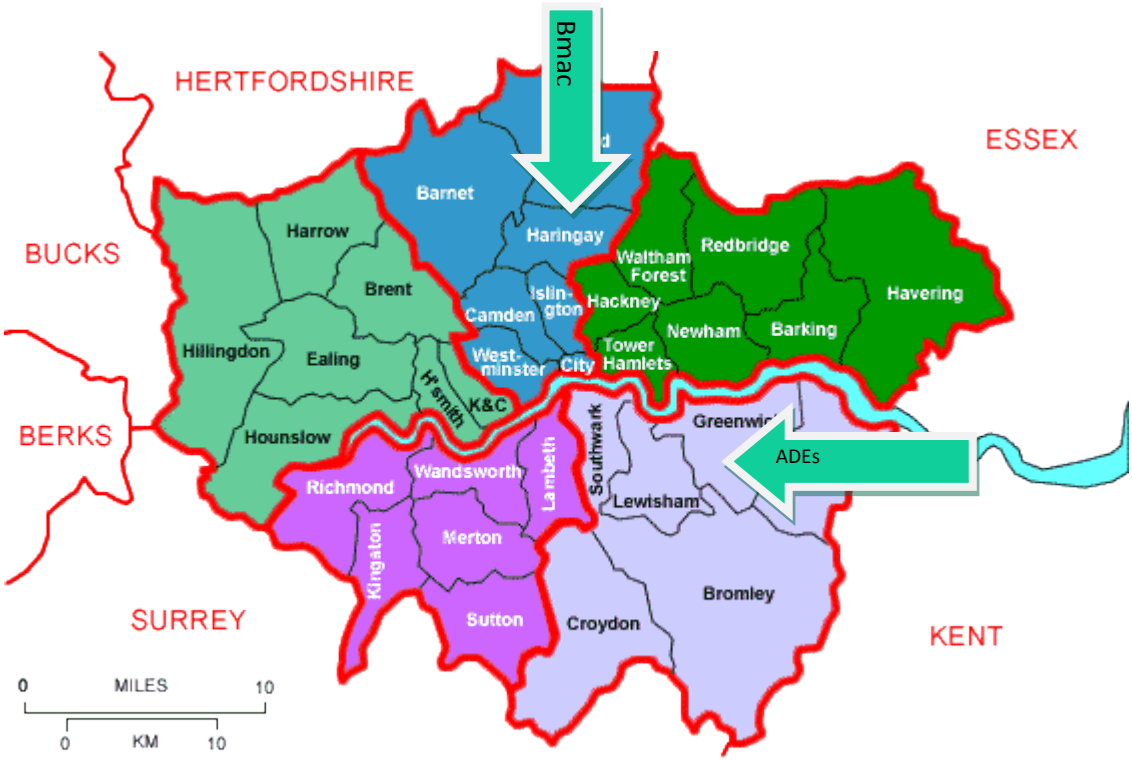

Figure 10. London map.

(Source: Progutter Cleaning).

Figure 11.Produce received in bulk and waiting to be repackaged

Figure 12. Repackaged Products from the bulk produced received

Figure 13.Produce packaged and ready to be distributed to customers.

4.1.2 BMC:

This organisation is based in Haringey, North London, in the United Kingdom (see Figure 10 above, for its location). Its speciality is in the area of food processing. BMC sources raw materials from developing countries and processes them into finished products that it distributes to wholesalers or end consumers. While sourcing packaging materials from ADEs, BMC also supplies some specialised finished products to ADEs for marketing and sources raw food materials from NFA. Products in which the company specialises include plantain chips (see Figure 14 for a sample of finished plantain chips).

Figure 14. Finished plantain chips.

Figure 15. Processed plantain chips before packaging.

4.1.3 NFA:

This is an agro-allied company based in Oyo State, in Nigeria, as shown in Figure 16, below. Oyo State was created from what was formerly known as the Western State, and covers about 28,454 sq. km. It is situated in south west Nigeria. The climate in the area favours the growth of crops, which may explain why the main activity in the state is agriculture. Furthermore, the land in this area contains a great deal of clay, aquamarine and kaolin minerals, which are good for crop growth. This was confirmed by the Commissioner of Agriculture and the Commissioner's staff, who came to inspect the farm during the study. Figure 17 shows the researcher with the Commissioner of Agriculture and the CEO of NFA.

NFA plants food crops and has processing plants that turn the crops into semi-processed and final products. Some packaging materials are also sourced from ADEs, and NFA also supplies BMC foods with some agricultural products. Some of the bulk produce includes raw plantain, yam, gari and fufu. Figure 18 shows a sample of bagged products ready to be shipped to local and international markets, and Figure 19 shows the new packaging machine the organisation acquired. Figure 8, above, shows the relationships within the supply chain.

Figure 16. Map of Nigeria showing NFA's location.

Figure 17.The researcher with the CEO of NFA and the Commissioner of Agriculture on a field trip.

Figure 18. Sample of products ready to be shipped overseas.

Figure 19. Packaging machine.

4.2 The Importance of a Sustainable Supply Chain

Exploring the gains attributed to a sustainable supply chain will show the advantages that SMEs can derive from belonging to such a supply chain. According to Ageron et al. (2011), cooperation is essential for companies in the same supply chain, in order to make it functional and to achieve sustainable fulfilment.

This research has sought to find out the nature of the advantages gained by each organisation from being a member of the network, and how this enhances each organisation's journey towards sustainability. It has also sought to find out whether there are any disruptions to each organisation's operations, as, according to Wang et al. (2012), an extended international supply chain may disrupt the operation of individual organisations, because of the complex nature of the packaging manufacturing sector.

The fact that ADEs and BMC are located in a developed country, where packaging policies and procedures are strictly adhered to, puts pressure on NFA, which is based in a developing country. This is because NFA has to comply with applicable sustainable packaging regulations before goods can be transported to the UK and other parts of Europe and this

partly explains the acquisition of the new packaging machine, as the CEO of NFA was able to confirm.

In addition, packaging requirements applicable in developed countries are now spilling over and affecting (or improving) local packaging in developing countries. Whilst this may be a good thing for improving local sustainable packaging, it can also be seen as hurdle, as local policy makers see this as taking over their job, which NFA will have to pay dearly for, one way or the other.

The CEO of BMC and the CEO of ADEs both confirmed that being in the same supply chain as NFA had reduced some costs drastically, and that, most importantly, it had helped to make their operation run smoothly. They gave the example of reusable pallets and some packaging they only changed the barcode before selling to the final consumers. They also confirmed that it had brought the three organisations closer together than before, and had improved the sharing of information from a cost reduction strategy, to sourcing cheaper funds for growth.

4.3 Conclusion

While the concept of sustainable packaging is complex and broad, there has been continuous research, and new findings are evolving as a result of the dynamic nature of the modern world. Research into SMEs' activities in this manufacturing area is becoming more focused on the promotion and enhancement of development. Therefore, it is important to continue to conduct research into what can hinder the activities of SMEs in this respect.

The current research will enhance understanding and contribute to the wealth of knowledge already available, and will be a source of information for future research. This research will also contribute to knowledge of cross-border issues, as it has covered two geographical regions, with different social, cultural and economic conditions. It has sought to clarify issues in other areas of sustainable packaging, as it is important to understand that sustainable packaging cannot stand on its own; it is part of a wider sustainable packaging system.

4.4 Chapter Summary

In this Chapter, a research framework has been presented (in Figure 9). In addition, details have been provided of each organisation, including location, number of employees and product specialities. The chapter has also included an explanation of the relationships between the three organisations in the closed loop supply chain.

Chapter 5. Findings

5.1 Introduction

In this chapter, the primary findings from the empirical case study investigation, featuring the organisations ADE, BMC and NFA, are presented. Interviews were conducted with selected officers, as described in Chapter 3 (see Table 9). Semi-structured interviews were used as the main source of data gathering, with supporting data obtained by examining documents and direct observation. Documents included newsletters, official reports, invoices, product schedules and memos, which were requested well in advance, and were made available. Observations were made in the course of each set of interviews, which took place on the premises of the organisations. These additional sources added to the data collected from the interviews, and were used for triangulation.

According to Parker et al. (2009) and Zhu and Sarkis (2007), the owners and managers of SMEs hold the key to many decisions, and these decisions are influenced by their vision, educational background and beliefs. This supports the decision taken to only interview the CEO/owner, and senior managers, of each organisation. These are the people who are relevant to this research, and including employees who had no relevance to this study may have distorted the findings. Because of this, interviews were conducted with the three CEOs, and with 15 functional managers and their two assistants, from the three organisations, as stated and discussed in Chapter 3. As many interviews were undertaken as was necessary.

5.2 Time and Location of the Interviews

Interview times were arranged in agreement with the respondents, and at the most convenient time for them, given the pressure on their time. The time allocated for each interview varied between 50 and 60 minutes, and all interviews were conducted at the respondent's premises, which enabled access to appropriate documents, such as production schedules, dispatch notes, invoices, schedules of training, minutes of meetings, conference logs, copies of applications, letters and responses, agreements and contract notes.

Interview questions were structured to fit with what had been found during the literature review. Various barriers had been identified, as described in Chapter 2 (see Tables 2 and 3), and these formed the basis for the interview questions (see Appendix 4 for the interview questions). The data collected were analysed as described in Section 3.12, above. Table 10

shows the interview schedule. Each organisation interview was spread over many days to be able to capture all the interview questions and to also give the participants opportunity to express themselves as well as to clarify any statement made. As stated in Section 3.12, the interviews were conducted between October and November 2013 at the premises of each organisation. There were follow-up visits made, which enabled researcher to observe various production schedules, especially the packaging sections of various production cycles.

Table 10. Interview schedule.

TITLE	ORG	LOC	MIN	INT1	INT2	INT3	INT4	COMMENT
CE1	ADES	UK	200	01/11/2013	04/11/2013	06/11/2013	08/11/2013	Interview in Greenwich
FH1	ADES	UK	155		04/11/2013	06/11/2013	08/11/2013	
FH2	ADES	UK	160		04/11/2013	06/11/2013	08/11/2013	
FH3	ADES	UK	205	12/11/2013	13/11/2013	14/11/2013	15/11/2013	
FH4	ADES	UK	190	12/11/2013	13/11/2013	14/11/2013	15/11/2013	
FH5	ADES	UK	140	12/11/2013	13/11/2013	14/11/2013		
C2	BMC	UK	250	19/11/2013	20/11/2013	22/11/2013	23/11/2013	Interview in Haringey
FH6	BMC	UK	158	19/11/2013	20/11/2013	21/11/2013		
FH7	BMC	UK	200	19/11/2013	20/11/2013	21/11/2013	22/11/2013	
FH8	BMC	UK	165	19/11/2013	20/11/2013	21/11/2013		
FH9	BMC	UK	155	19/11/2013	20/11/2013	21/11/2013		
FH10	BMC	UK	155		21/11/2013	22/11/2013	23/11/2013	
CE3	NFA	NIG	190	07/10/2013	08/10/2013	09/10/2013	10/10/2013	Interview in Ilero
FH11	NFA	NIG	170	07/10/2013	08/10/2013	09/10/2013	10/10/2013	
FH12	NFA	NIG	170	14/10/2013	15/10/2013	16/10/2013	17/10/2013	
FH13	NFA	NIG	180	14/10/2013		16/10/2013	17/10/2013	
FH14	NFA	NIG	145	14/10/2013	15/10/2013		17/10/2013	

5.3 Coding and Data Analysis

According to Strauss (1987), it is important for any researcher who wants to be skilful in qualitative research to learn coding, as coding is one of its key components. Saldana (2012) stated that, in qualitative analysis, codes are usually represented by a word or a shortened phrase that symbolically designates a summative, pertinent, essence-capturing and/or evocative attribute to a portion of language-based or visual data. The participants from each of the three case study organisations were represented by a code. The codes used in this research were as follows:

CEO - *CE1-CE3*

Departmental Heads - *FH1-FH15*

Others holding a strategic position - *OT1-OT2*

5.3.1 Organisation and Analysis of Data:

Data analysis for the study was composed of the establishment and recognition of the emergence of thematic categories from the data. Manifested themes, developing attributes, symbolic elements and thematic categories emerged from the responses of the 20 participants, and these provided direction for the description of case study phenomena, namely the barriers to sustainable packaging in the food supply chain of the three SMEs.

NVivo qualitative software was used for sorting the terms and the phrases that were frequently used by participants in response to the interview questions. As mentioned earlier, the interview questions were drafted with reference to barriers that had already found within the pertinent literature.

The terms and phrases emerging from the interviews were then summarised under each heading, counted individually, and then conclusions were drawn about each phenomenon. The synthesised thematic categories used for the barriers to sustainable packaging in SMEs were as follows:

Cost

Finance

Information and Awareness

Transportation

Regulations

Time

Support for Sustainability Concept

Corruption*

Culture*

System*

These thematic categories are discussed in detail below:

5.4 Thematic Categories / Themes

5.4.1 Cost:

Question 1 was to confirm whether cost were one of the barriers affecting improvements in sustainable packaging. Based on participants' responses to the interview question, the following five themes emerged:

SME avoids cost because of limited resources
SME avoids cost where a short term return is not visible
Matching competitors' prices in the market necessitates cost control
Continual demand for lower prices from customers puts pressure on cost containment
Economic climate is putting pressure on cost containment.

Table 11, below, outlines these themes.

Table 11. Thematic Category 1: Cost.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
SME avoids cost because of limited resources	18	90%
SMEs avoid cost where a short term return is not visible	18	90%
Matching competitors' prices in the market necessitates cost control	16	80%
Continual demand for lower prices from customers puts pressure on cost containment	15	75%
Economic climate is putting pressure on cost containment	14	70%

The first theme, "SME avoids cost because of limited resources", related to the known fact that resources at the disposal of SMEs are limited, compared to MNEs. This means they have to prioritise and allocate resources among competing wants. The majority of the interviewees agreed with this. They recognised it as one of the main challenges.

One of the participants, CE1, confirmed that changing from the current packaging machine to the new, efficient one, will eat deep into the organisation's resources, and so they have to make do with what they have:

"Our resources are limited, so we cannot embark on any of this new packaging system, they cost a lot and we cannot afford that now. In addition, if we change one thing in the packaging system, it may necessitate changing some other things. We just cannot afford that at the moment."

This position was corroborated by CE2 and CE3.

In CE2's words:

"The issue of cost is considered here seriously because if we are not careful, it can eat deep into our working capital and that would be a major problem. This is the reason why many projects have been suspended."

CE3 gave an example of implementing a new reusable pallet system:

"Whilst the new reusable pallet will actually help the environment, reduce cost, help in logistics planning in long run, the cost is not something we were ready to absorb at the moment."

The second theme, "SMEs avoid cost where a short term return is not visible", is also related to the first theme, in that, because of scarce resources, embarking on a long term project is difficult, as a return may take years. SMEs prefer a quick turnaround, as they cannot tie resources down on a single activity. Almost all the participants interviewed attested to this. One of the participants, FH4, went on to explain that there was still much research and development taking place in the sector, and that achieving the best mix of packaging materials would involve much "trial and error", which can be costly, without understanding its contribution to the company's margin. Reference was also made to various innovative products becoming available in the sector. While these products add more value in terms of protection, they are also flexible, with some of them being malleable and smart, but bringing them to market requires resources which are not readily available to SMEs.

SMEs prefer to embark on projects on which they are sure of the return. One participant, however, mentioned that this can be overcome if there is support from other stakeholders in the industry, which includes the government; FH6 stated that:

"This issue in question can be overcome if the government and all her agencies are listening, and take a stand. They should provide support and assurance to the SME where needed as this will give them the confidence and ability to look beyond short term return."

The third theme, "Matching competitors' prices in the market necessitates cost control" was mentioned by 80% of the respondents. They explained that most SMEs are competing for same business, and so, in order to remain competitive, they have to control their costs. FH14 emphasised the commitment to price and quality competitiveness, stating that the issue of packaging, while it is essential, would not be a reason for exceeding the company's budget, as this would have an impact on their prices and so affect their competitiveness.

The fourth theme, "Continual demand for lower prices from customers puts pressure on cost containment", also related to the above themes. The belief was that continual demand for lower prices sets a benchmark for pricing, and, as a result of this, costs incurred on sustainable packaging have to be controlled if an organisation wants to remain competitive and be in line with the market.

One comment that stood out was CE3's comment on cost, which was the opposite of what other participants said. Others maintained that cost may be an issue for some organisations, but CE3 saw cost as not being a barrier to embracing sustainable packaging, being of the opinion that, because consumers were now well informed, and would continue to be, they supported sustainability, so that the organisation would be able to pass the bulk of the cost to consumer. He felt that consumers were willing to pay their share of the cost. There must be a very important reason for this. Was it because his organisation is based in a developing country, with no competitors? Or is there another reason? CE3 explained that people are more concerned about the quality of the product than its packaging, and so, if the quality is very good, the consumer will pay for the product without asking questions.

The last theme was "Economic climate is putting pressure on cost containment". The challenges posed by the economic climate in various parts of the world is affecting businesses, most importantly SMEs. The terrain is difficult to navigate, and there is increasing pressure on resources in every sector. Organisations therefore have to do more in allocating their scarce resources. There were 70% of participants who saw this as a problem. One participant saw this as one of the barriers hampering his organisation from embarking on its research and developments projects.

5.4.2 Finance:

Interviewees were asked whether finance were one of the barriers affecting their organisation's sustainable packaging effort, and many of them highlighted finance as being a major barrier. It plays a key role in supporting sustainable projects. Six themes emerged from this category, as listed below:

Request for collateral and personal guarantee as a requirement for funding
Rate of interest is always high in a new area like sustainable packaging
Inadequate information and direction on available financial incentives and grants for sustainable packaging projects
Size of SME
Lack of financial power, as compared to MNEs
Effect of global financial meltdown prompting financial institutions to be cautious on lending.

Table 12. Thematic Category 2: Finance.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Request for collateral and personal guarantee as a requirement for funding	18	90%
Rate of interest is always high in a new area like sustainable packaging	18	90%
Inadequate information and direction on available financial incentives and grants for sustainable packaging projects	19	90%
The size of SME	17	85%
Lack of financial power, as compared to MNEs	15	75%
Effect of global financial meltdown prompting financial institutions to be cautious on lending	14	70%

The first theme, "Request for collateral and personal guarantee as a requirement for funding", was one of the major issues raised. Although it is not the case with MNEs, most banks require a personal guarantee before proceeding to grant any type of loan to a small business. This means that, if a business owner has no personal guarantee, then his or her business

cannot grow. CE1 emphasised this in his response, and also gave an account of his experience in this context:

"I approached a bank when we were trying to change our packaging machine; apart from asking for collateral, the requirement attached to the personal guarantees was too cumbersome and most of the time not obtainable. As a business we started on friends and family, the bank wanted us to provide the sources of the injection of capital. Most small business like us started with saving and family and the amount or the requirement sounds discriminatory when compared to Multinational Enterprises (MNE)."

CE1's comment was echoed by CE2:

"The amount of collateral they (banks) request for is too much than what my organisation can afford and so our hands are tied when it comes to improving some of our packaging and making them sustainable".

According to the responses of the interviewees, 90% agreed that the issue of collateral and personal guarantee was a concern. Only two participants claimed that it should not be a problem, and that it would cut the excesses of some of their bosses. This supports the assertion that the high-risk profile of SMEs is a factor contributing to finance being a barrier.

The second theme, "Rate of interest is always high in a new area like sustainable packaging", had been supported by many findings in the literature. Overwhelmingly, 90% of participants supported the idea that the interest rates available for sustainable projects like sustainable packaging were too high. CE1 stated that, while prime and prevailing interest rates in the market are at their lowest point, banks continue to charge higher interest rates on SME) projects, particularly sustainable projects like packaging:

"It is difficult to understand their formula for generating interest rate for this kind of project. It is always arbitrary and inconsistent that one can perceive it as a deliberate and cunning way of refusing a loan of funding for sustainable projects."

Whilst the issue of high rates of interest was highlighted by most participants, it was noted that a few participants acknowledged different initiatives from The World Bank in mitigating this problem. One initiative mentioned was that of the International Finance Corporation, which was launched in 2011; this was the catalytic investment and technical assistance which provides advisory support for banks lending to SMEs in a new area like sustainable packaging.

The third theme in this category highlights the problem of "Inadequate information and direction on available financial incentives and grants for sustainable packaging projects". While there is various help available, there is a lack of information for SMEs as to how to source funds. As mentioned above, there are various initiatives provided by the World Bank, through its agencies around the world. In addition, there are other initiatives run by various governments.

An example is the UNEP FI, which is an international world partnership between the United Nations Environment Programme and private financial sectors, which promotes the relationship between sustainable projects and financial institutions' operations. Organisations like Rainforest Alliance, which was formed in 1987, with over 35,000 members, also help SMEs in identifying their financial needs, and in supporting them with financial management technical assistance and putting them in touch with the right financial institutions.

The claim that there is inadequate information on any available grants and financial incentives was supported by 90% of the interviewees. According to CE1:

"This is a big issue for us, one would think that the official in the bank and financial houses have required knowledge and be willing to point us in the right direction and also advising us on available programmes, but most of them would not bring anything on the table unless you ask them specifically what you know. We have missed so many opportunities because of this."

In CE3's words:

"Most officials in the financial sector are more interested in deals that will benefit and maximise their institution's return on investment and not some grants as incentive deals. They therefore refrain from giving information that will minimise return. One of my account officers is exactly like that."

There was also the opportunity of examining some of the letters written by CE2 to one of the finance houses, asking for help on information regarding available grants and incentives. Most of the content of the reply was very scanty and vague, offering no any direction or information at all.

The fourth theme, "The size of SME", pointed to the perception that these organisations are risky, and may not have the necessary skills to run a business efficiently, coupled with the fact that sustainable packaging projects are new, although it is a known fact that the SME

sector is one of the main sources of job creation; (in Africa, it provides approximately 90% of jobs). According to FH11:

"The emphasis in this 21st century should not be about how big an organisation is, but how efficient. Majority of Small Medium Enterprises (SME) are more efficiently run than some Multinational Enterprises (MNE). This is because we have limited resources and we tend to use it wisely. My organisation is at the forefront of sustainable farming and packaging and contributes more than some of the Multinational Enterprises (MNE) in my area."

FH11's position was supported by 85% of the interviewees.

The above theme was also linked to the fifth theme, "Lack of financial power, as compared to MNEs". It is a fact that SMEs have limited resources, which does translate to limited financial power. MNEs, on the other hand, because they have access to greater resources, are favoured when decisions as to finance are concerned. In addition, there are many options available to MNEs when raising capital to fund projects, which boosts their financial power. According to OT2:

"We tend to manage our resources and prioritise so many things because of the fact that sourcing finance for most of our sustainable projects is not an easy task."

It can be seen that 75% of the participants attested to the assertion that SMEs have limited financial power.

Finally, the "Effect of the global financial meltdown prompting financial institutions to be cautious on lending" was an issue, especially when financing a project like sustainable packaging projects, which is "new on the block". According to CE1:

"*A few years ago, it is very simple for lending to be facilitated by many financial institution, whilst there are requirements that need to be satisfied, it is easy to put all this together, as compared to the present time where not only the requirement is so difficult to be met but also the bias."*

To confirm the above, access was given to a copy of a finance request form, and it was noted that not only had the format of the form changed, but the number of questions on the new form had more than doubled, compared with the form that had been used before the financial meltdown. There were also many personal requirements directed at the Chief Executive Officer (CEO), such as the amount of property owned and their personal credit worthiness.

Responses from interviewees noting finance as one of the barriers to sustainable packaging aligned with the findings from the literature. According to Vasilenko et al. (2011), finance is one of the major barriers inhibiting SMEs' growth in sustainability. This will be discussed further in Chapter 6.

5.4.3 Lack of Information and Awareness:

This question was asked to find out whether the organisations had enough information to make informed decisions regarding sustainable packaging. Adequate information and awareness has a great deal of value, and this is even more pronounced in the 21st Century, as it is an element of innovation in this dynamic environment. Based on participants' responses, six themes emerged in this category:

Gap between public and private sectors inhibiting research
Lack of readily available, simple information on the concept
Training is needed for government agencies and representatives
Most managers and SME owners lack adequate knowledge
SMEs are ignorant of their effect on society
Inadequate support from Non Governmental Organisations (NGOs) and government agencies

Table 13. Thematic Category 3: Lack of Information and Awareness.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Gap between public and private sectors inhibiting research	11	55%
Lack of readily available, simple information on the concept	19	95%
Training is needed for government agencies and representatives	16	80%
Most managers and SME owners lack adequate knowledge	10	50%
SMEs are ignorant of their effect on society	10	50%
Inadequate support from NGOs and government agencies	15	75%

First and second themes recognise the dichotomy between the public and private sectors, of which SMEs are a part, and the non-availability of simple information on the concept. Non-alignment of the public and private sectors is creating a large information and awareness gap. Much can be achieved if the two sectors work together seamlessly. According to CE1:

"There are two sides to this; firstly it is important for the public sector to understand our goal and the cost attached to it, and secondly the public officials needs to buy into what we are doing, that is the only way we can achieve together."

He went further, pointing out that not understanding the concept, and its long term advantages, fully is preventing officials from devoting adequate funds for future research into sustainable packaging. CE2 also mentioned the non-availability of simple information:

"It is difficult to source information; an individual organisation like ours have to do our own research ourselves before we can get any. It is really frustrating."

CE1's position, (above), was supported by FH7, who pointed out that, while they have attended many conferences focused on sustainable packaging in the past, most of the attendees were from the private sector. Access was also given to various conference bulletins listing attendants and the sectors represented.

Whilst 55% of the respondents recognised the dichotomy of the two sectors, 95% saw the non-availability of simple information regarding the concept as being an issue that needed to be dealt with, for sustainable packaging to move forward.

The third theme was "Training is needed for government agencies and representatives", and understanding the concept is key to enacting better policies to support sustainable packaging.

FH4, in his comment, emphasised that funds needed to be provided for training materials and infrastructure for all government agencies and representatives. He also pointed out that most of the representatives were not literate enough to understand some of the fundamentals of sustainable packaging and its design:

"How can you expect someone who does not understand fully a concept to supervise a project and succeed? It is not possible, but this is what is happening at the moment."

The above comment was also supported by OT1, who reiterated that this is one of the major problems his organisation is facing at the moment. He also emphasised the high-handedness

of officials, even when they do not fully understand a concept. They tend to pretend that they understand, and that is why there are so many uncompleted and "white elephant" projects. Of the research participants, 80% concurred with this theme.

The fourth theme, "Most managers and SME owners lack adequate knowledge", emerged from the belief of some interviewees that this is the case. One participant, OT2, claimed that most of the decisions of some managers were not well thought-out. In his words:

"It is always difficult to convince my Chief Executive Officer (CEO) when it comes to a new area like sustainable packaging. We tried to convince him on the advantages of reusable boxes, but he insisted that we continue to use old ones. This is because he cannot recognise the long term advantages to the organisation, consumers and others within the supply chain."

The last two themes were "SMEs are oblivious of their effect on society" and "Inadequate support from NGOs and government agencies". The belief among some SMEs that they are too small to have an impact on society is seen as a disincentive to embrace a better way of doing things, which is at the heart of sustainability. In FH6's words:

"We always think we are too small to be taken seriously; we really do not have the data to show what effect our actions have on society."

It can be deduced that believing that their actions have insignificant effects on society discourages SMEs from doing more to support the sustainable journey, of which sustainable packaging is a part.

Finally, SMEs believe that support from NGOs and government agencies is inadequate. They believe that the support they receive is appalling. According to CE1:

"Most resources for research and development are provided by my organisation, and because we have limited resources we can only do what we can without impacting our working capital."

The above statement was also echoed by CE2 and CE3, who both mentioned that both NGOs and government agencies need to do more to support SMEs' efforts on the sustainable packaging journey. They both pointed out that various initiatives announced are just on paper, with no implementation. CE3 went further, to touch on how corrupt government officials are, suggesting that this is affecting implementation a great deal. Corruption was also linked to other barriers, and is more pronounced in developing countries than developed countries.

According to Revel and Blackburn (2007) and Vasilenko et al. (2011), the lack of information and awareness is one of the barriers, and this will be discussed further in the subsequent chapter.

5.4.4 Transportation:

The question as to how mode of transportation affects sustainable packaging was asked. This related to logistics constraints, as products are transported along the supply chain using different modes, including sea, land and air. It should be recognised that different rules apply to different modes of transportation, so it is important to know the effect that transportation has on sustainable packaging advancement.

Five themes emerged from this category:

The requirements specified by the destination of the products determine the packaging components
Inadequate and run-down infrastructure
International shipping requirements and restrictions can limit the design of packaging
Some products need special care
Supply chain effects

The themes are listed in Table 14, below:

Table 14. Thematic Category 4: Transportation.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
The requirements specified by the destination of the products determine the packaging components	14	70%
Inadequate and run-down infrastructure	10	50%
International shipping requirements and restrictions can limit the design of packaging	16	80%
Some products need special care	14	70%
Supply chain effects	10	50%

The first theme, "The requirements specified by the destination of the products determine the packaging components" reflects the fact that, where the destination of the products does not fully embrace sustainable packaging, it will limit the ability of the source of the product to do so. It should be noted that the supplier of the products has to adhere strictly to specifications, including the packaging used for the products.

According to FH3:

"*Whilst we most of the time recommend the use of recyclable packaging when we send products, some of our partners, in order not to incur cost attached to sustainable packaging, do specify the type of packaging they want. We therefore have no option than to adhere to the terms of our contracts as specified"*

FH3's position was also supported by CE1, who emphasised the hurdles they face when they try to promote the sustainable packaging agenda; he mentioned that organisations like his can lose business as a result of promoting this agenda. There were 14 interviewees (70% of the participants) who saw this as a barrier.

The second theme, "Inadequate and run-down infrastructure", emphasised the importance of a good and functioning transportation network to support the agenda. Poor infrastructure can hinder the success of good and sustainable packaging. In CE3's words:

"*Inadequate and run-down infrastructure due to years of neglect by the administration is causing a lot of problems and creating unnecessary bottlenecks for our operation in this respect. Some sustainable packaging, like recyclable paper containers, that we plan to change to support our vision on sustainable packaging … but the problem is that we cannot use it as it cannot withstand the rigour of bad roads existing all around us. So we continue to use the packaging we have been using."*

He further explained that, while they have highlighted this issue in many of their monthly meetings with the local government, nothing has been done, and this has been going on for many years. There was the opportunity to attend one of the meetings, and this issue was brought up, but officials continued to highlight the shortage of funding as the main issue. According to CE1:

"*The issue of inadequate infrastructure is also a big hindrance to us, despite a good road network here. The congestion is causing a lot of problems. When we design any of our packaging, we have to take this into consideration, which then reduces some of the benefit of the materials used and also may increase the cost.*"

It should be noted that, while the two participants are in different regions, they face a similar problem, but in different ways. Half of the participants agreed with the above.

The third theme, "International shipping requirements and restrictions can limit the design of packaging", suggests that international shipping poses some of its own problems, as maritime regulations have to be adhered to when products are shipped within the supply chain. According to CE2:

"Complying with these various regulations, apart from the fact that it is costly, it is also defeating its purpose. Most of our outer packaging systems that can withstand the rigour of the sea are not sustainable and this is due to the requirements set by the shipping industries."

FH2 gave an example of his organisation's new reusable pallet system, which is highly reusable and recyclable, and which has also reduced costs. However, this is not acceptable to the shipping company, and so they are forced to use the shipping company's modified pallets, which are costly and have no sustainable components.

Furthermore, the transporting of food items either by land or sea involves strict requirements, and this affects sustainable packaging components. For example, EC regulation No. 1935/2004 covers packaging for food and other materials, and includes all layers of packaging (both internal and outer layers).

There were 80% of participants who agreed with the above.

The fourth theme, "Some products need special care", relates to the protection of products in order to increase their shelf life, but this can work against sustainability goals.

OT2 gave the example of yam, which is a product that needs special care when being shipped, because of its perishable nature:

"Shipping yam is very tricky and if one is not careful one can lose the whole merchandise at sea, therefore we put them in the small containers individually and control the moisture individually as well using available chemical components which may not be sustainable, but what can we do? That is the best we can do in order to get this product to its destination."

F14 gave the example of his company's nuts and melons; these are in high demand, but need to be preserved in their original form, in order to preserve their taste. Therefore, special

protective packaging is needed, which may not be sustainable. There were 14 participants who concurred with the above.

The "Supply chain effects" theme refers to supply chain's own bottlenecks, which can hinder the sustainable packaging goal. Companies within the supply chain have different internal procedures, and aligning these internal procedures can pose many problems, especially when different regions are involved. According to FH9:

"An organisation like ours continues to face logistics issues when you have to depend on others within the supply chain. Although we continue to manage our operation very well, there is still issue, as we have no total control on others within the supply chain."

He went further to say that there is a need for more coordination of sustainable packaging system among the three organisations. This was also corroborated by OT2, who stated that the different systems need to be aligned.

According to White et al. (2001), mode of transportation is recognised as one of the barriers to sustainable packaging efforts. This will be discussed further in the next chapter.

5.4.5 Regulation:

The participants were asked whether their organisation were aware of regulations (local and international) regarding sustainable packaging. Questions were also asked as to whether current legislation suits SMEs, and how it affects sustainable packaging efforts.

Studies have shown that regulations available have been "one size fits all", with the same regulations being tailored towards MNEs and SMEs.

Six themes emerged from this category:

Specific regulation needs to be tailored towards SMEs
Non-streamlining of regulations across regions
Too many regulations
Voluntary regulation is not enough
Understanding the specific nature of SMEs will help in formulating appropriate regulations
Continuous education and training of SMEs is lacking.

Results for these themes are shown in Table 15, below:

Table 15. Thematic Category 5: Regulation.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Specific regulation needs to be tailored towards SMEs	16	80%
Non-streamlining of regulations across regions	15	75%
Too many regulations	13	65%
Voluntary regulation is not enough	15	75%
Understanding the specific nature of SMEs will help in formulating appropriate regulations	15	75%
Continuous education and training of SMEs is lacking	12	60%

The first theme, "Specific regulation needs to be tailored towards SMEs", refers to the fact that MNEs are different in many ways to SMEs, and so to have the same regulations governing their activities was seen as being unfair. Most MNEs are national organisations; they are bigger and have both financial and technical muscle for dealing with many problems. SMEs, on the other hand, are smaller and have limited resources at their disposal and so tend to prioritise. According to CE1:

"We have many regulations that are enacted to cover business in this sector, whether they are big or small. We felt this is not fair at all. For example, the regulation that a minimum of 60% of packaging waste be recovered is not a condition that is easy to be met by us because of the amount of resources involved, but this is achievable easily by Multinational Enterprises. We therefore believe that there should be separate legislation on packaging, specifically for organisations like ours."

In CE2's words:

"The reporting requirements regarding the packaging components is too cumbersome and most of what is required, one would say, is not applicable to us in a real sense but the government still want us to go through these several pages of questions. It is a waste of time and resource."

A hard copy of these requirements was provided, and it can be confirmed that they are voluminous. Furthermore, they were worded vaguely, to cover every type of organisation that made use of the packaging, and they were not defined appropriately, enabling various interpretations.

F11 went further, to complain about officials not understanding the nature of SMEs, thereby affecting the enactment of rules and regulations to govern their activities. This position was corroborated by 80% of the participants.

The second theme, "Non-streamlining of regulations across regions", originated from the fact that regulation differentials between regions are hampering the growth of sustainable packaging. With each region governed by different regulation, there are bound to be different interpretations, and this makes it difficult to coordinate activities in this context. In FH10's words:

"It would have been better to have one regulation across the board; this will make sustainable packaging easier to embrace. It becomes more difficult where we have suppliers in different regions; we then need to comply with various regulations in those regions. It is not easy at all."

FH15 explained that there is a problem with content definition. A supplier organisation needs to follow guidelines as specified, even if these do not satisfy one location's definition of what is sustainable.

Most participants believed that there should be more streamlining of regulation across regions, in order to give sustainable packaging a boost. This will entail not only the organisations in the same supply chain, but also the officials in charge of enacting rules and regulations, as well as researchers and designers.

The next theme, "Too many regulations", has a relationship with the second, since too much regulation is confusing the majority of SMEs. There are so many regulations and guidelines on sustainable packaging. Definitions and thinking need to be streamlined, in order to enable the dissemination of better information and best practices, especially among SMEs. According to FH14:

"There are too many guidelines with different perspectives and this is making interpretation difficult. While in some regulations some materials are allowed, the same materials or components are prohibited in other guidelines."

The comment above was echoed across the sample. CE3 also mentioned that the numerous guidelines needed to be consolidated, to make them more meaningful and serve a better purpose, and that the guidelines should be defined to serve the purpose of SMEs, rather than combining SMEs with MNEs.

The above also linked to the next theme, which states that voluntary regulation is not enough to tackle the issues surrounding sustainable packaging. While there are guidelines set up by the respective authority in various regions, these guidelines are not well regulated. Most of them are only required to be compliant. This will be discussed in detail in the next chapter. Three-quarters of the research participants believed that voluntary regulation is not enough to tackle the issues surrounding sustainable packaging, especially in the 21st Century.

The theme "Understanding the specific nature of SMEs will help in formulating appropriate regulations" points to the importance of understanding the special characteristics of SMEs when formulating policy, and the need to embrace continuous training for them in this context. Participants felt there was a need for policy makers to recognise that there is a difference between SMEs and MNEs in terms of set-up, operations, and finance and logistics issues. They also believed that SMEs should have a support line to enable them to improve themselves and learn more about this concept, as they have limited resources with which to do that, at the moment.

According to Taylor (2003) and Parker (2009), regulations were seen as being one of the barriers in this context. This will be discussed further in the next chapter.

5.4.6 Time:

Interviewees were asked whether time were a constraint when embarking on sustainable packaging projects. The majority of the participants confirmed that time is definitely a constraint. Five themes emerged from this category:

Inadequate reward for time sacrificed
Not seeing sustainability as a pressing issue
Lack of time necessitates prioritising
Lack of time necessitates multi-tasking
Lack of time affecting time devoted to research and development on sustainable packaging.

Table 16, below, outlines these themes:

Table 16. Thematic Category 6: Time.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Inadequate reward for time sacrificed	17	85%
Not seeing sustainability as a pressing issue	17	85%
Lack of time necessitates prioritising	18	90%
Lack of time necessitates multi-tasking	18	90%
Lack of time affecting time devoted to research and development on sustainable packaging	18	90%

The theme "Inadequate reward for time sacrificed" in this category emerged from the belief of the participants that SMEs do not gain sufficient benefit from the time and effort spent embracing sustainable packaging. All responses from all interviewees confirmed this.

For instance, CE3 provided evidence of several incentives, and of the support that is available, for multinational organisations that embrace the sustainable packaging idea. Additional evidence of several incentives, from various publications, was made available by the participants. It was noted that most of these incentives were only available to the large organisations. What is worth noting, in this case, is that the criteria used in the selection processes can mostly only be met by MNEs.

The second theme, "Not seeing sustainability as a pressing issue", is related to the other themes. This is because they are all centred on the issue of the limited resources available to SMEs. Embracing sustainability means diverting some available resources, including time, to sustainability projects such as sustainable packaging. Because of the limited resources at their disposal, SMEs are faced with prioritising projects. In the light of this, one of the participants, (FH6), felt that his organisation was faced with competing wants from limited resources, so that they have to make choices:

"In the quest to stay afloat and be able to supply our customers, the most important thing on our mind is our working capital, making sure we have liquidity and cash flow to be able to pay our expenses. While we would love to do more in the area of sustainable packaging, the resources are not just there."

Access was also provided to various accounting books, showing revenues and expenses and margins. These showed that, because margins were so tight, this impacted on other projects, including sustainable packaging.

In addition, one of the participants, OT1, reiterated that, because they have to manage their time well, they have to multi-task. He explained that it is not uncommon for an employee to be multi-skilled when working with an SME. This saves time, and also reduces costs and conserves already limited resources:

"In my organisation, whilst we all have our title which shows our area of specialisation, it is not that clear cut in practice, because a marketer can also work efficiently in logistics without any hitch. It is also to note that most directors do more than directing; they are available to work at any position if the need arises."

Referring to the final theme, because of the pressure on time, mentioned above, there is an impact on other research and development projects of which sustainable packaging is a part. Working on various research and various projects necessitates a substantial amount of time. One of the participants, CE3, described this as a "big deal":

"While we strive to embrace continuous improvement by always finding a better way to improve our packaging system, the time available is always an issue, because of the fact that it has to be a priority first to be able to run our business before anything else, even while recognising the long term advantage the project in question may bring."

The position above was corroborated by FH2; 90% of the participants attested to the above.

Time as a barrier has consistently been found in the literature. According to Revell et al. (2009), time, as an SME resource, was noted as being a barrier, and this position was supported by Jenkins (2006). This will be discussed further in the next chapter.

5.4.7 Support for Sustainable Packaging Concept:

Participants were asked whether there was enough support from stakeholders in promoting the concepts of sustainable packaging projects, and how their actions affected sustainable packaging developments.

Five themes emerged from this category:

Owner's and managers' vision of sustainable packaging
Owner's and managers' education, belief and background
Consumers' knowledge and continual demand for performance and convenience, and low price sensitivity.
Industry or sector limitations
Support provided by government and non-government institutions

The above themes are outlined in Table 17, below:

Table 17. Thematic Category 7: Support for Sustainable Packaging Concept.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Owner's and managers' vision of sustainable packaging	17	85%
Owner's and managers' education, belief and background	16	80%
Consumers' knowledge and continual demand for performance and convenience, and low price sensitivity	13	60%
Industry or sector limitations	11	55%
Support provided by government and non-government institutions	14	70%

The first two themes are related, because they point to the owner's and managers' perception of the whole concept of sustainable packaging, which encompasses background, belief, education and also their vision. The argument most participants put forward was that, when an owner or manager is a visionary, he or she is ambitious and, most of the time, "thinks out of the box", which then translates to embracing new ideas. Also, when a manager or owner is

well educated, then he or she is mostly sound in embracing a new area like sustainable packaging. In addition, the mangers' or owner's religious background and beliefs may affect the decision-making process.

FH9 gave his organisation as an example, where the founder is always ready to "test new waters" and continually challenge his staff. He also gave the example of the change they had concerning the introduction of new pallet in the organisation; this was the idea of the owner, and was duly accepted by the management.

Whilst majority of the participants agreed with the above, CE3 was the exception, suggesting that education may not necessarily be a factor, as there are many entrepreneurs who are doing great things within the sustainability arena, who have not had a formal education. He mentioned some notable small enterprise entrepreneurs in the area who had not had formal education, and they were successful. Whilst this may be the case, more than 80% of the interviewees supported FH9's position, above. This means that the owner's background, belief and education can be a catalyst for embracing sustainable packaging, and vice versa.

According to Zhu and Sarki (2007), because the owner and managers hold the key to many decisions, their background and beliefs may have an effect on the strategic direction of the organisation - in this case, the sustainable packaging strategy.

The third theme, "Consumers' knowledge and continual demand for performance and convenience, and low price sensitivity", emerged as a result of the belief among the participants that consumers are increasingly aware of what sustainability is, and that this is affecting their decisions on products. Consumers are demanding better packaging performance and convenience, but all of these incur costs for SMEs. The issue is even more pronounced when demand for lower price is added. According to FH2:

"It is difficult for my organisation to have a big margin these days, because of all the new initiative to remain competitive in the market whilst also making sure consumers are getting what they want. This thin margin is therefore affecting our ability to implement all the sustainable packaging ideas we have. For instance, the plan to include cardboard lining in our food packaging system instead of cellophane plastic wraps."

Information was provided on many sustainable packaging projects, which were under consideration, but yet to take off, as a result of funding issues. Information was also provided

on the same company's cost structure over the previous six years, to show how costs had been going up and prices going down.

Therefore, consumer demand for lower prices, while also wanting more product performance and convenience, has been putting pressure on cost, as it has eaten deep into the margin. As a result of this, resources become even more scarce for use on sustainable projects, such as sustainable packaging.

There were 60% of participants who saw this as a factor that hinders sustainable packaging. Other participants believed that consumers needed to be more informed about the concept, as this would make them more sympathetic to the cause and reduce their tendency to continually demand lower prices.

FH2's position, above, was supported by Revell et al. (2009). This will be discussed in detail in the next chapter.

The fourth theme, "Industry or sector limitations", resulted from interviewees' belief that there are limitations within the sector that hinder the sustainable packaging journey.

For instance, CE3 mentioned that the new Fast Moving Consumer Goods (FMCG) packaging norms introduced into the sector are causing many problems, as they were not well thought out. While the changes have introduced a standard packaging system for these products, the impact might be an increase in price, which will affect margins.

Access was given to some of the quarterly minutes of the meeting of the Association of Small Medium Enterprises (SME), in regions where most express concern over the new packaging system limitations.

Whilst CE3's organisation is based in a developing country, it should be noted that his position was also supported by FH2, who is based in a developed country.

Lastly, in relation to the theme "Support provided by government and non-government institutions", 70% of participants articulated the view that there was not enough support for the sustainable packaging concept, believing that more needed to be done. This was more pronounced in the developing country, where good structures and procedural frameworks were lacking.

There was also a belief that more training was needed within government and non-government institutions, to help them to understand what sustainable packaging is, and to help their understanding when formulating policies. According to FH15, this will also send a good message to consumers.

The next three barriers to be discussed emerged direct from the study, and had not been reported in any previous literature. Therefore, the following can be recognised as a contribution of this research to the body of existing knowledge.

5.4.8 Corruption:

Corruption as a barrier emerged from the responses of interviewees, and was not prompted by a direct question posed. Five themes emerged from this category:

Corruption is rampant among the officials
MNEs are always favoured over SMEs in policy making
Favouritism based on political support is affecting policy formulation
The current system is designed to be corrupt
Leadership in the context of sustainable packaging.

Results for these themes are shown in Table 18, below:

Table18. Thematic Category 8: Corruption.*

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Corruption is rampant among the officials	14	70%
MNEs are always favoured over SMEs in policy making	19	95%
Favouritism based on political support is affecting policy formulation	15	75%
The current system is designed to be corrupt	13	65%
Leadership in the context of sustainable packaging	15	75%

The first theme, "Corruption is rampant among the officials", has emerged from a belief that there was corruption at every level of policy making, and that this was affecting the allocation

of resources to support the sustainable packaging journey of the SMEs. CE3 gave an example of a time when it was agreed that a certain packaging policy (standardisation) needed to be followed and coordinated, to support a packaging system in the country for SMEs, but nothing was done in that respect, in spite of there being a budget for it set by the government and other stakeholders:

"We attended meetings with other stakeholders, at a meeting organised by a government directorate, and many agreement was reached in terms of supporting SME in their sustainable packaging activities; in fact, the commissioners for agriculture in all the surrounding provinces bought into it and made pledges in terms of finance and manpower, but at the end of the day all budgeted funds was spent without any filtering down to us as promised. How do you describe that?"

It is important to note that the location of CE3's business is in a developing country, where corruption reigns in all aspects of business; therefore, it is not a surprise. CE1 also commented on the issue of corruption, although he is in a developed country, lamenting the issue of corruption among government representatives. He also mentioned that the issue of non-transparency in their policies made things even worse:

"We don't know their positions; they mostly come and force so many procedures down our throat, without consulting us, while they have their favourite organisations. It is really unfortunate."

The theme "MNEs are always favoured over SMEs in policy making" was mentioned by 95% of all participants. The major issue here was the belief that most packaging policy favoured MNEs, and that things were easy for them because they are large and have both financial and manpower capability to cope. The majority of the participants felt there should be a separate policy directed at SMEs, because of their nature. In FH3's words:

"How can you expect us to have the same level of reporting? This is not fair at all. Sometimes it feels as if this official favours the big organisation. We also know that they always give them ample opportunity for compliance as compared to us. Little things. Everyone is on our case."

OT1 went further, describing this in terms of the arrogance and unaccountability of the policy makers and their representatives. He mentioned that the distinction between MNEs and SMEs might be clear "on paper", but there was an issue with officials' understanding of the difference. He said that he felt that they showed a nonchalant attitude towards the SMEs, and that their reporting was poor.

The third theme, "Favouritism based on political affiliation is affecting policy formulation", related to participants' belief that most MNEs were affiliated politically with the people in power, and therefore policy will always favour them. It is also a fact that the majority of the MNEs are big donors to the political party in power. F14 stated:

"This issue of favouritism is noticeable everywhere you turn. For example, in terms of the yearly packaging compliance reports we provide. Whilst the officials overlook so many things in the report for the Multinational Enterprises (MNE), Small Medium Enterprises (SME) like ours are visited many times, and they sometimes require that we visit their office, which is not necessary, as it wastes our precious time."

While F14 was located in a developing country, and, because of the higher level of corruption in such countries, this might be expected that this is something specific to a certain region, it should be pointed out that this view was echoed by FH3, who was located in a developed country.

In addition to the above, the theme "The current system is designed to be corrupt" emanated from a consensus among the participants that the current system is designed to support MNEs. In CE3's words:

"Most of the reporting packaging guidelines available is designed for Multinational Enterprises (MNE), and it thus favours them. It puts an organisation like ours at a disadvantage."

The above comment echoed among the participants, and it was apparent that this view cut across both developed and developing countries. It was also noted that, while policy makers in the developed country adhered to policies and procedures as stipulated, in the developing country, there was much manipulation, which does not help the development of sustainable packaging.

The last theme in this category, "Leadership in the context of sustainable packaging", was linked to a widely held opinion among the participants that the leaders at the helm of affairs, running a business, provide a major obstacle to the development of sustainable packaging. Some of the participants were very careful not to be seen criticising their boss, which happens to mostly be the owner of the business, in most SMEs. However, the interpretation is that, if the owner does not "buy into" any project in this context, then this would pose many problems. In F11's words:

"We have issue when doing analysis backed up by data to support a project and the CEO turns around to just stop the implementation. For example, we have been working on the new reusable bag for one of our products, which can also serve as a conduit for advertisement and thereby reduce or advertisement budget in the long run, and also the fact that it can be collected back and reused, but the CEO just came one morning and said we are not ready for the project..... end of story."

It was noticeable that, while the majority of the participants supported this, they were careful on how they argued this case. It was also noted that, while the majority of the participants saw their managers' actions as a barrier, their managers, in turn, rather pointed accusing fingers at the policy makers and their representatives as being part of the reason that they would not embrace some sustainable packaging projects. They complained of not having adequate support from them.

5.4.9 Culture:

Culture as a barrier emerged from the responses of the participants, and not as a result of a direct question posed to them. Five themes emerged from this category:

Family structure affects the type of packaging
Leaders are not following the right direction on the sustainable journey
Regional differences and understanding of the concept
Restrictions on some materials in some regions
Variation in consumption habits

Extending this research to cover both developed and developing countries provided the opportunity to understand the different perspectives of these two environments. The themes that emerged are shown in Table 19, below:

Table 19. Thematic Category 9: Culture.*

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
Family structure affects the type of packaging	10	50%
Leaders are not following the right direction on the sustainable journey	8	40%
Regional differences and understanding of the concept	16	80%

Restrictions on some materials in some regions	17	85%
Variation in consumption habits	9	45%

The first theme, "Family structure affects the type of packaging", is also related to differences in culture between regions, which makes the situation even more complicated.

According to FH3:

"The family structures have to be taken into consideration because of the demand effect. There is no point in producing what is not going to satisfy demand. The family structure does pressurise the designer of the packaging to include what the family want. In that case, so many variables will need to be taken into consideration which may increase the cost. This is a big issue."

This position was also corroborated by FH14, who pointed out that, in an effort to provide the longer shelf life required as a result of family structure, certain foreign components need to be used which may defeat the sustainability objective. He gave the example of additives such as trans fat, which may help to increase the shelf life of a product, but is also among the most dangerous substances to consume.

Half of the participants supported the above position.

The majority of participants contributing to the second theme, "Leaders are not following the right direction on the sustainable journey", were are based in Africa, where leaders are not questioned - they take decision and it is final. This can be compared to practice in advanced countries, where everyone's voice is heard. In OT2's words:

"It is difficult to challenge our boss; most of the time he gets things wrong but still pushes through. This is also common with the other officials, as well, where many packaging policies are pushed through without due consultation to the user and other stakeholders."

Access was given to the minutes of the most recent meeting of the local association of food producers, and one of the key topics or issues that came up was that of leaders taking decisions without due consultation. It was also noted that some of the participants recognised the unilateral way in which decisions were made regarding packaging issues in their organisation; most felt reluctant to criticise their boss or their managers, although they were

not happy. FH11 highlighted the fact that most managers have no clue about what constitutes sustainable packaging, and this will affect their decision making process.

The third theme, "Regional differences and understanding of the concept", generally affects policies, operations and logistics, which have to be streamlined across the region in order to achieve the overall goals. International trade and relationships have redefined the demographic landscape as a global village, and so all activities need to be coordinated in order to get the best result. According to CE3:

"Sending product to another region is what we do best, but the fear of rejection and then losing money because of non-compliance to packaging requirements is an issue. It should be recognised that we need help in terms of the modern machinery and process to be able to supply seamlessly."

CE1 also suggested that there should be coordinated effort among all stakeholders across the region to better streamline policy, and to "be on the same page" regarding the definition of sustainable packaging and its components. He added that anything short of that is a recipe for failure.

Packaging requirements documents were provided in both regions, and these indicated a wide disparity in terms of definitions, terms and other key concepts. This has a great impact on sustainable packaging, which is part of logistics management. It should be noted that 80% of participants acknowledged this as an issue.

The next theme, "Restrictions on some materials in some regions", referred to the situation where some materials are prohibited in one region, and not in another will not help in embracing the coordination and fluiditity abounds within the sustainable packaging concept.

OT1 gave an example of some parts of the region where food is not allowed to be served in paper products, because it is seen as being degrading. Therefore, food will continue to be served in some unsustainable packaging products:

"We believe we can achieve better by using paper based packaging products; it is cheaper, good for the environment and also readily available. It is also reusable, but because of the culture in this region we cannot do this."

The theme "Variation in consumption habits" also related to regional issues. It was noted, from interviewees' responses, that most people in developed countries now consider

sustainable packaging when making their decisions, while, in developing countries, this is not the case.

5.4.10 System:

This also emerged as a barrier from the responses of the interviewer, and not as a result of a

direct question posed to them. Five themes emerged:

System is designed to favour MNEs
System is too old and needs a general overhaul
Available tools are not designed for SMEs
Inadequacies of government agencies and its representatives
Effect of belief and customs on policy and direction

The themes are listed in Table 20, below:

Table 20. Thematic Category 10: System.

Thematic Categories / Constituents	Total No. of individual participants responding	Percentage of participants responding
System is designed to favour MNEs	18	90%
System is too old and needs a general overhaul	16	80%
Available tools are not designed for SMEs	16	80%
Inadequacies of government agencies and its representatives	16	80%
Effect of belief and customs on policy and direction	15	75%

Most systems are designed to support the smooth running of business in the society, and are governed by a set of rules and regulations with which every entity needs to comply. Much has changed in the last 20 or 30 years, and the system to support the modern economy, which is mostly driven by SMEs, needs to be constantly reviewed.

The first theme, "System is designed to favour MNEs", reflects the understanding among SMEs that most system processes are designed to favour MNEs because they are known across the region, are visible and are also large in size. According to OT1:

"We all know that systems are designed to support multinational organisations, and that is why they find it easy to find their way around things, including compliance. Most packaging regulations are tailored towards them and so we find a lot of things difficult on our side, therefore there should be a call for a new redesigning of the system that can cater for different types of business like ours and also the emerging 'new economy'."

This position was echoed by CE3, who said:

"Multinational Enterprises (MNE) have always been having it easy when it comes to compliance. In addition, most packaging regulations (voluntary and mandatory) are tailored to their survival and also fit their profile."

As many as 90% of the participants shared the above view.

This was linked to the second theme, "System is too old and needs a general overhaul". This theme referred to the fact that, because there had been a paradigm shift in our way of living, there needed to be an appropriate realignment to that effect. It was felt that new thinking and the new economy pioneered by many SMEs needed to be included as part of a whole system overhaul. According to CE1:

"Something drastic needed to be done to fix this broken system."

In the words of FH8:

"The challenges facing different types of business need to be considered when reinventing the new system. The overall packaging rules and regulations needed to be remodelled to include our challenge; this is not the case at the moment."

F10 added that there should be a redefinition of most keywords used, to accommodate all modern challenges. He mentioned the need to eliminate the old terms used in sustainable packaging components, and to include the new definitions. He gave examples of some additives to prolong the shelf life of a product, that were not recognised as being unsustainable - but recent research has proved otherwise, so they need to be excluded in the modern context.

The third theme, "Available tools are not designed for SMEs", originated from the belief that most tools available for sustainable packaging are designed for MNEs. CE1 confirmed that most of the packaging assessment tools are too comprehensive, because they are designed to specifically serve the purpose of the larger organisations. He added that designing tools specifically for SMEs will enable smaller organisations to compete, and provide a sound platform when comparing activities with larger organisations.

Access was provided to the assessment tool "packaging attributes"; while this is a useful tool, it is too comprehensive and very generic, with no reference made to SMEs.

The majority of the interviewees mentioned that one thing that needs to be looked into is the streamlining of available tools so that they align with SME operations and their unique nature, which they do not at the moment.

The fourth theme, "Inadequacies of government agencies and its representatives", was consistently found in the responses of the participants. The interviewees believed that the agencies need to do more in the area of promulgating functional rules and regulations relating to sustainable packaging. According to FH15:

"The agencies and its representatives need continuous training to help them understand the sustainable packaging concept; it is when they understand better the concept that they can use the knowledge to help develop functional regulations, especially for Small Medium Enterprises (SME)."

CE3 also touched on the importance of making funds available to support the cause. This position was supported by 80% of the research participants.

The last theme centred on the influence of belief and customs. Most of the participants confirmed belief and customs as having much influence on sustainable packaging development. The majority of the interviewees in the developing country saw this as an issue affecting sustainable packaging, while the participants from the developed country considered this to be a "non–issue", with the exception of one individual, who made links to demographics. The latter participant maintained that the rate of migration from developing to developed countries was at an all-time high, and that most migrants brought their beliefs and customs with them to their new nation. According to CE3:

"While cardboard is a good component of sustainable packaging and has been around for more than 200 years, one cannot pack food items in the northern parts of the country because it is their custom

not to receive food items in cardboard. They see it as an insult and so it becomes difficult to use this product in that area."

Further probing revealed that religious beliefs also played a part in terms of what is acceptable and what is not.

As mentioned above, it should be noted that some themes to emerge were not the result of the questions that were asked, but arose as new categories. This will be discussed further in the next chapter.

5.5 Chapter Summary

This research offered participants a unique opportunity to give their perspectives on the barriers to sustainable packaging in an international food supply chain network involving three SMEs. The interview questions asked were structured to reflect the findings from the pertinent literature, and the semi-structured interview technique used provided interviewees with the opportunity for free expression, as discussed in earlier chapters.

The first sets of findings were in alignment with the literature. These included Cost, Finance, Lack of information and Awareness, Transportation, Regulation, Time and Support for the Sustainability Concept.

One of the key variations was provided by the fact that the organisations were located in different regions, so that, for instance, whilst finance was seen as a huge barrier, there were differences in how this affected organisations in developing countries as compared to those in developed countries, although all of them faced similar problems.

The second set of findings emerged from interviews, as new findings, and were not related to any findings from the literature. These included corruption, including corruption in relation to leadership, favouritism based on political affiliation and the corruption of officials. All of these were having a negative effect on sustainable packaging policy formulation. It was confirmed that most MNEs were supporters of the political party in power; in fact, they donated a great deal to the party, giving them the opportunity to influence policy in their favour. It was noted that this is rampant in developing countries, but that this type of issue existed in developed countries as well.

Another finding was that culture is a barrier to sustainable packaging. This includes consumption habits, materials restrictions, regional differences and perhaps religious

differences, and can create major problems in the supply chain. Understanding of the concept differed in each region, as did consumption habits. Some sustainable materials are allowed in one region, but may be prohibited in another area because the culture does not allow it.

"System", which refers to all mechanisms designed for the smooth running of the network, was also identified as a barrier to sustainable packaging. This stemmed from the inadequacies of policy officials, with the system being seen as too old and in need of a general overhaul. It was also confirmed that, whilst there were tools available to support the sustainable efforts of the organisations, these tools were tailored towards MNEs.

The interplay of the literature and the findings will be discussed further in the next chapter.

Chapter 6. Discussion

The objective of this chapter is to examine the research findings in the light of the relevant scholarly sources and authorities that had been reviewed during the study. This discussion is structured in such a way as to first establish findings that emerged from this research, and then to link these with the relevant literature already examined in Chapter 2 of this study. The findings specific to this research, which may not have been established in the literature, will then be discussed.

Each finding, as described in Chapter 5, will be examined individually, and then compared with the literature review in the context of the research questions.

6.1 Cost

A question was posed to the participants to find out whether cost were a barrier when embarking on sustainable projects, in particular a sustainable packaging project. Cost is one of the major barriers that have been recognised in the literature over several years, and it continues to be relevant. Revell et al. (2009) conducted a study of SMEs, and found that almost two-thirds of their participants confirmed cost as being a barrier to embracing sustainable projects. This position was also supported by Williamson and Lynch-Wood (2001).

According to White and Lomas (2011), whilst engaging in a sustainable activity will add value to an organisation in terms of knowledge, it always comes at a cost. Furthermore, Lawrence et al. (2006), in a study of 800 SMEs in New Zealand, found that cost was one of the main barriers hindering sustainable projects.

The fact that SMEs have limited resources at their disposal makes cost control essential (Taylor and Simpson, 2003). Also, according to Revell and Blackburn (2005), most SMEs perceive sustainable projects as being a very expensive and costly undertaking, and so they rather avoid them. One participant stated that the reason his organisation had not changed its packaging machine was cost; he added that it would erode the company's working capital if they were to venture into the project. He also confirmed the commitment of his organisation

to improve packaging components, but the only issue was how to absorb the cost attached to it.

In this research, the majority of the participants supported the notion that limited resources prompted them to avoid cost. This resonated with Taylor and Simpson, above. They therefore needed to make smart decisions on getting the best out of available resources. In addition, some participants claimed that demand for lower prices by the consumer was a major factor that was driving SMEs to watch the cost of production closely. Because customers were demanding lower prices, margins were becoming thinner; therefore, profits were shrinking, affecting the availability of funds for investment, which then translates to extra pressure on the funds available. This position was supported by Orsato (2003).

The 21st Century has created a new economy, and has empowered the customer in very significant ways. Customers now have access to different markets, from many regions, and so they are aware of products' specifications, including quality and prices. They can therefore negotiate better and continually seek better prices. This puts pressure on organisations, especially SMEs. The emergence of China and other emerging economies has also added its own dimension on the price empowerment of customers.

In addition to the above, participants also highlighted the influence of competitors on pricing and cost control. One of the participants mentioned that his company has to control costs in order to remain competitive. Others pointed out that, because of the country in which they operate, there are other costs associated with embracing sustainable packaging. They gave examples of some costs associated with fillings, inspections and paperwork, and stressed that some of these cost were not necessary and could be avoided if the process were streamlined and restructured. Participants also stated that cost was not just monetary, but could also be seen in terms of manpower and opportunity costs. Whether direct or indirect, in total, costs constitute a barrier (Al Khidir and Zailani, 2009).

Whilst cost was seen as a barrier by the majority of the participants, one participant's position was different, as he felt that, because consumers were now well informed, and would continue to be, they would support sustainability and be willing to share the extra cost. This is very interesting, and future research may be directed towards investigating this position in depth. Many questions come to mind as a result:

Is it because the participant's organisation is located in a developing country?

Are there no competitors?

What is the position and capacity of the competitors?

One very important point mentioned in this research, regarding cost, was the effect of the economic climate. The world economy has witnessed many changes and challenges, which has made organisations look carefully at the issue of cost. According to *The Guardian* (2014), the world economy was continuing to witnessed uncertainty from different angles, which included the spill-over of the 2008- 2009 financial crisis and the continued financial crisis from emerging markets; Greece, as a country, continued to struggle to survive in the Euro Zone, and this was seen as a concern to the whole region. Russia capital flight with pressure on rouble and continued turmoil in the region, the continued freefall of the price of oil, and many more crises, continued to have a significant effect on the world economy, which continued to put pressure on the organisations and on policy makers in general.

There continues to be risk associated with the new way of doing things, and it is important for the economy to rise to those challenges. According to Sally Freeman, Head of Risk Consulting at KPMG Australia, cited from Financial Review (2015):

"Some of the risks that organisations face may have the same titles, but they're quite different now in terms of the impact that you can have, and the speed with which they can arise."

It is also worth noting that rising to these challenges meant that costs had to be incurred, financial and otherwise, and this had both direct and indirect consequences on the cost of doing business for all organisations, especially SMEs. For example, borrowing from financial institutions remained a challenge, due to increased scrutiny, especially in a new area like sustainable packaging, and attracted a higher rate. Increased regulation and uncertainty has been seen as increasing the cost of business. As uncertainty does not help organisations to plan long term, it affects future growth (Forbes, 2013).

In a survey conducted by Sustainability4SME (2015), a Denver-based company in the USA, cost was listed as one of the barriers facing SMEs in their sustainability journey. They maintained that implementation is costly for SMEs.

In summary, this research has highlighted cost as being one of the major barriers affecting sustainable packaging, and this has been supported overwhelmingly by sources from the literature.

6.2 Finance

Finance is another major barrier to have been identified in the literature. Evidently, finance was recognised as one of the barriers to SMEs sustainable packaging projects (White et al., 2011). Natarajan and Wyrick (2011), in their paper entitled "Framework for implementing sustainable practices in SMEs in the United States", also confirmed finance as being one of the barriers.

One of the key issues for SMEs is the non-availability of information on available funding and grants. Whilst there are many available funding initiatives, to provide grants and incentives to SMEs, they are not within the reach of these small organisations. Even when they are within their reach, they do not know how they can access the funding or the grants (DEFRA, 2006). There are initiatives like UNEP FI, which was established to connect financial institutions to United Nations development projects, and not only support MNEs, but SMEs as well (UNEP FI, 2007). Private organisations, such as Rainforest Alliance, have been formed to support SMEs in gaining access to the finance they need (Rainforest Alliance, 2015).

In the context of this research, most of the participants believed that information regarding available funding and grants was difficult to access. One of the participants even gave examples of how financial institutions, that were supposed to be information hubs, were only interested in the lending programme of their organisation, which was also difficult to access. In the research conducted by Revell et al. (2009), 57% of the respondents wanted more information that could benefit their organisation.

In addition to the above, there was also the issue of requests for personal guarantees and collateral before funding or loans could be granted by financial institutions, because most banks were reluctant to lend money to risky projects (OECD, 2000); even where a loan was granted, the interest rate was usually high, making the repayment difficult for an SME.

Risk-based financing of ventures such as sustainable packaging projects is usually subject to personal guarantee and fixed asset collateral (Lam and Shin, 2012). Overwhelmingly, 90% of the participants in the current research confirmed that the bank usually asked for a personal guarantee and collateral, and that, mostly, collateral and personal guarantees were unattainable, making assess to funding difficult.

One of the participants gave an example of his organisation's attempt to change its packaging system. It was difficult to provide the collateral the bank requested, and the interest rate quoted was too high, compared with the return on investment. This supported the findings of various studies, such as one that indicated that 50% of SMEs examined did not receive of any external funding, with 77% not having access to financial assets (Aremu and Adeyemi, 2011). In the United Kingdom, there have been various government efforts to encourage financial institutions to support SMEs in their finance requests (BIS, 2010).

Size has been recognised as one of the constraints affecting SMEs' efforts to embrace sustainable activities. There is a common perception that small is risky, and that SMEs lack the necessary skills to run a business, and this has become a barrier to them in receiving finance (UNEP FI, 2007). In the current study, 85% of the interviewees saw size of SMEs as a barrier, especially in comparison with MNEs, which are bigger, and so have greater resources, especially financial resources. MNEs are well perceived and are seen as being less risky, and so access to capital is easier for them.

It is worth mentioning that the issue of finance as a barrier for SMEs, while it exist in both developed and developing countries, is more pronounced in the latter. According to the World Bank Group (2010), finance was ranked as the second-most important barrier inhibiting SMEs' growth, while it was ranked fourth in the context of MNEs.

6.3 Lack of Information and Awareness

While lack of information regarding available grants and funding was recognised as one of the financial barriers, it is also important to recognise that there is a general lack of information, awareness and knowledge about advancement surrounding sustainable development, and sustainable packaging is part of this (Parker et al., 2009; Condon, 2004). Those SMEs that are aware perceive themselves as too small to have any impact (Defra, 2009).

It has been evident that SMEs lack useful and vital information, and that they are not aware of much best practice. The majority of the participants confirmed that, while there was much information that can help in awareness and direction, this was not easy to come by; this resonates with Compas Inc. (2003), which has recognised low awareness of available assistance. It was elaborated that, while the efforts of the government towards SMEs should be to educate them and point them in the direction of information and training that can help

them embrace the sustainable packaging concept, their focus was instead on things that were not really beneficial to them.

CE3, while corroborating one of his manager's earlier statements, stated that information that could have helped them to move more towards sustainable practices had sometimes been deliberately withheld by some of the government officials. He added that they were ignorant of the effects of some of their actions, and that the environment in which they operated was not encouraging. Being based in a developing country, his company was not aware of many best practices and approaches.

FH7 pointed out that information that they can reference or benchmark in terms of sustainable models, especially in relation to sustainable packaging, is practically non-existent. He suggested that getting the right information is key to SMEs changing their behaviour and better understanding their impact on the environment in which they operate. He went further, to say that it is essential to have access to information given the dynamic environment and the continually changing sustainable packaging landscape.

Various studies have pointed out and highlighted a lack of information and awareness about how to go about things, especially in terms of best practices; the interpretation of available tools as they affect SMEs has also been featured (Taylor, 2003; Vasilenko et al., 2011). There has also been a lack of research and development and innovation, on the part of SMEs, in sustainable packaging, because the required knowledge is lacking (STOA, 2013).

There is therefore a call for all stakeholders to come together and redesign current communication models so that they include SMEs. It is also important to build a strong link between developed and developing countries; best practices that exist in developed countries need to be replicated in developing countries. All this can be made possible if SMEs can benefit the free flow of information and awareness.

While awareness and lack of information was recognised as being one of the major barriers, it was also noted that this is more pronounced in developing countries like Nigeria, where one of the case study organisations was situated. This is something that was evident in the course of several trips to the region. It was noted that there was much information and many initiatives in developed countries that the organisation in Nigeria was not aware of. This is a concern, as it has an effect on the smooth running of the supply chain. The fluidity and the robustness of the supply chain needs information alignment among the stakeholders or the

organisations within it. At the time of the current study, this was missing, although the three organisations saw improvements as a result of their own co-operation within the supply chain. Visits to one another's premises were encouraged, to provide the opportunity to share information on the best practices in relation to sustainable packaging.

In addition, policy makers and the owners and managers have to be "on the same page" in order to support the development of sustainable packaging.

6.4 Regulation

This issue was raised in order to establish whether the organisations were aware of any regulations they needed to comply with, and whether it was felt that current legislation fits SMEs' profile. According to Luetkenhorst (2004), regulations for production practices may be a barrier to sustainable practices. Non-compliance with packaging regulations may make an organisation liable for a penalty of in excess of £250,000, in the UK (Comply, 2011). Also, according to White and Lomax (2011), organisations tend to comply with regulations when they are aware that there are penalties. The issue is the sheer volume and complexity of regulations, making it difficult to keep track of what is needed to be complied with (Willamson and Lynch-Wood, 2001). There may also be costs attached to this.

There was evidence, during the study, that, while there were some regulations that the organisations needed to comply with, they believed that the process of compliance was too cumbersome. This resonated with Williamson and Lynch-Wood's position, mentioned above. CE1 suggested that there should be separate compliance designed for SMEs, because of their nature. According to Hillary (2004), they constitute a complicated and diverse collection of organisations and situations that necessitate a thoughtful analysis.

A further finding of the study was that most of the officials in charge were not well trained to offer direction for SMEs, and that there was too much bureaucracy involved with compliance, defeating the purpose for which it was set up. Most participants felt that the authorities should focus more on training and assistance, to achieve their goal, than on punishing SMEs when they are found to be lacking.

One participant maintained that his company did not really have any regulations with which to comply, in terms of sustainable packaging, although the company did comply with local regulations regarding labelling, disposal of packaging material, etc..

It was also noted that, in the developing country, whilst there was local compliance required by the government, there were no specific mandatory regulations, although some of the company's supplies to Europe had to comply with international requirements.

6.5 Time

Interviewees were asked whether time were a constraint when embarking on sustainable packaging projects. Various studies had identified time as one of the barriers SMEs face when embarking on such projects; the findings of Revell et al. (2009) and Jenkins (2006) supported this assertion. In an inaugural report on SMEs compiled by the Network for Business Sustainability, entitled "SME sustainability challenges 2012", time was recognised as one of the barriers (NBS, 2012).

In the current research, the majority of the participants recognised time as being one of the barriers to sustainable packaging projects. This was because they have much to do in catering for all aspects of their business, and so there is always pressure on their time. They indicated that it was difficult for them to pursue projects that were not directly related to the company's main operation, and projects such as sustainable packaging were wrongly seen as not being core to their business (Fassin, 2008; Walker and Preuss, 2008). This contrasts with MNEs, which have greater resources with which to execute many projects.

The responses of participants from both a developing and a developed country were the same, and so it can be concluded that it does not matter where the SME is located, as SMEs all face the same pressures when embarking on a sustainable packaging project. It was also found that most SMEs do not see sustainable packaging as a pressing issue, among all the various problems confronting them. In the current study, this was more pronounced in the developing country, where there was no defined structure and framework.

The findings of the current study also highlighted the importance of each participant being skilled in different areas of the business. This helps to reduce the burden of time constraints, and is also a cost saving strategy, while strengthening the workforce in terms of knowledge.

6.6 Transportation

Questions were asked in order to find out how mode of transportation affected the design and the types of packaging, and how transportation issues affected the sustainable efforts of the SMEs.

Movement of products within the supply chain cuts across both local and international routes, with goods being transported over both short and long distances. According to Business Link (2011), there are considerable constraints on the minimum requirements of packaging, because of the physical demands of transporting good from one place to another. The mode of transportation can create a trade-off among the elements of sustainable components in use (PWC, 2010).

One of the findings of the research was that the destination of the product may specify packaging requirements, which, in turn, is determined by the mode of transportation. For example, it was noted, during the research, that most sustainable packaging requirements were determined by the organisation in the United Kingdom, because there is a more robust structure and framework established in the developed country.

One other finding was that inadequate and run down infrastructure, such as poor roads, affecting how well an organisation can embrace sustainable packaging, especially in a developing country. Most of the packaging required in the United Kingdom and other developed countries may not be able to withstand the rigours of the poor infrastructure in the developing country in which one of the organisations was situated. The road is full of pot holes, and so there is a trade-off between using more sustainable packaging, and the demands of a poor road network.

Whilst the use of several modes of transportation is needed in the transporting of goods, packaging must be designed to withstand all the rigours within the supply chain, including handling and transhipment (ITC, 2012). The choice of components has to consider this, and some components may not be as sustainable as expected.

The findings of the current research also confirmed that international shipping requirements and restrictions can affect the design of packaging. For example, there is a restriction on pallet size for shipping purposes, since a pallet may not exceed 2.05 metres in height, to allow for truck and warehouse operations (ITC, 2012).

In addition to the above, it was found that some products needed special care when being transported, entailing special packaging, and some preservatives might be required, to prolong their life during the journey. An example is the transportation of yam produce, which is processed into chips; it needs a certain temperature, or else all of the consignment will go bad. The application of some preservatives may not be sustainable.

6.7 Support for Sustainability Concept

It should be noted that, most of the time, it is difficult to distinguish between the management and ownership of SMEs. This means that ownership and management are identical (Schaper, 2002). This was seen in the structure of the three case study organisations featured in this research. All of them were founded and directed by their owner, supported by a sizeable staff.

As a result of this, the attitudes, beliefs and religion of the owner may have a large influence on a given organisation, and on the direction the organisation takes (Yu and Bell, 2007). According to the findings of the current research, the owners drove the concept of sustainable packaging, leading the journey of their organisation. Some of the managers claimed that some projects had been stopped, in the past, because of a lack of support from the organisation's owner, and most of the participants confirmed this.

Various studies have highlighted a lack of consumer support for sustainable packaging, because of the unfamiliarity of the concept (Young, 2008). This is changing and there has been an increase in consumers' awareness of sustainable packaging, and this continues to grow, although it is still in its initial stages (Selke and Nordin, 2010). Evidently, in FMCG, there is an increasing use of packaging to appraise the quality of products and its brands (Orth and Malkewitz, 2008; Magnier and Schoormans, 2015). In fact, according to the European Commission (2014), approximately 96% of repondents agree that organisations should put more effort into recycling and waste reduction.

The findings of the current research suggest that consumers are becoming increasingly aware of what sustainable packaging is, and this even affects their decisions on products, which places a demand for better packaging for performance and convenience. This has an impact on cost, which eventually SMEs try to avoid.

Participants in this study also pointed out that there are some guidelines limitation that hinder sustainable packaging. They pointed out that the guidelines not only will rank up cost but hinders other research initiatives as it limit what dimension a package mould can be.

Lastly, the findings highlighted the inadequacies of the government and its agencies, especially in the developing country. The government's relationship with SMEs may vary from region to region (Loucks et al., 2010). The role of MNEs as lobbyists, which influences government decisions, was mentioned, and most participants highlighted the lack of knowledge and corruption on the part of officials. This is more common in developing countries where there is little or no structure, compared with developed countries, where there is structure and better training facilities for the government and its agencies.

Embracing new practices was noted to be a problem, which supported the findings of Alkidir and Zailani (2009), who found that government agencies do not like change. There are also no known government incentives for SMEs to boost sustainable packaging, which is in line with the findings of Massoud et al. (2009).

Whilst the above barriers have been reported before in the literature, the following barriers emanated specifically from this research.

6.8 Corruption

According to Rabl and Kuhlmann (2009), corruption is defined as queer conduct that reveals itself in an exploitation of a function in order to gain an advantage. Corruption has been studied widely across many areas and organisations by researchers (Arnold et al., 2012). Whilst there have been a few studies on corruption concerning SMEs, there have been no studies of corruption concerning SMEs in the context of sustainable packaging.

Corruption was identified as a major barrier by most of the participants. They believed that corruption hindered sustainable packaging in many ways, and stressed that this was not limited to the government, but included stakeholders. According to the World Bank Institute (2004), the cost of corruption and its activities is equivalent to 3% of the worlds' total GDP.

The findings confirmed that majority of the participants saw this as one of the major problems hindering SMEs on their sustainable journey. They believed that there was corruption at every level of society, and so it affected the allocation of resources. Most resources for SMEs are not available for them to tap into easily. One of the participants gave

an example of an agreement that was made for a certain packaging policy to be followed and coordinated, to support a packaging system in the country for SMEs, but nothing was done, in spite of there being a budget for this allocated by the government and other stakeholders. Evidence was provided of various sustainable packaging projects, scheduled more than three years ago, but none had started, despite funds being included in the local budget. NAFDAC, an organisation that controls content and packaging certification in a developing countries, confirmed its staff's involvement in corruption at all levels (Premium Times, 2013).

Whilst the issue is common to SMEs in developing countries like Nigeria, it is also applicable to developed countries like the UK and the USA. According to UNIDO (2007), corruption was recognised as a hindrance to business growth, and was more harmful to SMEs. This is why UNIDO joined forces with UNODC, to be at the forefront of fighting this "monster" with tools at their disposal. It is important to direct appropriate and adequate resources to fight corruption, if sustainable packaging is to continue to grow, especially among SMEs.

Lastly, the leaders of countries have a role to play in releasing resources, appointing the right personnel to deal with appropriate issues, avoiding favouritism in terms of the recruitment of officials who understand the issues at hand, formulating appropriate strategies to drive sustainable packaging and structuring and modifying various frameworks to support SMEs in their sustainable packaging development.

6.9 Culture

Hofstede (2001 p.10) defined culture as:

"…the collective programming of mind that distinguishes the members of one group or category of people from another."

Previous research has confirmed that, when it comes to food, there are cultural differences within regions (Azar, 2011), which implies that there are differences in food consumption in different regions. For example, the culture in the UK is different from the culture in the African region, in terms of different food consumption activities, although some similarities were noted during the course of this study; this may be because the world is becoming a global village and there is cultural interaction which encourages acceptance and tolerance. Even within the European Union, there is a diversity of tastes and preferences which has been brought about as a result of the disparate culture (Hofstede, 2010).

Participants of the current research recognised culture as being a barrier to SMEs' efforts in embracing sustainable packaging. The culture of a region may specify that certain components are not allowed to be used in packaging, In which case an organisation has to acknowledge the cultural influence as a priority. This is even more pronounced when the organisation is an SME, which may not have the resources to embark on research into materials that may be acceptable.

In the developing world, in particular, there is the need for a cultural re-orientation to accommodate the 21st Century living, to be in alignment with the rest of the world. According to the WPO (2015), there is need for the public to be educated on the importance of sustainable packaging. This may influence the culture of the society.

In addition, it was noted that the commitment of leaders in the developing country was not strong enough to support the sustainable packaging agenda, and so a change of culture and attitude is called for. It is also important to be inclusive when taking decisions. Most policies in developing countries are taken by leaders without due consultation with everyone involved. Therefore, where a leader is not interested in a project, the project is defeated, and may not take off as far as SMEs are concerned. While this is more pronounced among SMEs, the issue of culture may also affect MNEs, but in a different way.

6.10 System

Findings from this study show that the whole system needs an overhaul, so that it includes SMEs. Clearly, SMEs were not considered when the system was initially designed, and so there is a need for change, to take account of major changes in society. The system also needs to be overhauled to include the dynamism of the 21st Century. The current system was designed with emphasis on MNEs only (Quinn, 1997; Revel, Stokes and Chen, 2010). It is therefore important to include SMEs in the continuum, as mentioned in Section 1.1. Worldwide, 90% of businesses provide 50 - 60% of employment (Jenkins, 2006). It is evident from the responses of the participants from the three case study organisations that SMEs are left out of many sustainable development programmes.

Whilst the system needs to include SMEs, it also needs to be restructured, to accommodate the dynamic nature of the environment, as the old system cannot sustain changes now and in the future. According to Koe et al. (2015), it is important to develop sustainable capabilities and sustainable entrepreneurial methods to support SMEs, which are mostly entrepreneurs.

Much has changed since the Prime Minister of Norway first defined sustainability, in 1987, the contribution made by Elkington in 1998, the contribution made by Missimer et al. in 2010 and the definition of sustainability as compared to the concept of "lean and agile" in 2011.

In the context of sustainable packaging, there have been many developments, and there continue to be. There also continue to emerge better ways of doing things and various sustainable components to support development are also appearing, and so the system needs to be redesigned to accommodate these changes (see Appendix 1, which shows how packaging has evolved over the years).

It has been estimated that the total population of the world will have reached a staggering 9 billion by 2050, which means that more food will be needed to satisfy the increasing population (Russell, 2013). In the light of this, the system needs to be designed to not only produce more food, but do so sustainably, and sustainable packaging is part of the reduction of food waste.

The system needs to be able to accommodate the exceptional nature of SMEs. According to Hilary (2004), their complex and special nature needs to be recognised and needs special analysis. Understanding this special nature will help the system in providing adequately for their needs, and in supporting them, as needed. It will also allay the fears they face as an organisation.

In addition, the system and its array of representatives need to recognise and include consumers' perception and understanding, and also to recognise sustainable packaging as a unified entity when making judgments and decisions (Lindh et al., 2016). According to Zeng et al. (2010), business networks among SMEs create a better avenue to improve their innovative proficiency. The system should create various avenue to support this development. This means that the people at the helm of affairs should create an environment to enable this to happen, and make policies to support this cause.

Lastly, the system needs to re-evaluate and redefine sustainable packaging, to be in alignment, and to keep up, with various recent innovations. Failure to do so will mean that opportunities to enhance the sustainable packaging journey, in today's dynamic world, could be missed.

6.11 Chapter Summary

This Chapter has provided an in-depth analysis of the research findings in relation to the empirical data generated from the interviews, with linkages made to the literature in an attempt to answer the research questions. In order to throw more light on the barriers identified, the next chapter will attempt to examine the relationships between these barriers, which will be an additional contribution to knowledge and a source of information for various stakeholders.

Chapter 7. Relationships Between Barriers - Analysis

This section considers whether there were any relationships between the barriers identified, with the existence of one barrier having an effect on another. This also contributes to the existing body of knowledge, as this has not been investigated before. This will assist policy makers and SMEs, in particular, in better understanding the issues around the barriers to sustainable packaging.

It can be concluded that all of the barriers, according to the findings of the current study, were related to others in one way or another. However, some relationships were stronger than others, and so the analysis will focus on the barriers with the strongest relationships.

Whilst analysing data has been described as being a laborious and difficult undertaking (Basit, 2003), it is an important and significant step in research. The establishment of relationships was made possible by the use of NVivo software, which helps in the abstraction and categorisation of data, and in understanding relationships in the data. The use of software like NVivo for qualitative data analysis has been supported by many gurus in the field: (Morse and Richards, 2002; Patton, 2002). The use of pattern matching methods, as discussed in Chapter 3, also made the establishment of relationships possible (see Appendix 7).

One important observation deduced from this analysis was the importance of cost as a barrier; it was observed to be at the centre of everything, with nearly 85% of interviewees seeing cost as one of the major barriers. Cost also had a relationship, in one way or another, with the other barriers. Whilst a relationship might not have been pronounced in relation to every barrier, it was certainly strong in relation to those discussed below.

7.1 Cost, Finance, Time, Inadequate Information and Awareness

There were close relationships between cost, finance and time. As discussed in Section 5.4.1, cost is one of the major barriers, as empirical studies have confirmed (Revell et al., 2009; White and Lomas, 2011; Lawrence et al., 2006). Most organisations, including SMEs, would prefer to reduce cost in order to improve their margins (PWC, 2010). Improving margins would make available resources to be ploughed back into the business, which reduces the additional funding that is needed to be sourced externally.

Finance is needed to fund most sustainable packaging projects, and there is empirical evidence to prove that better access to finance can lead to higher productivity (Butler and Cornaggia, 2011). However, reducing costs in order to save on the amount of finance that is required enables SMEs to avoid providing the collateral or personal guarantees that are being requested by the finance houses. Some participants highlighted this in their response. In addition, where SMEs have initial cash available and an increased margin, they are in a better position to negotiate a favourable interest rate (CIMA, 2015). Recent years have also seen various governments introduce many vital policies to support the inflow of funds to SMEs. One of them is the Enterprise Finance Guarantee, which was set up to address the issue of market failure due to a lack of collateral guarantee required by the banks. It did this by guaranteeing up to 75% of the loan, in case of default. Another example is Enterprise Capital Funds, which provided Venture Capital Funds for SMEs up to 2 million pounds (BIS, 2012).

Participants also suggested that inadequate information on available grants for sustainable packaging projects can have an effect on cost. Applying for available grants and learning better ways of combining components in this context can reduce costs drastically, leaving a good margin and reducing the finance needed on a project. Various initiatives have been put forward by UNEP FI, an arm of the World Bank, and organisations such as Rainforest Alliance, as mentioned in Section 5.4.3. All three CEOs of the case study organisations attested to the fact that lack of information on available grants, both domestically and internationally, was hampering their efforts to tap into funding that might reduce their business costs, especially the cost of capital. This was supported by Parker et al. (2009).

Time has also been identified, in much of the literature, as being a barrier to sustainable projects, (e.g. Fassin, 2008), and this has also been a finding of the current study. There is a saying, “Time is money”, which means that time has a value. The opportunity cost of the time used in one project is a cost to another (Dorman, 2014). This means that the time used in pursuing sustainable packaging projects is time not used for the daily running of the business. According to the Government of Canada (2013), some SMEs consider any time spent on regulatory compliance to be too much, as it affect the time they spend on their business, although others perceive it as a benefit to society as a whole in the long run.

7.2 System, Corruption, Cost and Culture

Whilst society and the organisations that operate within it continue to be guided by a set of rules within the set framework, which is in turn governed by the rule of law, there is a need for continual modification of the system to accommodate the changes of the modern world. Most of the system designed to support sustainable packaging has been in existence for a very long time, and it was not designed to support SMEs; it was mostly designed to support MNEs (NBS, 2012).

The increase in the activities of SMEs calls for a rethink. One of the barriers mentioned Section 5.4.8 is "System". The System is too old and outdated, and not fit for purpose in this century. Participants highlighted the complicated and complex nature of doing business in the 21st century, coupled with the associated challenges. Therefore, they emphasised the need for organisations, government and policy makers to rise to the challenge, and provide a concrete platform for dealing with these challenges.

As a result of the above, the inadequacies of the system create a platform for corruption at various levels. There is corruption among officials and policy makers, which then results in the misallocation of resources, which comes at a cost to businesses. Political favouritism also emerged as a finding, with officials making decisions to reward political loyalty. There was also evidence of the problem of leaders not understanding what drives the agenda, or how to apply various modern tools that were available.

According to UNODC (2012), corruption provides a major blockage to the development of economic and social growth in the economy. It dampens and cripples the democratic political system and may also result in the inefficient allocation of resources. With 64% of organisations in Africa, which is a developing continent, seeing corruption as a major hindrance to the growth of their business (Batra et al., 2004), it is regarded as a major road block to SMEs' growth, and the huge cost of corruption, in terms of time and money, is difficult to maintain (UNODC, 2012).

The current study found corruption to be a barrier, especially in the developing country, although participants claimed that the developed country was not exempt from this, with the system being identified as being part of the reason for this. Much sustainable packaging policy needs to be revisited, in order to accommodate all participants within the system,

without leaving any behind. One of the participants saw corruption as being part of the culture in some parts of the developing country, as it was embedded into the system. This was corroborated by (Robinson, 1998).

7.3 Culture, Support for Sustainability Projects and System

Culture, is defined by Dictionary.com as:

"the behaviour and belief characteristics of a particular social, ethnic, or age group"

"the sum total of ways of living built up by a group of human beings and transmitted from one generation to another".

In the context of sustainable packaging, culture, according to the findings, played a significant role in the acceptance of a sustainable project. As mentioned in chapter 5, culture plays a role in the acceptance of packaging materials. It also influences the way that some managers make their decisions (Hofstede, 2001). Therefore, it can be a major barrier to sustainable packaging.

Support for sustainable projects might also be affected, maybe negatively. For example, if certain components, or very good sustainable packaging tools, were introduced, but not in alignment with the local culture, then it is unlikely that the project will succeed. In some parts of Africa, the use of paper for serving food is forbidden. Therefore, while paper products have all the advantages of being sustainable packaging components, they cannot be used in certain regions. According to (Yu and Bell, 2007), belief and attitude, which are both part of culture, can have a major influence on the decisions of a manager of an SME.

It was also deduced from the findings that the system in place in a region is affected by the culture of the people there. If the culture is not friendly towards sustainable activities, then this will affect the system and the policies in place.

7.4 Cost, Regulation and Lack of Information and Awareness

Cost continues to be a major barrier for SMEs engaging in sustainable packaging, on top of the other barriers for SMEs (Lawrence et al., 2006). The relationships between cost and other barriers, such as finance and time, have already been discussed. The findings of this study also highlighted the relationship between cost and regulations. It was pointed out that, while

some of the regulations were voluntary, they were always too cumbersome to implement. The time spent on complying with regulations was seen as a cost to SMEs.

In addition, applying the same regulations to both MNEs and SMEs was also called into question. Whilst the former are usually large, with substantial resources at their disposal, and are usually visible, SMEs are usually small, with limited resources at their disposal. They represent a diverse collection of organisations (Hilary, 2004). It is important to consider this when formulating packaging regulations, as to fail to do so may leave them wasting limited resources on activities that may not be necessary or productive for their business.

One major issue came to light, in the study, as a result of the supply chain cutting across two regions, since the non-alignment of regulations could result in higher costs of doing business (Tyssen et al., 2011), especially in terms of regulation compliance. The existence of regulations in different regions, being part of a different framework and having different procedures, and not being in alignment with one another, poses major problems. This results in organisations in the developing country having to comply with the local regulations of the goods' destination, as well as international regulations. This can result in a waste of resources, and increase cost drastically.

It is therefore important for regulators on both sides to work together and find common ground. While this will reduce cost, it will also increase the operational efficiency of the supply chain. The issue of lack of information and awareness of applicable regulations also arose. Because some of the SMEs had no information on applicable regulations, some ended up "fire fighting", which may be costly.

7.5 Cost, Transportation and Corruption

Transportation has been discussed in Section 5.4.6 as being one of the barriers hindering sustainable packaging. International shipping requirements specify certain procedures and configurations regarding packaging, and this can be overwhelmingly costly and can reduce margins considerably. The physical demands of transportation put pressure on the sustainable packaging (Business Link, 2011), and it can be a major challenge for local SMEs to comply with both the requirements specified at the destination of the product, and the shipping companies' requirements.

It was revealed, in the study, that, in the developing country, the issue of corruption had contributed significantly to the non-maintenance of infrastructure, resulting in poor roads, interrupted power supply, etc., so it is important for products to be reinforced when being transported on the road network. This leads some organisations to use unsustainable materials to protect the goods from damage. This increases cost, as more materials are being used in safeguarding the products during transportation.

The issue of corruption has been discussed in Section 5.4.2, and it is noteworthy that corruption is particularly costly for SMEs (UNIDO, 2007). Every activity related to corruption has a cost attached to it, which increases the cost of doing business. Corruption also encourages gaps in regulation, which means different regulations affect different organisations. This was understood to be a cost for SMEs.

It is important for policy makers to design a robust system to ward off corruption. Leaders also have much work to do in piloting the sustainability journey in the right direction, carrying along all stakeholders. Not leaving anyone behind will encourage a smooth-running supply chain.

7.6 Chapter Summary

This chapter has examined the relationship that exists between the various barriers to sustainable packaging. Recognising these relationships will shed more light on various approaches that the various stakeholders may take in dealing with these barriers. It has also been noted that cost, as a barrier, is important in relation to the other barriers that exist in relation to sustainable packaging, according to the findings of this study (see Appendix 7**)**. Cost is at the heart of it all.

Chapter 8. Conclusion

8.1 Introduction

In this study, the phenomenon of sustainable packaging in an international food supply chain network involving three SMEs has been investigated, in order to achieve the aim of the study, which has been to identify and examine the barriers and enablers to sustainable packaging for these SMEs.

In the final chapter of this thesis, conclusions are presented, and the aims and objectives of the research, and the research questions, are examined. The limitations of the study are discussed, and recommendations for future study suggested.

8.2 Achieving the Research Objectives

The research aim has been to investigate the barriers to, and enablers for, sustainable packaging in an international food supply chain network involving three SMEs.

The first objective was to review and explore the barriers reported in the pertinent academic literature. The literature review included an examination of the differences between SMEs and MNEs, and focused on the barriers faced by SMEs in the context of sustainable packaging. It should be noted that much research has featured MNEs, but not SMEs. It is also worth emphasising that not much research has been conducted on sustainable packaging in the context of SMEs, with little having been done in the context of SMEs in the same supply chain which encompasses two regions.

The second objective was to critically examine the argument for sustainable packaging development in the supply chain of the three SMEs. This was carried out through semi-structured interviews at the case study organisations, both in the United Kingdom and Nigeria. Other methods used included direct observation and the examination of documentation, which allowed triangulation of data from various sources.

The third objective was to investigate what sustainable packaging meant to each organisation in the aforementioned supply chain. This was carried out as part of the semi-structured interview process.

The fourth objective was to explore the interactions between the three SMEs, in order to understand in depth how and why they affect the overall sustainability effort. Data were gathered during the course of visiting the organisations. It was also possible to observe how the organisations related to one another, how they managed their relationships and how individual actions affected others.

8.3 Responding to the Research Questions

The research questions, as listed in Chapter 1, were:

(a)What are the barriers to sustainable packaging in SMEs?
(b)How do these barriers affect sustainable packaging development?
(c)Why do barriers exist in the context of SMEs?

The following barriers were identified in the course of this study:

SMEs avoid cost because of limited resources
SMEs avoid cost where a short-term return is not visible
Matching competitors' prices in the market necessitates cost control
Continual demand for lower prices by customers is putting pressure on cost containment
The economic climate is putting a lot of pressure on cost containment
Corruption is rampant among officials
MNEs are always favoured over SMEs
Favouritism based on political support is affecting policy formulation
Current system design is corrupted
Requests for collateral and personal guarantees before funding is granted is a big issue for SMEs
Rates of interest are always high, especially in a new area such as sustainable packaging
There is inadequate information and direction on available financial incentives and grants for sustainable packaging projects
SMEs lack financial power, compared with MNEs
The effect of the global financial meltdown has prompted financial institutions to be cautious in lending for sustainable packaging projects
Leaders may not be following the right direction

Regional differences and understanding of the sustainable packaging concept

Restrictions on some materials in some regions

The gap between the public and private sectors, inhibiting research

Lack of readily available information on the concept

Lack of training in government agencies

Most owners and managers lack adequate knowledge about the concept of sustainable packaging

SMEs are ignorant of their effect on society

Inadequate support from NGOs and government agencies

Inadequate and run-down infrastructure, entailing additional costs

Specific requirements for the definition of products

International shipping requirements and restrictions can affect the design of packaging

Some products need special care

Specific regulations need to be tailored towards SMEs

Non-streamlining of regulations across regions

Voluntary regulation is not enough

Understanding the special nature of SMEs will help in formulating appropriate regulation

Continuous education and training of SMEs on the concept of sustainable packaging is lacking

The system is designed to favour MNEs

The system is too old, and needs a general overhaul

Available tools are not designed for SMEs

Inadequacies of government agencies and its representatives

Effects of belief and customs on policy and policy directions

Inadequate reward for time sacrificed to pursue sustainable projects

SMEs do not see sustainable packaging as a pressing issue

Owners' and managers' education, beliefs and background determine how well sustainable packaging is embraced

Consumers' knowledge and continual demand for performance, convenience and low prices

Industry sector's limitations

It should be noted that, whilst there had been generic barriers identified in the literature, there were other barriers identified that were unique to this study.

This research has empirically investigated the influencing factors for sustainable packaging in a multinational SME supply chain. Whilst various barriers listed above are in agreement with the literature, three main barriers emerged from the study, (as fully discussed in the discussion chapter):

Corruption - This has been identified among the various stakeholders in the allocation of resources to enhance and support sustainable packaging efforts. It is also important to note that this is not limited to developing countries, but to developed countries, as well.

Culture - Cultural diversity emerged as a major barrier in streamlining sustainable packaging policies, as different communities are attached to their beliefs and traditions; these hinder development of the sustainable efforts of the SMEs, as they are rooted in these communities.

System - Findings from this study have shown that the current system was only designed with MNEs in mind, which does not support the sustainable efforts of SMEs. The system needs a strategic overhaul, to include SMEs.

Barriers exit in this context because of the unique nature of SMEs, and also because the study was carried out in two different regions, with some barriers being unique to the regions.

8.4 Contribution to Knowledge and Originality

The study contributes to the existing body of knowledge by investigating sustainable packaging in the context of SMEs in a closed loop supply chain that covers two different regions. This is the first study of barriers and enablers in relation to sustainable packaging in SMEs in the context of developed and developing countries combined. The study has also examined the relationships between the barriers, and this is the first study to do this. Understanding the relationships that exist, whilst educating and helping SMEs in the management of their business, will also highlight to policy makers and stakeholders, the magnitude of the issues that SMEs face, and so sharpen or horne their policy formulation strategies.

According to Thiagaragan et al. (2001), conducting research outside the developed world, as this study has done, is a significant contribution to knowledge. It should be noted that little

research has been undertaken in the developing region specified, especially regarding the type of organisation.

The research also highlights the advantages and challenges for this type of organisation within a supply chain that cuts across two regions, in the context of sustainable packaging.

Three newly discovered barriers emerged during the course of this study, as discussed in Chapter 5. These barriers had not been mentioned in relation to sustainable packaging in any previous study involving SMEs. They are very important and significant to this study because all three barriers are related in one way or another in the context of SMEs' sustainable packaging activities, and, for better results to be obtained; they will need to be dealt with together. This is even more pronounced in the developing world, because of the non-availability of a good sustainable packaging structure and framework.

Table 21 shows the findings identified from various literary sources, and additional barriers found in the empirical study.

Table 21. Barriers to sustainable packaging, including additional barriers emerging from the study.

S.N	References Details	Barriers	Comment
1	Revell et al., 2009; Taylor et al., 2003; Hervani and Helms, 2005; Briscoe et al., 2005; Gaukler et al., 2007; Nwakwo 2000; Hillary, 2004; White and Lomax, 2010; White and Lomax, 2011	Cost	
2	Vasilenko et al., 2011 ; Ageron et al., 2011; Natarajan and Wyrick, 2011; OECD, 2010; Okpara and Wynn, 2007; Aremu and Adeyemi, 2011; Hassanien and Aldy, 2008; White and Lomax, 2011; Business Link, 2011; White et al., 2011	Financial	
3	Hilton, 2000; Carter and Dresner, 2001; Defra, 2006	Training and commitment issue	
4	Orsato, 2006; Revell et al., 2009; Jenkins, 2006; Selke and Nordin, 2010	Customers' demand for performance and convenience, and price sensitivity	
5	Porter and van de Linde, 1995; Masurel, 2007; Environment Agency, 2011; Gerstensfield and Roberts,2000; White and Lomax,2011	Regulations	
6	Taylor et al., 2003; Revell and Blackburn, 2007; Revell et al., 2009; Hilton, 2000; Vasilenko et al., 2011; Selke and Nordin, 2010; Defra, 2006; Lee, 2008; Parker et al., 2009	Lack of information and awareness	
7	Zhu and Sarkis, 2006	Industry-specific barriers	
8	Zhu and Sarkis, 2007; Sarkis, 2009; Whalley, 2000; Greer and Bruno, 1996; Parker et al., 2009; Vives, 2005	Management buy-in / commitment	
9	Revell et al., 2011; Jenkins, 2006; Lee, 2008; NBS, 2012; Fassin, 2008; UNEP, 2003; Hilton, 2000	Lack of time	
10	Yu and Bell, 2007; Parker et al., 2009; Rutherfoord et al., 2000	Size	
11	Simpson et al., 2004; Burke and Gaughran, 2007	Lack of external support	
12	Schaper, 2002; Netregs Benchmarking Survey, 2002; Netregs SME-nvironment Survey, 2009; Hillary, 2000; Holland and Gibson, 1997	SMEs are ignorant of their own environmental impact	

13	Sellahewa et al., 2011	Lack of funds for research and development	
14	PWC, 2010; White et al., 2011; ITC, 2012; Business Link, 2011	Transportation and supply chain conditions-	
15	Study	Corruption	
16	Study	Culture	
17	Study	System	

8.5 Limitations

Generally, every research study has limitations which are placed on the researcher (Yin, 2003). This study is no exception.

The limitations of this research were as follows:

*The heterogeneous nature of SMEs made it difficult to include others within the definition of Small Medium Enterprises (SME) but are much more smaller and operate in other forms as compared with the case study organisations in this research that are better organised and in the same supply chain. This is more pronounced in developing countries, where there are many micro organisations and are segmented.

*There were issues with language, slang expressions and gestures, as these vary between regions, meaning different things in different places.
There was evidence of cultural barriers in the developing country, during the interviews, in terms of participants being careful about what was said about the boss, even when it was glaringly obvious that the boss was not on the right path.

*Documents within the case study organisations were restricted, and so it was not possible to make copies of them, the researcher only being allowed to review them on the organisation's premises.

8.6 Research Recommendations

Based on the findings of this research, and in view of the linitations mentioned above, a number of recommendations have been suggested for further research.

Academic recommendations:

- More research is needed on SMEs that have fewer employees than the organisations in this study. This is important because of the heterogeneous nature of this type of organisation, in particular in relation to sustainable packaging.
- Research is needed to focus specifically on various types of corruption prevention strategies, to strengthen the sustainable packaging efforts of this type of organisation.
- Additional research is needed, to replicate this study in other regions of developing and developed countries.

Practice recommendations:

- Policy makers need to recognise the importance of SMEs, and see them as major stakeholders, like MNEs, in their legislative processes.
- More resources need to be devoted to supporting SMEs in their sustainable packaging efforts.
- In addition, resources should be made available to train more government representatives in the concept of sustainable packaging. This will enable them to perform better in their duties.

The modern world offers many opportunities, and innovations continue to help people to find a better, more economical and more sustainable way of living, considering the limited resources that are available, both now and for future generations. Sustainable packaging has been in the news, lately, and various stakeholders continue to see its advantages.

Whilst there are numerous opportunities, there are also challenges, and these include the barriers that have been investigated in this study. In particular, investigating the various challenges in the context of SMEs' sustainable packaging should be encouraged more, because of their importance as an engine of growth, as mentioned earlier, and also because emphasis has always been on MNEs.

Packaging is an essential part of our daily life, and continues to play a significant role in every industry, sector and region. While it has the traditional role of protecting the product, it has assumed a greater role in modern times, namely in communicating vital information to stakeholders, including, most importantly, consumers. Packaging also provides a platform for various technological innovations and advancements, and is an essential component of a fluid supply chain. It is therefore essential to continue to find ways of improvement, to make packaging more sustainable in every aspect. While this study has focused on SMEs, there

continue to be calls for more research on them, although studies of MNEs should not cease, for both types of organisation are related and connected within various supply chains.

This particular study has highlighted various areas of interest that may be targeted and recommended for future research. In addition to both academic and practice recommendations listed above, research in the area of sustainable packaging in the context SMEs, efforts should be directed to the following areas, in future:

(a)Future studies could be replicated in a sector other than the food sector. SMEs are scattered throughout many sectors and industries.

(b)Future studies may be directed at SMEs that do not belong to the same supply chain.

(c)Research in the future may explore new types of organisation that are not classified as SMEs.

(d)Future research may focus on consumers as a driver of the sustainable packaging innovation, and on the direct effects of consumption.

8.7 Last Word

As a final word on this study, the researcher is of the opinion that the total experience has been overwhelming and educating. The study has highlighted the unique nature of SMEs in the area of sustainable packaging, most importantly the barriers they face in this context. It has also highlighted how their unique nature can be an advantage over MNEs in this important journey. The platform created by eCommerce has changed the landscape in the business world and the way in which transactions take place, and the significant role that packaging has played in the supply chain has made packaging an indispensable component of satisfying the wants of the consumer. Since 90% of businesses in the world are SMEs, it can be legitimately argued that their role in the area of sustainable packaging should receive greater attention.

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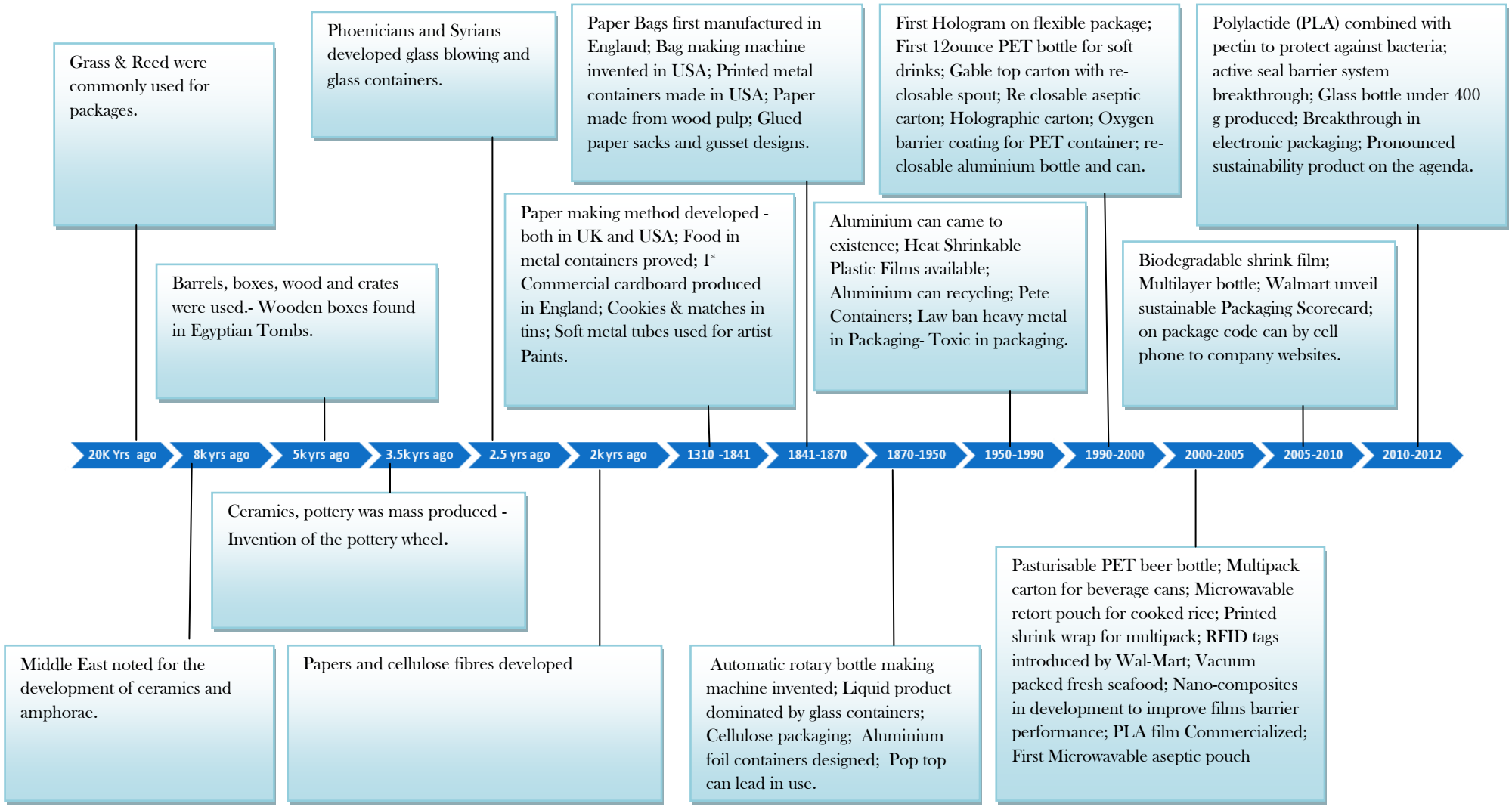
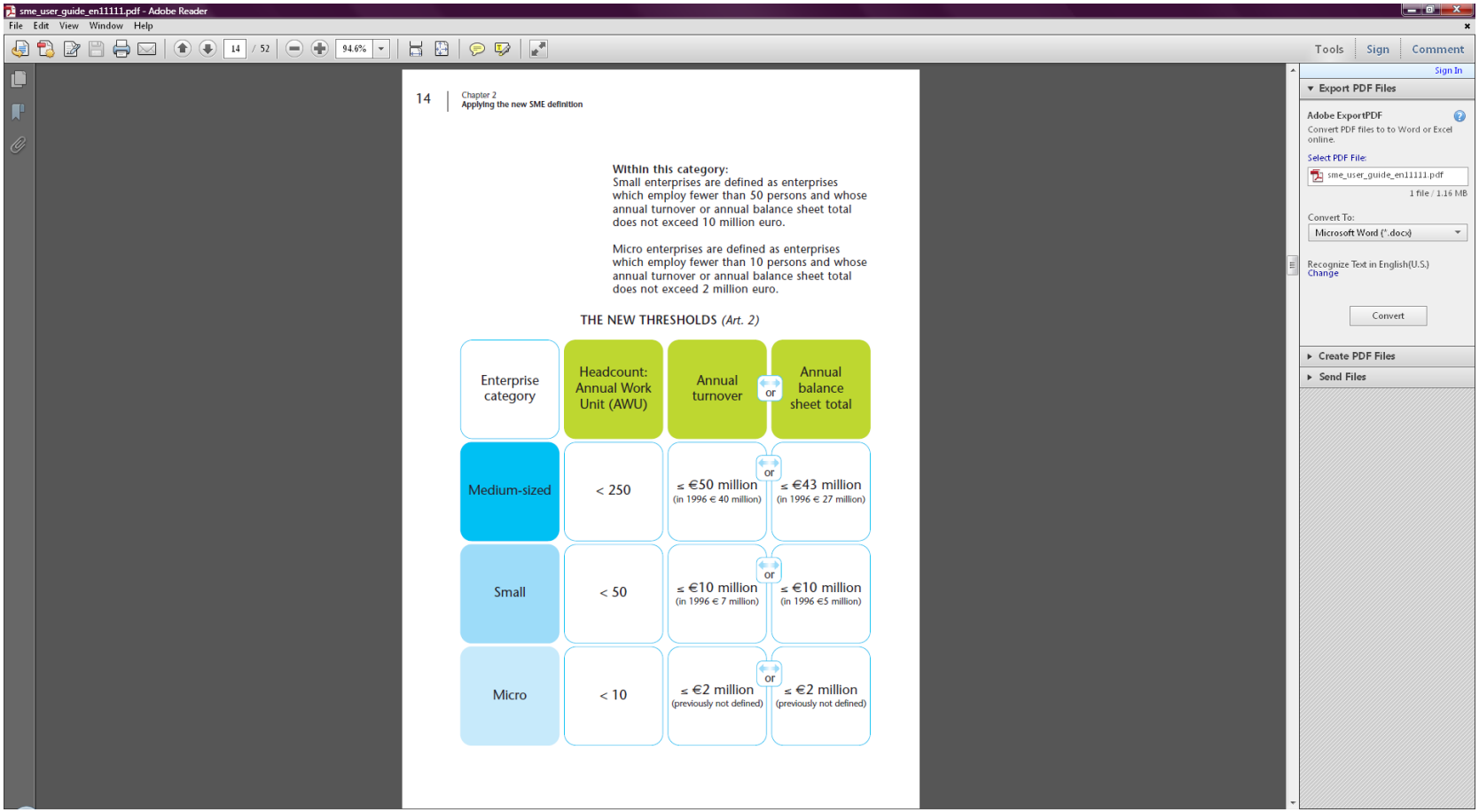
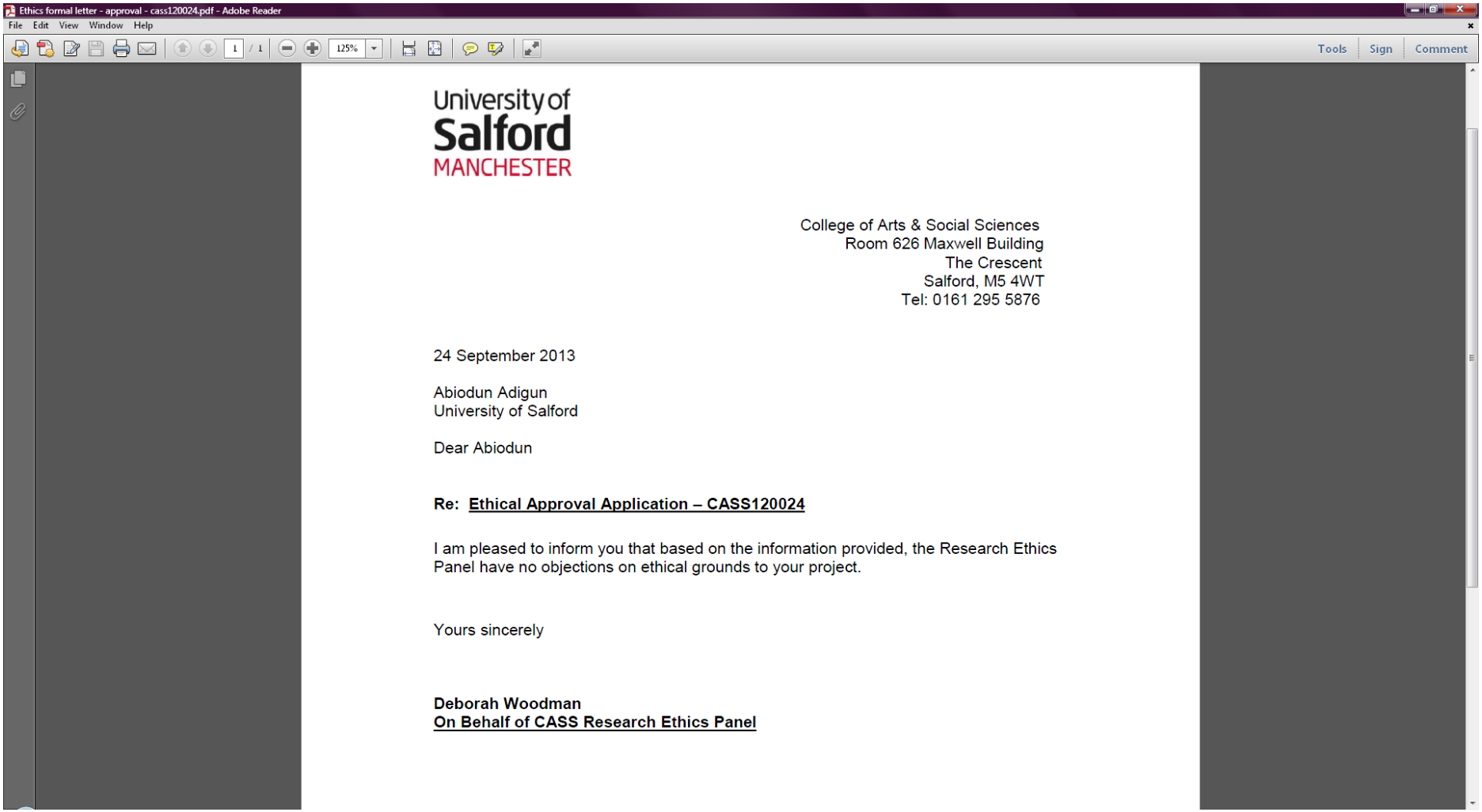
Appendix 1 - Packaging Timeline, (Researcher)



Appendix 2 - SME Definition



Appendix 3 - Ethical Approval Letter



Ethics formal letter - approval - cass120024.pdf - Adobe Reader

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University of Salford MANCHESTER

College of Arts & Social Sciences
Room 626 Maxwell Building
The Crescent
Salford, M5 4WT
Tel: 0161 295 5876

24 September 2013

Abiodun Adigun
University of Salford

Dear Abiodun

Re: Ethical Approval Application – CASS120024

I am pleased to inform you that based on the information provided, the Research Ethics Panel have no objections on ethical grounds to your project.

Yours sincerely

Deborah Woodman
On Behalf of CASS Research Ethics Panel

Appendix 4 - Interview Questions

Interview questions related to the barriers affecting sustainable packaging in SS chain of SME				
S.N	**References**	**Barriers available as per literature**	**Relevant interview questions related to the barriers**	
1	Revell et al. 2009 Taylor et al. 2003 Wycherley 1999 Hervani and Helms 2005 Williamson and Lynch-Wood 2001 Briscoe et al. 2005 Orsato 2006; Min and Galle 2001 Gaukler et al. 2007 Briscoe et al. 2004 Nwakwo 2000 Guilhon et al. 1998 Revel and Blackburn 2007	**Cost** - Smaller firms prefer to avoid costs especially if the return is not realised in the short run. This is more pressing and pronounced for SME with very limited available funds and resources. In addition, customers continually advocating lower prices will as a consequence leave no margin and thus limit a firm's ability to incur cost. The cost issue is also visible when looking at the activities of the MNE. It can be very costly for SME to embark on compliance with the regulations. The requirement may be enormous, requiring a substantial amount of resources as the firm needs to report on the composition and number of packages they use. It can be even more complex and exorbitant if SME is serving many geographical regions or countries with different compliance procedures and regulations.	• Is cost an issue when embarking on sustainable packaging projects and compliance with regulations? • Are there any other cost drivers you are aware of that are affecting your organisation, and how? Can you explain briefly why? Note: *Clarification will be sought to know if visible return on investment is a criterion, and if there are other cost elements. Question will also be asked to know why cost is a barrier in this case – is it related to cash flow problems or because the company is struggling in the present economic climate?*	
2	Vasilenko et al. 2011 Hilton 2000 Ageron et al. 2011 Yu and Bell 2007 Parker et al. 2009 Willard 2005 Pederson 2009 Sellahewa et al. 2011(research and development)	**Financial** - New tools used to undertake sustainability experience may involve initial outlay of funds, which in case of SME may be difficult to fund as limited funds are at their disposal and so prioritise issue as it occurs. Most SME find it difficult to access funds even from financial institutions, which is even more pronounced in developing countries. SME do not have financial power and necessary human resources to tackle issues, like MNE do. Financial resources	• How difficult is it to source finance for capital projects, and is initial outlay a problem, and why? Note: *More clarification will be needed, to know if rate of borrowing for SME is a factor and if there is any government assistance available to support their sustainability experience. Effect of finance on research and development effort will also be investigated- to know*	

		available to MNE give them opportunity to embark on various projects at the same time. It also gives them the opportunity to hire qualified personnel from outside the organisation. **Lack of funds for research and development** - the financial meltdown of the global world also contributed to this. The challenges in modern world necessitate continuous research which calls for more funds.	*if inadequate funds or finance is hampering the ability of SME to embark on research projects that can improve sustainable experience of the organisation. Other challenges related to their research effort, apart from finance, will also be explored. What percentage of their sustainable effort is devoted to research and development will be asked.*	
3	Orsato 2006 Revell et al. 2009 Jenkins 2006 Selke and Nordin 2010	**Customers' demand for performance and convenience, and price sensitivity** - The bottom line is to make product that is acceptable to the market and therefore drive consumer demand. There has been an increase in consumer knowledge about products, making them able to negotiate better in terms of what they want, and what they are willing to pay for it. Continuous desire for cheaper products with the same good performance is putting a lot of pressure on organisations' cost control.	• Do you believe consumers have enough knowledge on sustainable packaging to make an informed decision and is consumer demand a driver of your sustainable projects? Why? Note: *More clarification will be sought to also find out if consumer demand for lower prices affects the companies' sustainable effort? How? And why?*	
4	Porter and van de Linde 1995 Masurel 2007 Taylor 2003; Parker 2009 Revel and Blackburn 2007 Williamson and Lynch-Wood 2001; Schaper 2002	**Regulations -** Studies show that voluntary compliance is ineffective especially when it is the only strategy used. In this regard, most SME do not even understand or are unaware of the regulations. It has also been pointed out that because some of the approaches used in enacting this regulation - "one cap fit all" - it will be more appropriate for the authority to start seeing SME as a distinct entity from big organisations, needing a different dose of legislation. Also SME need a more effective regulation where compliance is forced or required. It has been argued that there should be separate regulations tailored to SME because of their unique nature. This should	• Is your organisation aware of regulations both local and international that state sustainable packaging compliance is required. If NO, why? Note: *More questions regarding whether regulation is voluntary or not especially in relation to packaging, and which ones are they complying with at the moment and why? Questions will also be asked as per whether the current legislation fits SME or not and why? Clarification will also be sought regarding relationship between domestic and international legislation and how their interplay affects the companies' sustainable packaging experience.*	

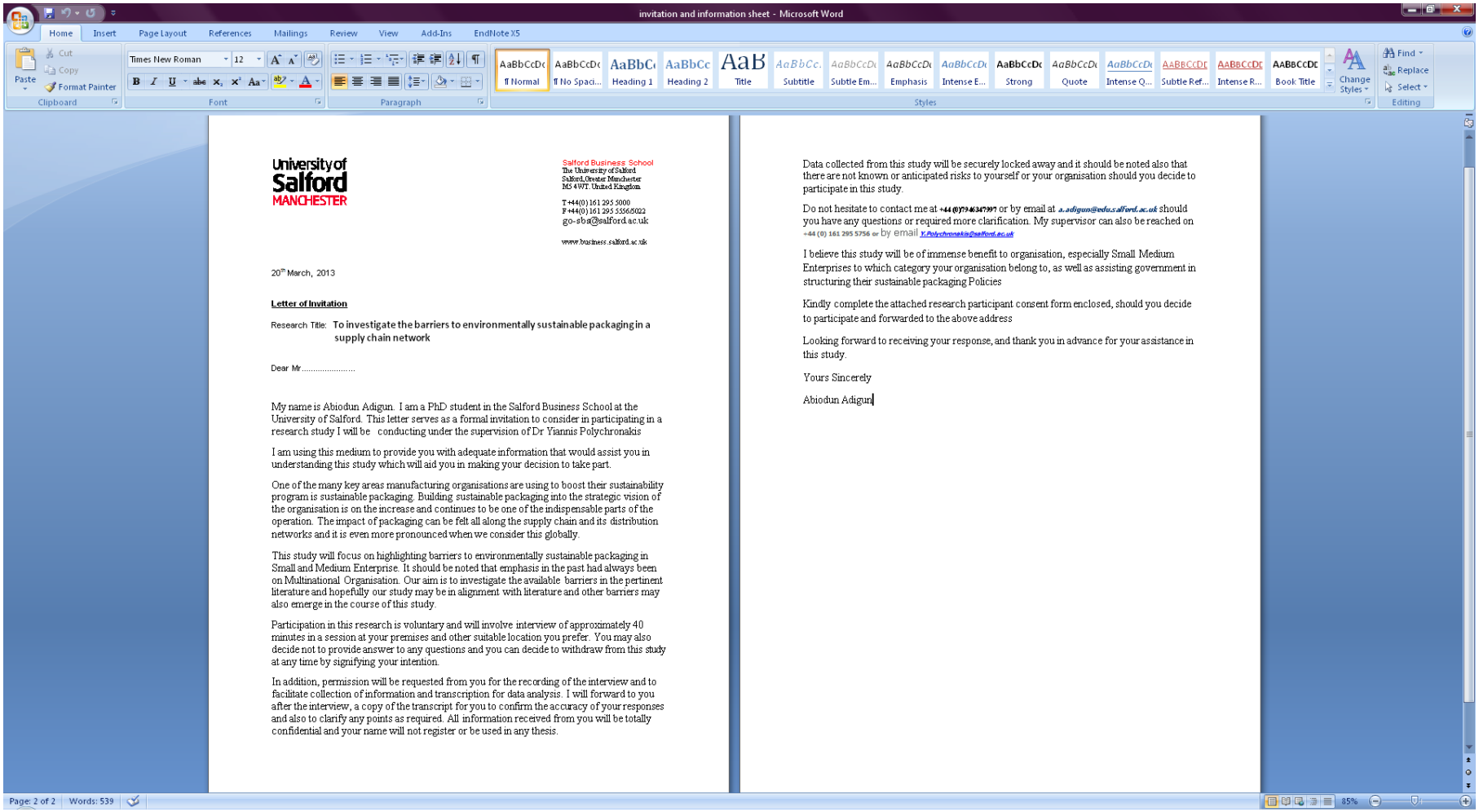
		be recognised as the current packaging regulation of imposing targets on companies including SME will not help SME.		
5	Taylor 2003 Revell and Blackburn 2007 Revell et al. 2009; Hilton 2000 Vasilenko et al. 2011 Selke and Nordin 2010 Rutherfoord et Al. 2000 Defra 2006 Lee 2008 Parker et al. 2009 Schaper 2002 Wooi and Zailani 2010 Zhu et al.; 2008; Hilton 2000 Carter and Dresner 2001 Defra 2006 Shen and Tam 2002 Chan and Li 2001	**Lack of information and awareness** – In one study conducted involving 220 SME, a third of the respondents actually pointed to lack of information on how to go about it. There is also lack of knowledge about legislation, best practices, interpretation and other available tools that may assist SME in understanding better the issues around sustainability. In comparison with MNE, they have the resources, both human and financial, to deploy and so have an edge in this area. They can also engage the services of external experts in order to achieve their goal. **Training and commitment issue** - Majority of SME are not aware of training, advice and support available to them.	• Does your organisation have enough information to make informed decisions that may help to achieve more in this sustainable journey? How? Please explain. Note: *Question as to what sorts of information is available to SME, what they do with it and how they process the information will be asked. Question regarding best practices and available tools supporting sustainable packaging will be asked. In addition, their awareness as per training needs and support available from government and other NGO in this respect will be explored.*	
6	Zhu and Sarkis 2007 Sarkis 2009 Whalley 2000 Greer and Bruno 1996 Parker et al. 2009 Vives 2005 Revell and Rutherford 2003 NBS 2012 Jenkins 2009 Revell and Blackburn 2007	**Management Buy-in / Commitment** - The owners / managers of the SME hold the key to many decisions and this may be determined by the vision of the owner / managers. The education, values, beliefs and educational background may have effect on the strategic direction of the firm. SME may be reluctant to change due to its management's understanding or views. This can be compared to the MNE where decisions are taken by the board of directors. While SME decisions may be based on finance, in case of MNE this may not be, although SME are known to be quick in embracing change.	• What is your understanding of sustainable packaging and how does this fit into the vision of your organisation? Note: *Questions regarding how decisions are made when embarking on sustainable projects will be asked and also regarding the level of knowledge the owner or the managers have and how current and how up to date the organisation is in this respect.*	
7	Revell et al. 2009 Jenkins 2006	**Lack of Time** - Most SME resources, including time, are limited. In this light, they prioritise and multi-task a lot. It	• Is time a constraint when embarking on new	

	Lee 2008 Revel and Blackburn 2007 Lawrence et al. 2006 Simpson et al. 2004 Hitchens et al. 2003	thus means that time is spent on pressing issues and some do not see environmental issue as a priority as far as running their business is concerned and many SME owners do not believe there is adequate reward from time and effort sacrificed.	projects relating to sustainable packaging? **Note:** *Reason why time is a constraints will be sought and how this is managed*	
8	Yu and Bell 2007 Parker et al. 2009 Rutherfoord et al. 2000. Drake et al. 2004 Baylis et al. 1998 Merritt 1998	**Size -** SMEs are usually very small in size though when combined together may have a very big impact but individually they have limited resources because of their size. This is a limiting factor in many ways. An example is the issue of banks not lending to SME in this present condition. One would say that their size plays a part in this when compared to MNE that has many ways of raising capital in the market. Therefore this lack of financial resources may be due to their small size hindering their ability to raise capital. **Nature of SME -** The special nature of SME compared to MNE needs to be taken into consideration. The incongruous nature of SME makes it difficult to apply just one model to fit both MNE and SME.	• Is size a barrier to getting necessary financial assistance needed to pursue sustainable projects and Why? e.g. raising capital. Note: *Discussion as per size of SME will be raised in this present economic condition. Question regarding size as a criterion when attracting investment funds and why size is a constraint in this regard. Questions regarding incongruous nature of SME will also be explored as it affects the companies' sustainable experience and how?*	
9	Simpson et al. 2004 Burke and Gaughran 2007 AlKhidir and Zailani 2009 Zhu and Sarkis 2006	**Lack of External Support** - Because of their nature, SME need specific support in order to embark on specific sustainable journey. **Industry Specific Barriers** - There are some barriers peculiar to some industries or sectors because of nature of that industry/sector. As an example, some organisations have been advocating re-usable and refillable packages but the health issue has been raised in this regard and it has been difficult to push through.	• What external support, other than the financial mention above in (2), are you aware are available to you? Note: *Is there any other support specific to your industry and is your organisation aware of any barrier specific to the sector you are in? How the organisation is dealing with things in this present climate. Questions regarding how government and NGO are supporting SME effort in sustainable packaging will also be asked.*	
10	Schaper 2002 Netregs Benchmarking Survey 2002	**SME are Ignorant of their Own Environmental Impact** - Many surveys conducted in the past show that most SME felt that their activities are not harmful to the environment.	• Does your organisation understand the potential contribution sustainable packaging exerts on the growth of your business, supply	

	Netregs SME-nvironment Survey 2009 Hillary 2000 Holland and Gibson 1997 Tilley 1999 Seidel et al. 2008 Hillary 2000 Gerstenfeld and Roberts 2000	It has been proved that while individually they can be small, their combined impact on the environment is actually significant. It was also found, according to reports of NetRegs in 2009, that this improves as the size of the SME becomes bigger. **Limited Eco-literacy Knowledge by Owners/Managers of SME -** Most owners and managers have no adequate knowledge of eco-literacy and because they call the shots in terms of most strategic decisions in the organisation, their knowledge in this area is of importance in order to know how and what to do in terms of the sustainable direction the organisation is heading in.	chain and local community in general? Note: *The owner or senior manager, understanding of sustainability / sustainable packaging and the impact on the environment and also its relationship with the organisation will be explored as well.*	
11	Petts 1999 Willard 2005 Tilley 1999 Gerstenfeld and Roberts 2000 Hillary 2004 Revell et al. 2010	**Tools Verification Procedures and Measurements are Tailored to MNE -** There is need for the right tools to be designed for SME considering the fact that they exist in their own world and have certain key characteristics different from MNE.	• Are the available sustainable packaging tools in the industry relevant to both MNE and SME? Note: *Question will be asked about their awareness of specific tools available and level of understanding regarding procedure and measurement of sustainable packaging.*	
12	Rutherfoord et al. 2000 Smith and Kemp 1998 Borga et al. 2006	**Negative Conception of Business Case for Sustainability** - SME understanding of activities towards sustainability as a big drain on profits, as it increases cost and so they would rather avoid them all together.	• Does your organisation support business cases for sustainability? Note: *Level of their understanding of business case and potential gain that sustainable packaging can bring to the organisation will also be explored*	
13	Hillary 2000 Baylis et al. 1998 Blackburn and Revell 2005	**Non-existence of Supply Chain and Customer Pressure -** While this may vary from Sector to sector, the existence of pressure would have geared SME from embarking on sustainable practices. It should be noted that although some SME receive pressure within their supply chain, this is still limited to the few big ones. Most of the time because of the position of SME within the supply chain, they usually have to agree to the various packaging requirements of the bigger MNE. Where SME	• How has being part of this supply chain affected your sustainable packaging experience? Note: *Question will be asked to know if pressure from other members of the supply chain is shaping the organisation's sustainable packaging development and to know if this is negative or positive*	

		service or supply many big organisations with different packaging requirements, there may be a problem in satisfying every one of them easily. This can also be linked back to the issue of cost discussed above.	*and how?*	
14	White et al. 2011 Carter and Easton 2011	**Mode of Transportation -**This is related to logistics constraint. Where products have to be transported over a very long distance or where the mode of transportation is sea freight, certain rules related to containers need to be followed. In this regard the packaging that will be used for the product in question has to take those conditions into consideration which may affect the amount of packaging material used in the products**.** The nature of some products also necessitates special packaging material, which may put pressure on the sustainable effort.	• How has transportation affected the design and the type of your packaging? Note: *How has it affected the sustainable effort of the SME and the effect in both domestic and international contexts will be looked into and the question as to why this is so, will be explored.*	
15	Selke and Nordin 2010 Lee and Klassen 2008 Lee 2008 Parker et al. 2009 Pedersen 2009.	**Lack of Knowledge of Concept of Sustainable Packaging by Consumer -** Insufficient knowledge of sustainable packaging by customer is hindering their ability to put needed pressure on the SME. This knowledge is needed to support the effort and the drive towards sustainable packaging.	• How do you think that consumer knowledge is needed to support your sustainable effort in this context? Note: *Question will be asked if consumers' domestic pressure is distinguishable from international pressure. If yes, how; and if the answer is no, why?*	

Appendix 5 - Information Letter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Salford Business School
The University of Salford
Salford, Greater Manchester
M5 4WT, United Kingdom
T +44(0) 161 295 5000
F +44(0) 161 295 55565022
go-sbs@salford.ac.uk
www.business.salford.ac.uk
20th March, 2013
Letter of Invitation
Research Title: To investigate the barriers to environmentally sustainable packaging in a supply chain network
Dear Mr.....
My name is Abiodun Adigun. I am a PhD student in the Salford Business School at the University of Salford. This letter serves as a formal invitation to consider in participating in a research study I will be conducting under the supervision of Dr Yiannis Polychronakis
I am using this medium to provide you with adequate information that would assist you in understanding this study which will aid you in making your decision to take part.
One of the many key areas manufacturing organisations are using to boost their sustainability program is sustainable packaging. Building sustainable packaging into the strategic vision of the organisation is on the increase and continues to be one of the indispensable parts of the operation. The impact of packaging can be felt all along the supply chain and its distribution networks and it is even more pronounced when we consider this globally.
This study will focus on highlighting barriers to environmentally sustainable packaging in Small and Medium Enterprise. It should be noted that emphasis in the past had always been on Multinational Organisation. Our aim is to investigate the available barriers in the pertinent literature and hopefully our study may be in alignment with literature and other barriers may also emerge in the course of this study.
Participation in this research is voluntary and will involve interview of approximately 40 minutes in a session at your premises and other suitable location you prefer. You may also decide not to provide answer to any questions and you can decide to withdraw from this study at any time by signifying your intention.
In addition, permission will be requested from you for the recording of the interview and to facilitate collection of information and transcription for data analysis. I will forward to you after the interview, a copy of the transcript for you to confirm the accuracy of your responses and also to clarify any points as required. All information received from you will be totally confidential and your name will not register or be used in any thesis.
Data collected from this study will be securely locked away and it should be noted also that there are not known or anticipated risks to yourself or your organisation should you decide to participate in this study.
Do not hesitate to contact me at +44 (0)7946347997 or by email at a.adigun@edu.salford.ac.uk should you have any questions or required more clarification. My supervisor can also be reached on +44 (0) 161 295 5756 or by email Y.Polychronakis@salford.ac.uk
I believe this study will be of immense benefit to organisation, especially Small Medium Enterprises to which category your organisation belong to, as well as assisting government in structuring their sustainable packaging Policies
Kindly complete the attached research participant consent form enclosed, should you decide to participate and forwarded to the above address
Looking forward to receiving your response, and thank you in advance for your assistance in this study.
Yours Sincerely
Abiodun Adigun
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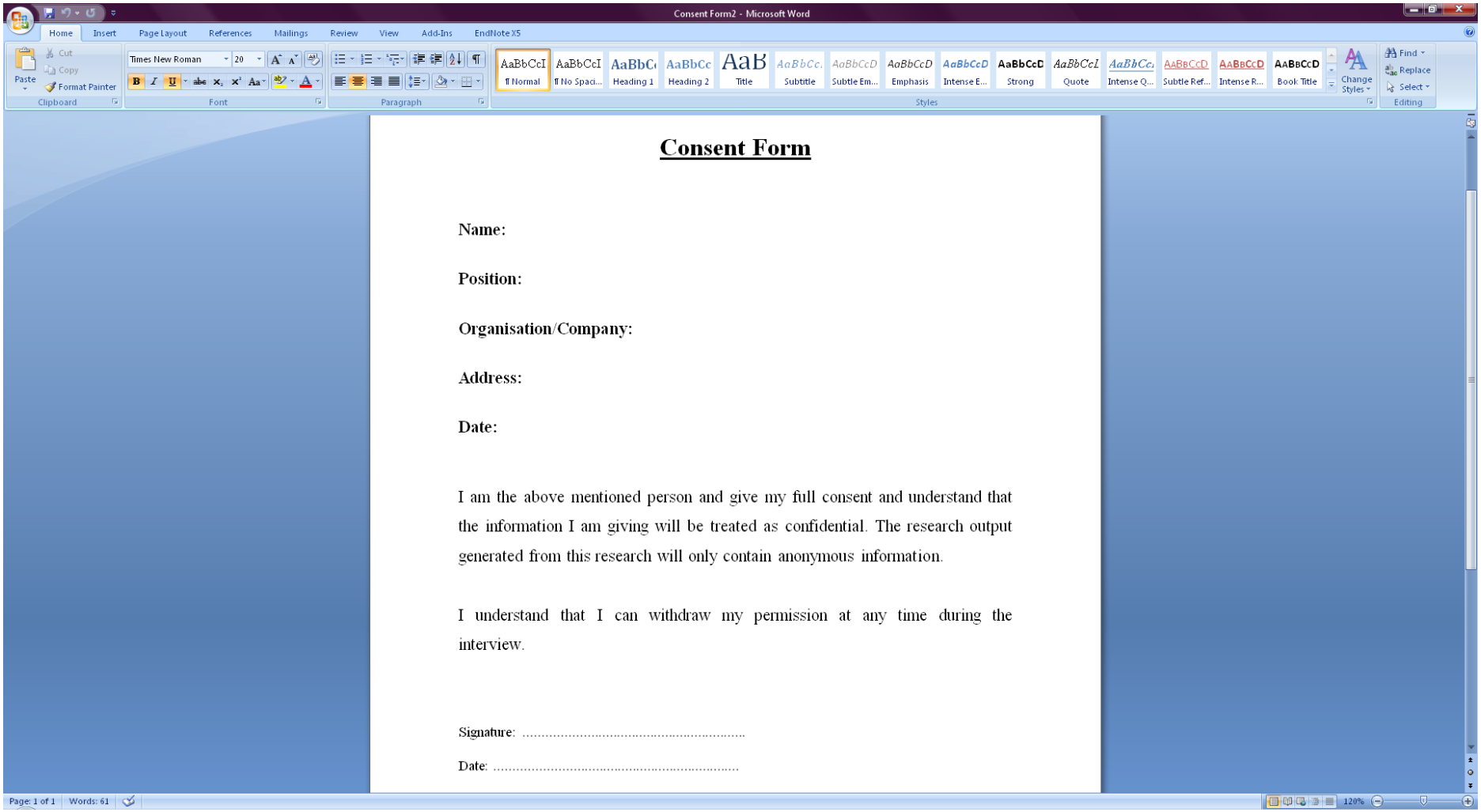
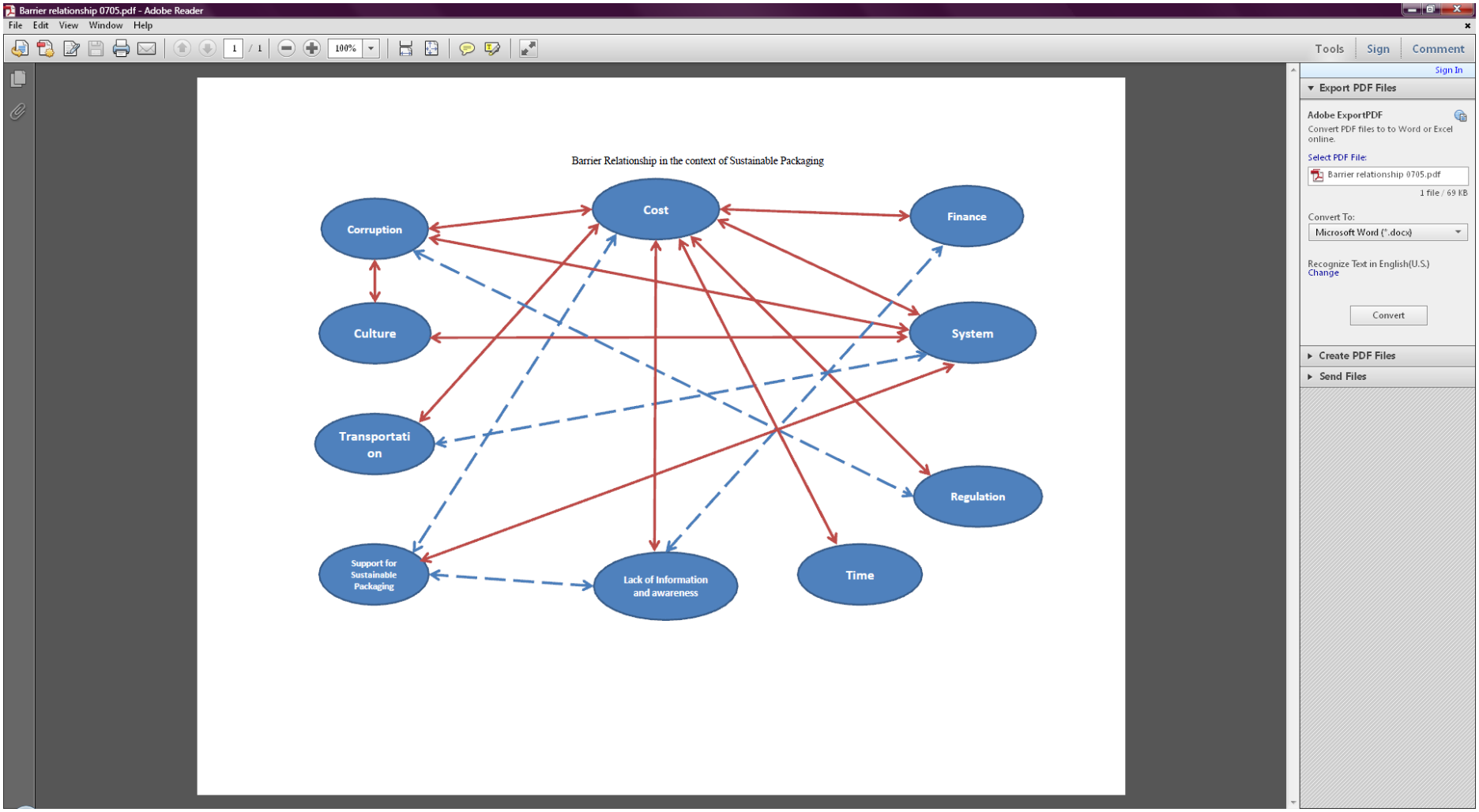
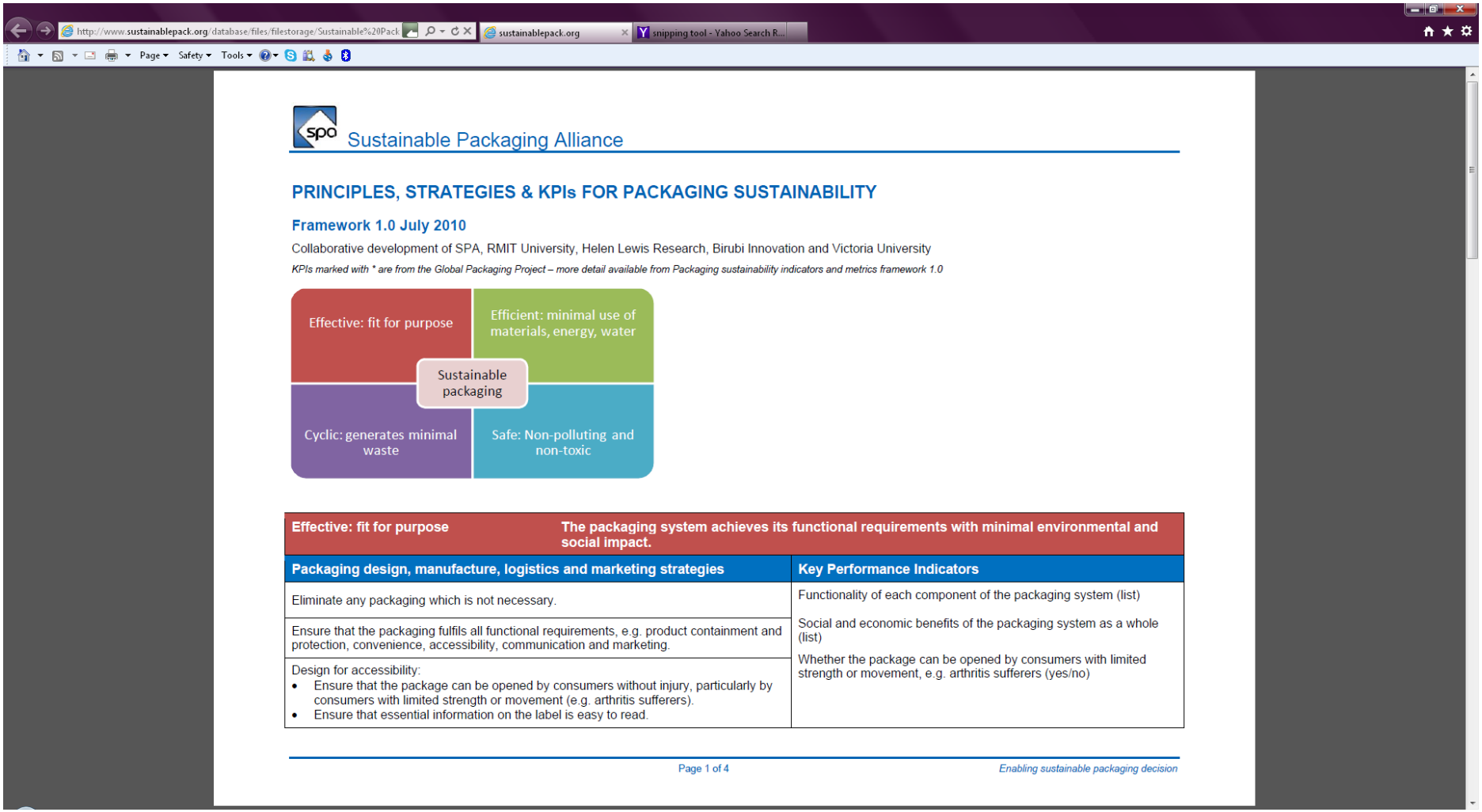
Appendix 6 - Consent Form


Consent Form2 - Microsoft Word
Consent Form
Name:
Position:
Organisation/Company:
Address:
Date:
I am the above mentioned person and give my full consent and understand that the information I am giving will be treated as confidential. The research output generated from this research will only contain anonymous information.
I understand that I can withdraw my permission at any time during the interview.
Signature: .....
Date: .....

Appendix 7 – Barrier Relationships



Appendix 8 – Sustainable Packaging Alliance Framework 1.0 July 2010



Sustainable Packaging Alliance

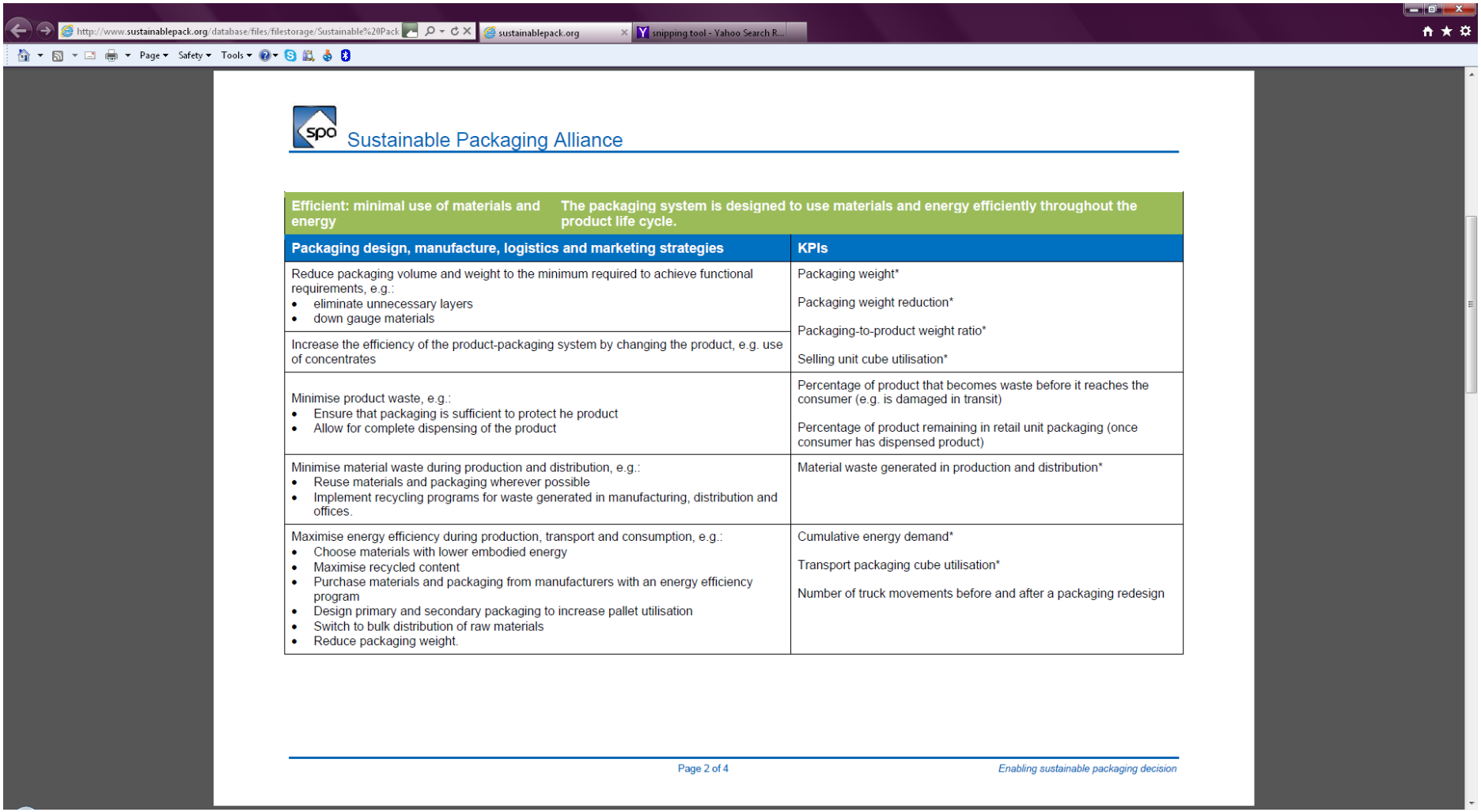
PRINCIPLES, STRATEGIES & KPIs FOR PACKAGING SUSTAINABILITY

Framework 1.0 July 2010

Collaborative development of SPA, RMIT University, Helen Lewis Research, Birubi Innovation and Victoria University

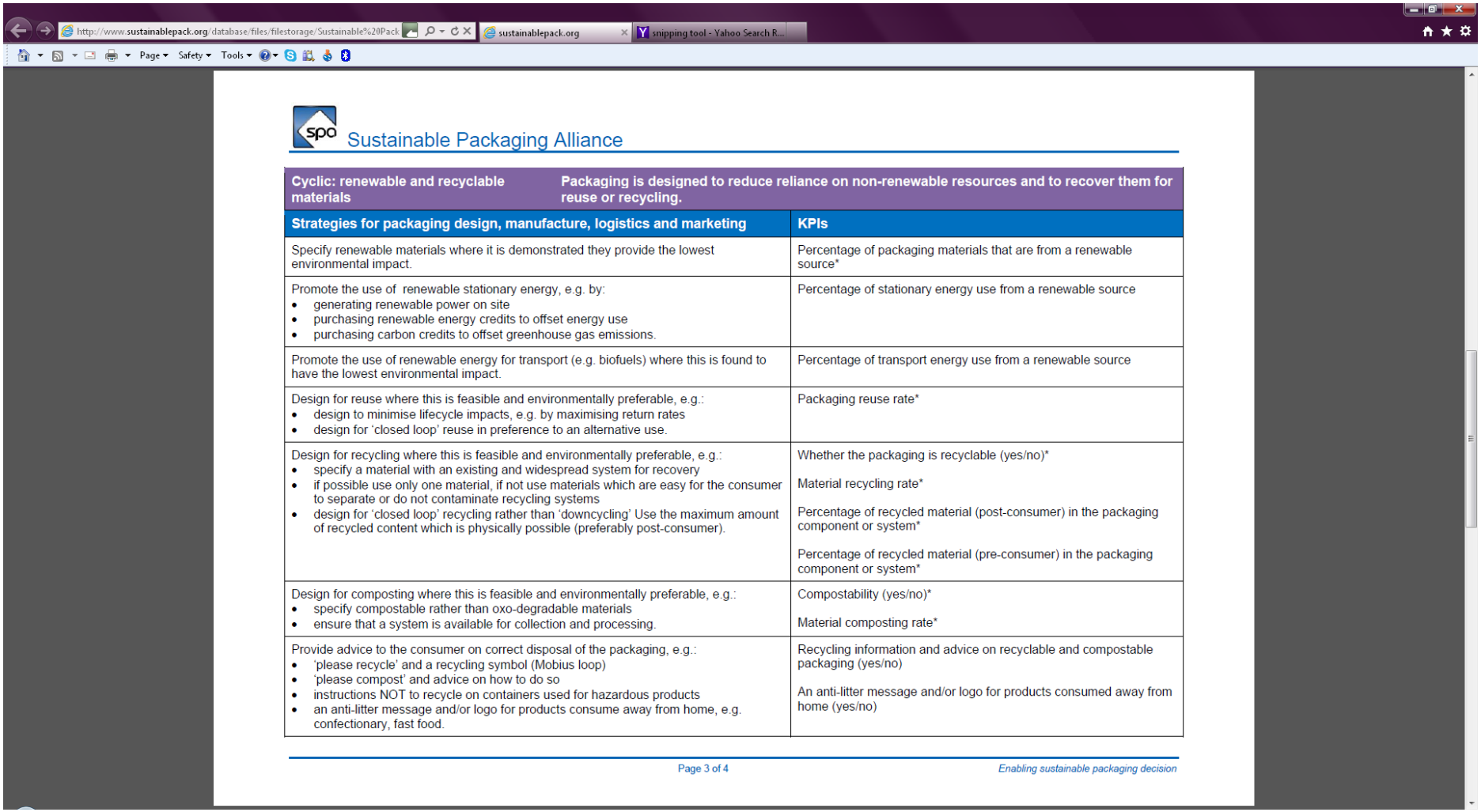
*KPIs marked with * are from the Global Packaging Project – more detail available from Packaging sustainability indicators and metrics framework 1.0*

Effective: fit for purpose	**The packaging system achieves its functional requirements with minimal environmental and social impact.**
Packaging design, manufacture, logistics and marketing strategies	**Key Performance Indicators**
Eliminate any packaging which is not necessary.	Functionality of each component of the packaging system (list) Social and economic benefits of the packaging system as a whole (list) Whether the package can be opened by consumers with limited strength or movement, e.g. arthritis sufferers (yes/no)
Ensure that the packaging fulfils all functional requirements, e.g. product containment and protection, convenience, accessibility, communication and marketing.	
Design for accessibility: • Ensure that the package can be opened by consumers without injury, particularly by consumers with limited strength or movement (e.g. arthritis sufferers). • Ensure that essential information on the label is easy to read.	



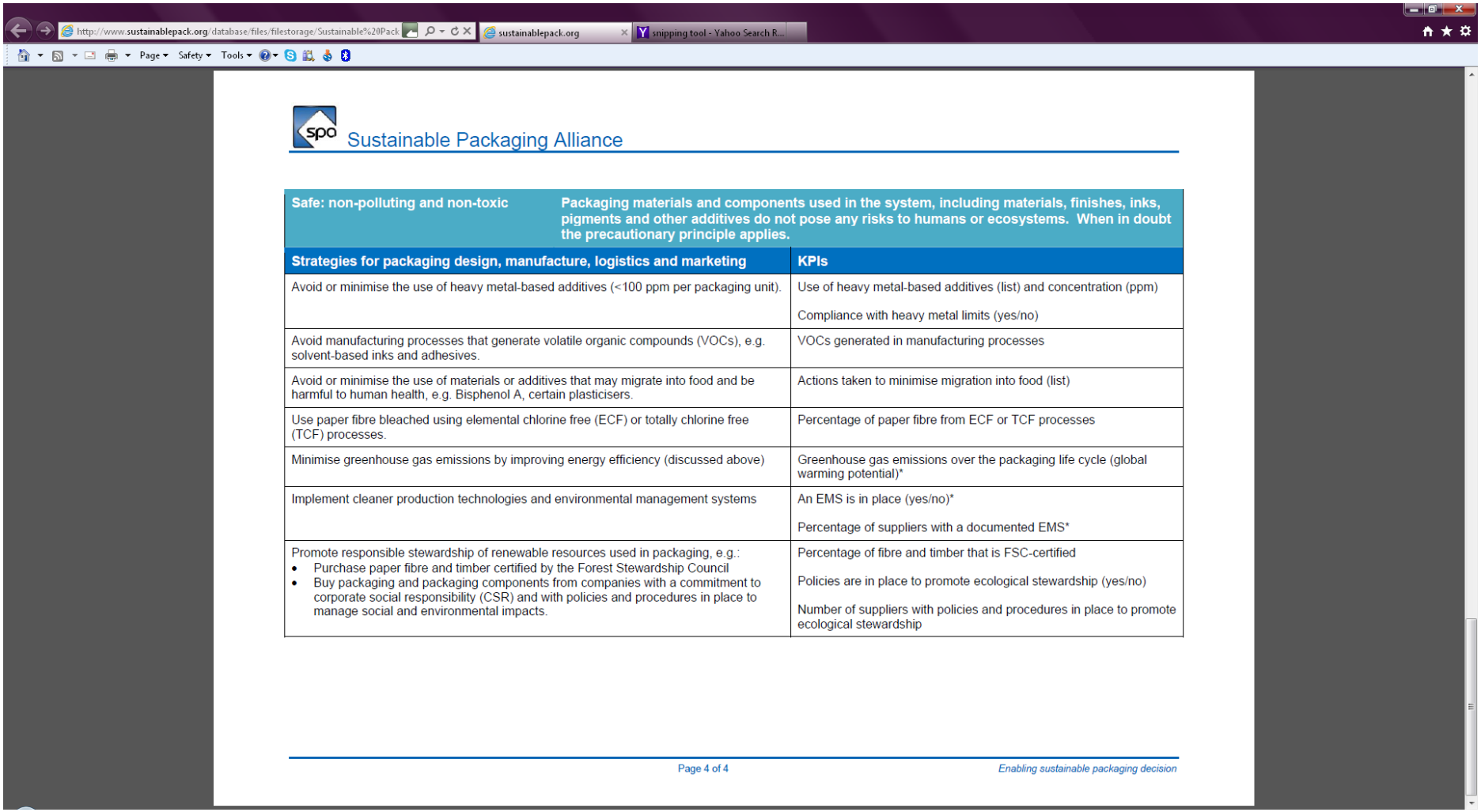
Sustainable Packaging Alliance

Efficient: minimal use of materials and energy	The packaging system is designed to use materials and energy efficiently throughout the product life cycle.
Packaging design, manufacture, logistics and marketing strategies	**KPIs**
Reduce packaging volume and weight to the minimum required to achieve functional requirements, e.g.: • eliminate unnecessary layers • down gauge materials	Packaging weight* Packaging weight reduction* Packaging-to-product weight ratio* Selling unit cube utilisation*
Increase the efficiency of the product-packaging system by changing the product, e.g. use of concentrates	
Minimise product waste, e.g.: • Ensure that packaging is sufficient to protect he product • Allow for complete dispensing of the product	Percentage of product that becomes waste before it reaches the consumer (e.g. is damaged in transit) Percentage of product remaining in retail unit packaging (once consumer has dispensed product)
Minimise material waste during production and distribution, e.g.: • Reuse materials and packaging wherever possible • Implement recycling programs for waste generated in manufacturing, distribution and offices.	Material waste generated in production and distribution*
Maximise energy efficiency during production, transport and consumption, e.g.: • Choose materials with lower embodied energy • Maximise recycled content • Purchase materials and packaging from manufacturers with an energy efficiency program • Design primary and secondary packaging to increase pallet utilisation • Switch to bulk distribution of raw materials • Reduce packaging weight.	Cumulative energy demand* Transport packaging cube utilisation* Number of truck movements before and after a packaging redesign



Sustainable Packaging Alliance

Cyclic: renewable and recyclable materials	Packaging is designed to reduce reliance on non-renewable resources and to recover them for reuse or recycling.
Strategies for packaging design, manufacture, logistics and marketing	**KPIs**
Specify renewable materials where it is demonstrated they provide the lowest environmental impact.	Percentage of packaging materials that are from a renewable source*
Promote the use of renewable stationary energy, e.g. by: • generating renewable power on site • purchasing renewable energy credits to offset energy use • purchasing carbon credits to offset greenhouse gas emissions.	Percentage of stationary energy use from a renewable source
Promote the use of renewable energy for transport (e.g. biofuels) where this is found to have the lowest environmental impact.	Percentage of transport energy use from a renewable source
Design for reuse where this is feasible and environmentally preferable, e.g.: • design to minimise lifecycle impacts, e.g. by maximising return rates • design for 'closed loop' reuse in preference to an alternative use.	Packaging reuse rate*
Design for recycling where this is feasible and environmentally preferable, e.g.: • specify a material with an existing and widespread system for recovery • if possible use only one material, if not use materials which are easy for the consumer to separate or do not contaminate recycling systems • design for 'closed loop' recycling rather than 'downcycling' Use the maximum amount of recycled content which is physically possible (preferably post-consumer).	Whether the packaging is recyclable (yes/no)* Material recycling rate* Percentage of recycled material (post-consumer) in the packaging component or system* Percentage of recycled material (pre-consumer) in the packaging component or system*
Design for composting where this is feasible and environmentally preferable, e.g.: • specify compostable rather than oxo-degradable materials • ensure that a system is available for collection and processing.	Compostability (yes/no)* Material composting rate*
Provide advice to the consumer on correct disposal of the packaging, e.g.: • 'please recycle' and a recycling symbol (Mobius loop) • 'please compost' and advice on how to do so • instructions NOT to recycle on containers used for hazardous products • an anti-litter message and/or logo for products consume away from home, e.g. confectionary, fast food.	Recycling information and advice on recyclable and compostable packaging (yes/no) An anti-litter message and/or logo for products consumed away from home (yes/no)

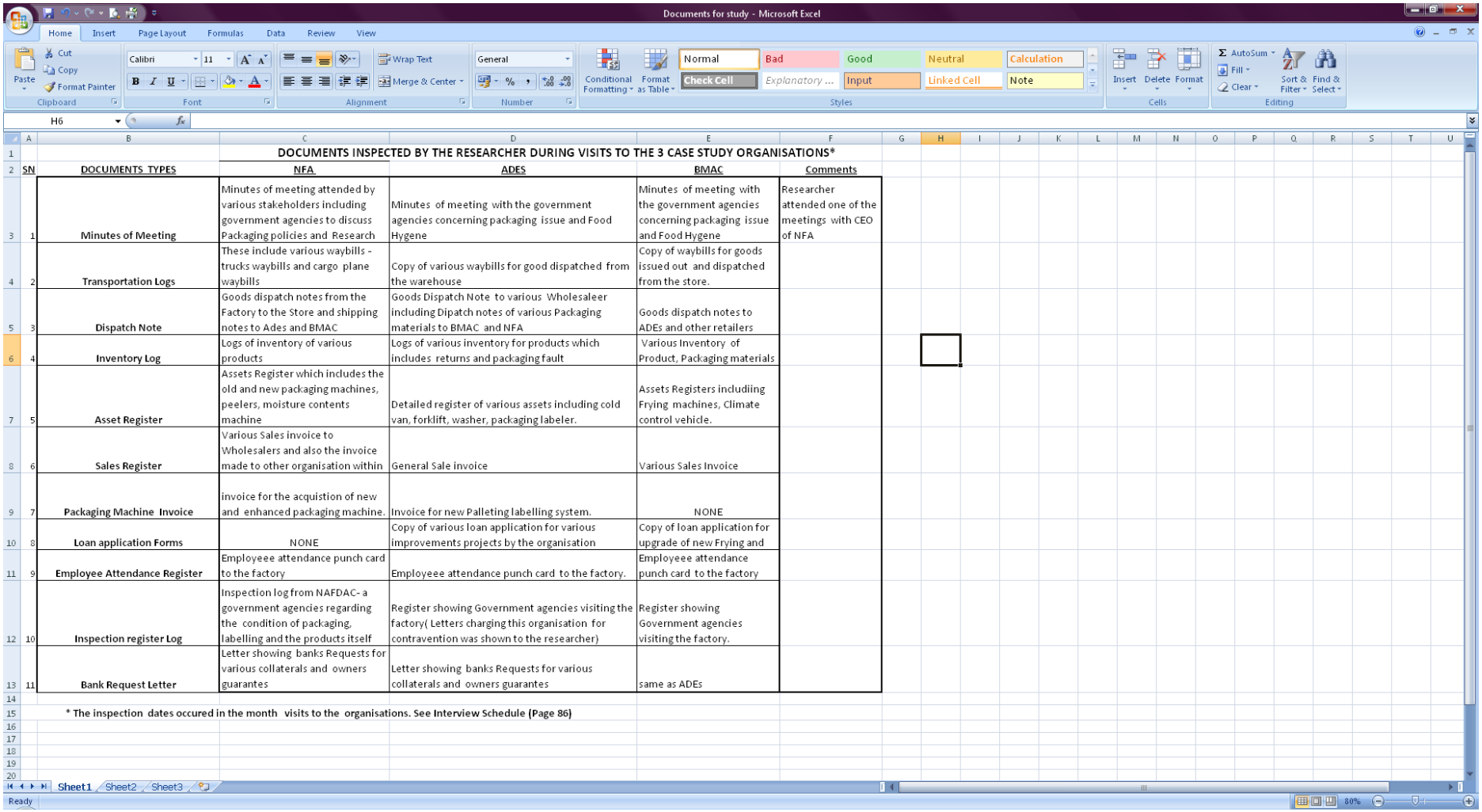


Sustainable Packaging Alliance

Safe: non-polluting and non-toxic	Packaging materials and components used in the system, including materials, finishes, inks, pigments and other additives do not pose any risks to humans or ecosystems. When in doubt the precautionary principle applies.
Strategies for packaging design, manufacture, logistics and marketing	**KPIs**
Avoid or minimise the use of heavy metal-based additives (<100 ppm per packaging unit).	Use of heavy metal-based additives (list) and concentration (ppm) Compliance with heavy metal limits (yes/no)
Avoid manufacturing processes that generate volatile organic compounds (VOCs), e.g. solvent-based inks and adhesives.	VOCs generated in manufacturing processes
Avoid or minimise the use of materials or additives that may migrate into food and be harmful to human health, e.g. Bisphenol A, certain plasticisers.	Actions taken to minimise migration into food (list)
Use paper fibre bleached using elemental chlorine free (ECF) or totally chlorine free (TCF) processes.	Percentage of paper fibre from ECF or TCF processes
Minimise greenhouse gas emissions by improving energy efficiency (discussed above)	Greenhouse gas emissions over the packaging life cycle (global warming potential)*
Implement cleaner production technologies and environmental management systems	An EMS is in place (yes/no)* Percentage of suppliers with a documented EMS*
Promote responsible stewardship of renewable resources used in packaging, e.g.: • Purchase paper fibre and timber certified by the Forest Stewardship Council • Buy packaging and packaging components from companies with a commitment to corporate social responsibility (CSR) and with policies and procedures in place to manage social and environmental impacts.	Percentage of fibre and timber that is FSC-certified Policies are in place to promote ecological stewardship (yes/no) Number of suppliers with policies and procedures in place to promote ecological stewardship

Page 4 of 4 *Enabling sustainable packaging decision*

Appendix 9 – Schedule of Observed Documents



Documents for study - Microsoft Excel

DOCUMENTS INSPECTED BY THE RESEARCHER DURING VISITS TO THE 3 CASE STUDY ORGANISATIONS*

SN	DOCUMENTS TYPES	NFA	ADES	BMAC	Comments
1	Minutes of Meeting	Minutes of meeting attended by various stakeholders including government agencies to discuss Packaging policies and Research	Minutes of meeting with the government agencies concerning packaging issue and Food Hygene	Minutes of meeting with the government agencies concerning packaging issue and Food Hygene	Researcher attended one of the meetings with CEO of NFA
2	Transportation Logs	These include various waybills - trucks waybills and cargo plane waybills	Copy of various waybills for good dispatched from the warehouse	Copy of waybills for goods issued out and dispatched from the store.	
3	Dispatch Note	Goods dispatch notes from the Factory to the Store and shipping notes to Ades and BMAC	Goods Dispatch Note to various Wholesaleer including Dipatch notes of various Packaging materials to BMAC and NFA	Goods dispatch notes to ADEs and other retailers	
4	Inventory Log	Logs of inventory of various products	Logs of various inventory for products which includes returns and packaging fault	Various Inventory of Product, Packaging materials	
5	Asset Register	Assets Register which includes the old and new packaging machines, peelers, moisture contents machine	Detailed register of various assets including cold van, forklift, washer, packaging labeler.	Assets Registers includiing Frying machines, Climate control vehicle.	
6	Sales Register	Various Sales invoice to Wholesalers and also the invoice made to other organisation within	General Sale invoice	Various Sales Invoice	
7	Packaging Machine Invoice	invoice for the acquistion of new and enhanced packaging machine.	Invoice for new Palleting labelling system.	NONE	
8	Loan application Forms	NONE	Copy of various loan application for various improvements projects by the organisation	Copy of loan application for upgrade of new Frying and	
9	Employee Attendance Register	Employeee attendance punch card to the factory	Employeee attendance punch card to the factory.	Employeee attendance punch card to the factory	
10	Inspection register Log	Inspection log from NAFDAC- a government agencies regarding the condition of packaging, labelling and the products itself	Register showing Government agencies visiting the factory(Letters charging this organisation for contravention was shown to the researcher)	Register showing Government agencies visiting the factory.	
11	Bank Request Letter	Letter showing banks Requests for various collaterals and owners guarantes	Letter showing banks Requests for various collaterals and owners guarantes	same as ADEs	

* The inspection dates occured in the month visits to the organisations. See Interview Schedule (Page 86)

Appendix 10 Gap and Contribution