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# THE UNIVERSITY *of* EDINBURGH

**Understanding the Circular Economy in Kenya:  
Critiquing the Dominant Discourse**

by  
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## Abstract

Over the last decade the circular economy has become popular in the Global North and is beginning to gain traction in the Global South. Yet analysis of this sustainability concept is notably lacking in the Global South, particularly in sub-Saharan Africa. Therefore, this study analyses the concept to answer what forms the circular economy is taking in Kenya. Doing so reveals where and how the concept is manifesting within this particular context, and how this compares to the archetype of the circular economy established in the Global North. Research was conducted through case studies using an inductive approach to theory development, built upon interview data. The empirical evidence illuminated three different forms of the circular economy: the ideal type that could not be identified in practice as it is unrealistically idealistic, an actually existing type generally articulated by small and medium-sized enterprises, and lastly an instrumental type mostly performed by multinational corporations. Notably the Kenyan forms of the circular economy identified conflicted with the dominant technocentric conceptualisation and often demonstrated 'quiet sustainability'. This was largely due to the lower-middle income context of Kenya. This highlighted how the technological fundamentalism of the dominant conceptualisation excludes quiet sustainability contributions that are vital to realising the ideal type of the circular economy in Kenya. In doing so, the dominant conception of the circular economy from the Global North is generally instrumental and subsequently is at times enabling new forms of greenwashing in the Kenyan context.

## Lay Summary

Over the last decade the concept of the circular economy has become increasingly popular in Europe, North America and China. The concept is beginning to gain traction in the rest of the world too. Yet analysis of this sustainability concept is notably lacking in many parts of the world, particularly in sub-Saharan Africa. Therefore, this study analyses the concept to answer what forms the circular economy is taking in Kenya. Doing so reveals where and how the concept is manifesting within this different context, and how this compares to the dominant form of the circular economy that has been predominantly established in Europe and North America. Research was conducted through case studies and interview data. The empirical evidence illuminated three different forms of the circular economy: the ideal type that could not be identified in practice as it is unrealistically idealistic, an actually existing type generally articulated by smaller companies, and lastly an instrumental type mostly performed by multinational corporations. Notably the Kenyan forms of the circular economy identified conflicted with the dominant conceptualisation and often demonstrated 'quiet sustainability' - a way of describing widespread practices that result in beneficial environmental or social outcomes but are not portrayed as relating directly to environmental or sustainability goals. This was largely due to the lower-middle income context of Kenya. The comparison with quiet sustainability practices in Kenya highlighted how the technology-focused dominant conceptualisation of the circular economy is flawed because it fails to sufficiently account for these important sustainability contributions that are vital to realising the ideal type of the circular economy in Kenya. In doing so, the dominant conception of the circular economy, primarily from Europe and North America, is subsequently at times enabling new forms of greenwashing in Kenya.

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# Table of Contents

<b>ABSTRACT</b> .....	<b>II</b>
<b>LAY SUMMARY</b> .....	<b>III</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>IV</b>
<b>TABLE OF CONTENTS</b> .....	<b>V</b>
<b>LIST OF FIGURES AND TABLES</b> .....	<b>VIII</b>
<b>LIST OF ACRONYMS</b> .....	<b>IX</b>
<b>CHAPTER 1 - THE CIRCULAR ECONOMY IN KENYA</b> .....	<b>1</b>
1.1 - OVERVIEW .....	1
1.2 - THE CIRCULAR ECONOMY IN A KENYAN CONTEXT .....	7
1.3 - RESEARCH FINDINGS.....	15
1.4 - CONTRIBUTIONS .....	18
1.5 - THESIS STRUCTURE.....	26
<b>CHAPTER 2 - BACKGROUND AND LITERATURE REVIEW: WHAT IS THE CIRCULAR ECONOMY?</b> .....	<b>31</b>
2.1 - THE FIELDS OF THE CIRCULAR ECONOMY.....	34
2.2 - LOCATING THE CIRCULAR ECONOMY .....	38
2.3 - THE THEORIES OF THE CIRCULAR ECONOMY.....	46
2.4 - WHAT DOES 'SUSTAINABILITY' ACTUALLY MEAN? .....	52
2.5 - THE EXPANSE OF GREEN TERMINOLOGY .....	55
2.6 - LOCATING THE CIRCULAR ECONOMY WITHIN THIS EXPANSE OF SUSTAINABILITY .	62
2.7 - HOW DOES THE CIRCULAR ECONOMY RELATE TO SOCIAL JUSTICE?.....	69
2.8 - WHERE DOES THE CIRCULAR ECONOMY BELONG? .....	74
2.9 - USING DISCOURSE ANALYSIS TO ANALYSE THE CIRCULAR ECONOMY .....	80

<b>CHAPTER 3 - METHODOLOGY .....</b>	<b>105</b>
3.1 - RESEARCH QUESTIONS.....	105
3.2 - METHODOLOGICAL OVERVIEW .....	108
3.3 - DATA COLLECTION.....	113
3.4 - AN OVERVIEW OF THE CASE STUDIES.....	121
3.5 - ETHICS .....	133
3.6 - POSITIONALITY AND REFLEXIVITY.....	134
3.7 - LIMITATIONS .....	138
<b>CHAPTER 4 - WHAT FORMS IS THE CIRCULAR ECONOMY TAKING IN KENYA?.....</b>	<b>143</b>
4.1 - DEFINING THE CIRCULAR ECONOMY FOR A KENYAN PERSPECTIVE.....	146
4.2 - HOW AND WHY IS THE CIRCULAR ECONOMY IMPORTANT IN KENYA? .....	147
4.3 - TO WHAT EXTENT HAS THE CIRCULAR ECONOMY REACHED KENYA? .....	154
4.4 - THE INFLUENCE OF CIRCULAR ECONOMY DISCOURSE IN KENYA.....	161
4.5 - CONCLUSION: THE CIRCULAR ECONOMY IS IMPLICITLY IDENTIFIABLE IN KENYA	174
<b>CHAPTER 5 - HOW KENYAN BUSINESSES LINK THE CIRCULAR ECONOMY TO INTERNATIONAL DEVELOPMENT.....</b>	<b>177</b>
5.1 - CONNECTING INTERNATIONAL DEVELOPMENT AND THE CIRCULAR ECONOMY ..	180
5.2 - OVERVIEW AND STRUCTURE OF THE KEY CASE STUDIES.....	182
5.3 - SANERGY: A BUSINESS WHERE INTERNATIONAL DEVELOPMENT MEETS THE CIRCULAR ECONOMY .....	185
5.4 - BINTIS: MOVING AWAY FROM A HIGH-TECH ARTICULATION OF THE CIRCULAR ECONOMY .....	199
5.5 - STONEHOUSE: CIRCULAR ECONOMY SOLUTIONS TO INTERNATIONAL DEVELOPMENT CHALLENGES .....	203
5.6 - CONCLUSIONS FROM THE KEY CASE STUDIES .....	210

<b>CHAPTER 6 - HOW IMPORTANT IS SCALE TO THE CIRCULAR ECONOMY?</b>	<b>217</b>
.....	
6.1 - HOW DOES SCALE IN LOCAL MARKETS SUPPORT THE CIRCULAR ECONOMY? ...	222
6.2 - <i>JUA KALI</i> AND THE AKALA SANDAL INDUSTRY .....	230
6.3 - ARE THE HOLISTIC ASPECTS OF THE IDEAL TYPE OF THE CIRCULAR ECONOMY ACHIEVABLE WITHIN A SINGLE COMPANY? .....	236
6.4 - ARE MNCs OVERLOOKING LOW-TECH CIRCULAR SYSTEMS? .....	241
6.5 - DO SOCIAL ENTERPRISES WITH SCALE IN KENYA SUPPORT CIRCULAR ECONOMY POLICIES? .....	252
6.6 - CONCLUSION: SCALE CAN BE PIVOTAL IN ARTICULATING THE IDEAL TYPE OF THE CIRCULAR ECONOMY.....	258
<b>CHAPTER 7 - LOUD AND QUIET SUSTAINABILITY .....</b>	<b>265</b>
7.1 - LOUD SUSTAINABILITY THROUGH THE CIRCULAR ECONOMY .....	270
7.2 - THE INSTRUMENTAL TYPE OF THE CIRCULAR ECONOMY IN ACTION .....	273
7.3 - THE VALUE OF LOCAL TERMINOLOGY .....	280
7.4 - ARTICULATIONS OF QUIET SUSTAINABILITY BY SMEs AND SOCIAL ENTERPRISES	289
7.5 - CONCLUSION: QUIET SUSTAINABILITY IS A STEP TOWARDS THE IDEAL TYPE OF THE CIRCULAR ECONOMY.....	296
<b>CHAPTER 8 - CONCLUSIONS.....</b>	<b>303</b>
8.1 - SITUATING THIS THESIS WITHIN CIRCULAR ECONOMY DISCOURSE.....	304
8.2 - ANSWERING THE RESEARCH QUESTIONS: THE CIRCULAR ECONOMY MUST BE REIMAGINED .....	308
8.3 - SUGGESTIONS FOR FURTHER RESEARCH .....	314
8.4 - THREE KEY CONCLUSIONS.....	316
8.5 - CONTRIBUTIONS .....	322
<b>9 - BIBLIOGRAPHY .....</b>	<b>333</b>
<b>10 - APPENDIX A: LIST OF INTERVIEWEES .....</b>	<b>399</b>
<b>11 - APPENDIX B: INTERVIEW QUESTIONS.....</b>	<b>407</b>

# List of Figures and Tables

FIGURE 1: THE BUTTERFLY DIAGRAM .....32

FIGURE 2: SUSTAINABLE DEVELOPMENT: LINKING ECONOMY, ECOLOGY AND SOCIETY .....64

TABLE 1: KEY CONTRIBUTIONS OF THE RESEARCH .....20

TABLE 2: THE DOMINANT CONCEPTION OF THE CIRCULAR ECONOMY FROM THE GLOBAL NORTH.....99

TABLE 3: SUMMARY LIST OF KEY INTERVIEWEES ..... 132

TABLE 4: HOW CIRCULAR ECONOMY THEMES ARE ADDRESSED BY THE COMPANIES ..... 184

TABLE 5: HOW THEMES ARE ADDRESSED IN THREE SIGNIFICANT CASES OF THIS CHAPTER .....221

TABLE 6: HOW THEMES ARE ADDRESSED IN THREE SIGNIFICANT CASES OF THIS CHAPTER .....269

TABLE 7: SUMMARY OF KEY ARGUMENTS AND CONTRIBUTIONS .....324

## List of Acronyms

AB3D	A company in Nairobi that make 3D printers from electrical waste.
CE	Circular Economy
CEO	Chief Executive Officer
CO <sub>2</sub>	Carbon dioxide
COO	Chief Operating Officer
CSR	Corporate Social Responsibility
EBOKS	The solar powered computer classroom made by Stonehouse.
EUR	Euro
E-waste	Electronic Waste
GDP	Gross Domestic Product
ICT	Information and Communications Technology
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KES	Kenyan Shilling
MDF	Medium-Density Fibreboard
MNC	Multinational Corporation
NEMA	The National Environment Management Authority of Kenya
NGO	Non-Governmental Organisation
PC	Personal Computer
PET	Polyethylene Terephthalate
SEK	Swedish Krona
SME	Small and Medium-sized Enterprises
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
UNSDSN	United Nations Sustainable Development Solutions Network
US / USA	United States of America



# Chapter 1 - The Circular Economy in Kenya

## 1.1 - Overview

The circular economy is in vogue. Over the last decade the circular economy has become rapidly adopted in the Global North as a new sustainability concept. It has gained traction with influential intergovernmental agencies, such as the United Nations, and governments, with several countries recently passing circular economy legislation. The concept is beginning to gain traction in the Global South too, yet debate surrounding this concept's expansion is significantly lacking in many regions, particularly in sub-Saharan Africa (Velis, 2017; Schröder et al., 2018a, 2018b, 2019a; Hobson and Lynch, 2016; Geissdoerfer et al., 2017). This thesis will show the importance in addressing this lack of analysis. There are several aspects of the dominant conception of the circular economy that do not necessarily translate, and may not even be applicable, to heterogenous socio-economic contexts in the Global South that often vary so much. Furthermore, analysing the concept from a specific context in the Global South, is particularly relevant in order to question how the circular economy might be perpetuating the directionality of technology transfer from the Global North onto the Global South (Mavhunga, 2017). This thesis responds to these concerns through an in-depth series of case studies in Kenya, aiming to answer what forms the circular economy is taking in Kenya. Doing so reveals where and how the concept is manifesting within this particular context, and how this compares to the archetype of the circular economy established in the Global North.

In order to begin this analysis we must start with a firm understanding of the circular economy. At the outset we can use the Ellen MacArthur Foundation's (2015a, p. 2) seminal definition:

*A circular economy is one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles. This new economic model seeks to ultimately decouple global economic development from finite*

*resource consumption. A circular economy addresses mounting resource-related challenges for business and economies, and could generate growth, create jobs, and reduce environmental impacts, including carbon emissions.*

The potential advantages of a circular economy have been promoted in a range of industries. The main proponents of the concept have been advocacy groups, such as the Ellen MacArthur Foundation from the UK, or the more international Circular Economy Club (2020) business group. The Ellen MacArthur Foundation in particular has spurred numerous academic works as well as much grey literature (materials and research produced by organisations outside of traditional commercial or academic publishing) on the concept (Korhonen et al., 2018a). Considering the influential role the Ellen MacArthur Foundation have had in promoting the concept of the circular economy, it is worth briefly giving some background to the UK registered charity that since 2010 has aimed to put ‘the circular economy on the agenda of decision makers across business, government, and academia’ (Ellen MacArthur Foundation, 2020a). Following her world record breaking yachting career, Dame Ellen MacArthur was inspired by the careful resource management approach of speed sailing and believed it could be applied to resources in the global economy and so founded the charity. The Foundation is well funded by Dame Ellen MacArthur herself as well as by its corporate partners, such as fast fashion retailer H&M who regularly donate in excess of £200,000 per annum (Ellen MacArthur Foundation, 2019b). Overall the charity’s annual turnover in excess of £10 million enables their nearly 100 staff to make a substantial global impact on circular economy thinking (Ellen MacArthur Foundation, 2019b).

Thanks in large part to the efforts of the Ellen MacArthur Foundation subsequent interest in the concept from government officials, corporations and academics has significantly increased. This wide range of actors have pulled the circular economy from its industrial core where it was primarily concerned with material cycles and opened the concept up to be employed in a variety of different ways by different actors. These uses range from consultancy reports that advertise a potential US\$630 billion per annum of net materials cost savings in the EU from following a circular economy approach (Ellen MacArthur Foundation, 2014a, p. 20), to corporations aligning their brands to the concept. For example, how Coca-Cola have begun to describe their environmental commitments in the language of the circular economy (Coca-Cola, 2018a). Or

alternatively how Desso report changing their business model such that their carpets are capable of being taken back and the materials used from their old products to make new carpets (Desso, 2020). In a similar way, over the last ten years there has been more than tenfold growth in the number of academic publications concerning the circular economy (Geissdoerfer et al., 2017, p. 760).

This interest has culminated in several countries, such as Germany, Japan, China as well as the European Union creating policies that directly aim to build a circular economy (Geissdoerfer et al., 2017; Heck, 2006; Lieder and Rashid, 2016; European Commission, 2015). However, to date the concept has rarely been considered in the Global South apart from one notable exception - China. In 2009 the Circular Economy Promotion Law was introduced by the Chinese government leading to thousands of publications on the subject (Lieder and Rashid, 2016). China currently represents the only considerable view of the circular economy concept from the Global South which is distinct from the dominant conceptualisation from the Global North (McDowall et al., 2017; Kirchherr et al., 2017). It is worth noting early on that this widespread diffusion of the circular economy has resulted in myriad interpretations of the concept by the various actors that use it. These various types of the circular economy will be explored throughout Chapter 2.

As the concept of the circular economy has developed and become more influential, the Global South, and in particular sub-Saharan Africa, has been notably absent from this discussion - apart from the significant Chinese exception. The sparse literature to date that has considered the impacts of the concept on the Global South has raised concerns about the concept's application outside of the Global North where it was created. The most extreme concerns surround the concept's neoliberal leanings (Hobson, 2016; Flynn and Hacking, 2019), questioning if it could hinder poverty reduction in the Global South where 'situations of scarcity' are still significant challenges (Burnett, 2016; Ryan et al., 2016; Furlong, 2006; Gerber et al., 2018; Stahel, 2013). There is more widespread concern that the circular economy overlooks questions of social justice and is generally reformist rather than radical (Murray et al., 2017; Moreau et al., 2017; Hobson and Lynch, 2016). As the term continues to gain international currency, it is influencing more policy decisions in the Global South. This study therefore aims to interrogate the forms the circular economy is taking in Kenya, to

test its paradigmatic potential and the possible pitfalls of the concept in a Kenyan context.

Given this brief understanding of the circular economy, and the fact that the Global South has been underrepresented in the production of this concept (Schröder et al., 2019a; 2018a), it is worth briefly establishing why this study has chosen a Kenyan context for this analysis. Kenya, and particularly its capital Nairobi, was chosen as a suitable research site for a number of reasons. Firstly, there are several normative aspects of the circular economy that are potentially beneficial to Kenya which can be examined. For example, green economic decision-making is in its infancy in Kenya (Faccer et al., 2014; Momanyi, 2017), meaning that Kenya might be able to leapfrog to more sustainable systems rather than need to retrofit existing unsustainable systems (Szabó et al., 2013). This could help to manage both the increasing impacts of climate change and the increasing carbon emissions from Kenya.

Secondly, the country provides an opportunity to test the optimistic arguments proposed by circular economy advocates that the concept could lead to wealth creation (e.g. Ellen MacArthur Foundation, 2016a; Allwood et al., 2012; Webster, 2017). Nairobi is particularly well suited site for this investigation because of the regional concentration of industry and notably high-tech enterprises. Furthermore, the significant international influences present in Kenya have meant that the circular economy has recently begun to be integrated into Kenyan government strategies (Soezer, 2016). Similarly, the concept has recently been mentioned by several politicians (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019), making this an ideal time to analyse the nascent concept in Kenya.

The Kenyan economy also provides opportunity to question the potential negative economic, environmental and social impacts of the circular economy. Many of these negative impacts relate to corporate instrumentalism of the concept that could be leading to new forms of greenwashing. Likewise, it is worth questioning if the circular economy provides an appropriate model in Kenya's development context. Including critiques from the viewpoints in the Global South is vital to avoid a new sustainability paradigm that could echo the harmful impacts of neoliberalism in Kenya (Harrison, 2005; Nyabola, 2018; Gibbon, 1992; Rono, 2002; Glennie, 2008, p. 39). Overall, analysing the circular economy in a Kenyan context enabled this thesis to develop a

conceptualisation of the circular economy that addresses an international development critique.

This study is amongst the first in exploring the concept of the circular economy in-depth in a Kenyan context to answer what forms is the circular economy taking in Kenya? By doing so, this study is amongst the first to analyse the development of the circular economy in sub-Saharan Africa in a scholarly form. Highlighting existing practices enables an analysis of the concept in this context that is so different to the Global North where the majority of circular economy debate stems from. This is particularly important as the dominant conceptualisation's influence continues to grow and after decades of research in development studies, there is 'no doubt of the enormous power of language and discourse to structure the way we think about - and therefore take action about - development' (Adams, 2008, p. 2). This study also adds to the growing body of circular economy literature, expanding the scholarly engagement with the field of international development by contributing towards a formulation, assessment and review of current circular economy practices in Kenya.

To achieve these aims, this research asks the following questions:

1. What forms is the circular economy taking in Kenya?
2. Where can the circular economy be found in Kenya?
3. How can the circular economy be understood within this local context?
4. How does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North?

The first question opens up the rest of the research questions while identifying the concept in a Kenyan context. The second looks at where and how the circular economy can be found in Kenya as well as to who it relates. The third questions the concept both theoretically and in practice under its specific terminology as well as through alternative sustainability guises. This line of questioning brings us to the final research question and takes the research from the local level back to a global consideration of the concept. Doing so also provides an opportunity to interrogate the links between the dominant conceptualisation of the circular economy and international development by using a Kenyan context.

To answer these research questions the methodology was informed by research practice common throughout circular economy literature. Several examples and case studies are used to situate circular economy practice and theory in Kenya. Three case studies from heterogeneous Kenyan businesses identified through multi-stage sampling make up the majority of the empirical evidence. This is expanded by a total of 102 interviews with key informants spread over 71 different organisations (detailed in Appendix A) to generate a wider range of shorter examples to draw upon. Key informants were interviewed up to a maximum of nine times. The approach was based around semi-structured interviews and supported by participant observation and secondary data analysis for subsequent multiple-case embedded comparative analysis.

The conceptual framework for this research is provided by the theoretical and practical study of the circular economy to date as well as drawing more broadly on sustainable development literature. This means that this research follows on from debates in sustainable development and begins to apply similar lines of argument in regard to the circular economy. In particular Smith and Jehlička's concept of quiet sustainability is taken from sustainable development discourse to support the analysis. This concept is considered in greater detail in Section 2.5; however, it is necessary here to give a brief initial description. Quiet sustainability is a way of describing the 'widespread practices that result in beneficial environmental or social outcomes... but are not represented by their practitioners as relating directly to environmental or sustainability goals' (Smith and Jehlička, 2013, p. 1). The other key tools that make up the core of the conceptual framework, which will be explored in more detail later are; ideal types from sustainability discourse (Sharma et al., 2007; Rametsteiner et al., 2011), actually existing sustainability (Barry, 2012; Krueger and Agyeman, 2005), corporate instrumentalism (Arend, 2014; Heikkurinen, 2013), the triple bottom line (Elkington, 2013), frugal innovation (McMurray and de Waal, 2019), bricolage entrepreneurship (Baker and Nelson, 2005), and lastly weak and strong sustainability (Pelenc and Deduerwaerdere, 2015).

## 1.2 - The Circular Economy in a Kenyan Context

This study focuses in on the circular economy in the Global South by using a Kenyan context to interrogate the concept theoretically and examine the phenomenon in practice. At this point it is necessary to outline the particularities of the Kenyan economy, and specifically that of Nairobi, that make this site well suited for this research. These reasons primarily revolve around the following key aspects: the increasing impacts of climate change; increasing carbon emissions from Kenya; significant international influences present in Kenya; the recent adoption of the circular economy in government strategy documents; and a regional concentration of industry in Nairobi, particularly of high-tech. The following paragraphs demonstrate through these aspects where and how the concept can be understood in Kenya and thus why it is a pertinent location for this research.

We will begin at the macro-level to reveal the national basis of this study, before zooming into the urban and industrial focus of this research in Nairobi. One reason why Kenya is a suitable location to try to understand the circular economy in the Global South is because the country has been notably impacted by climate change, creating a national interest in sustainability (Symons, 2014). The impacts of global warming effects have been recorded through the declining water levels from the rapidly shrinking glaciers atop Mount Kenya due to anthropogenic climate change, causing increasing water scarcity (Marshall, 2011, Hastenrath and Kruss, 1992; Voda et al., 2008). In 2010 the Kenyan government developed a National Climate Change Response Strategy (GoK, 2010). This idealistic strategy led to influential figures, including the former President of Ireland, to cite Kenya as an exemplar of a developing country with progressive adaptation policies. This was despite academics critiquing the policy for framing climate change as an 'economic opportunity' whilst being 'entrenched in politics of inequality and uneven development' (Symons, 2014, p. 275; Kamau and Mwaura, 2013; Nhamo, 2014). The prominence of the climate justice movement in Kenya, detailed later in this section (Harlan et al., 2015; Wanderi, 2019; Reuters, 2019a; DeCOALonize, 2019; Gorsevski, 2012; Maathai, 2006) situates this study in a pertinent context to question if the circular economy model - which has notably avoided

questions of equity - is able to respond to these urgent challenges of social and environmental justice.

Secondly, Kenya is a fast growing nation that is rapidly increasing its global environmental impact whilst facing urgent environmental challenges within its borders. This impact is well demonstrated by recent increasing greenhouse gas emissions. Although the circular economy is primarily focused on waste flows, the ideal type of the concept strives towards decarbonisation and, according to the Ellen MacArthur Foundation, is 'a potent contributor to achieving zero-carbon prosperity' (Ellen MacArthur Foundation, 2019b, p. 12). Therefore, in this sense the wider dimensions of environmentalism, such as greenhouse gas emissions are pertinent in seeking the ideal type of the circular economy.

During one decade Kenyan emissions of greenhouse gases increased by 44% per capita (Crippa et al., 2019). This means that the average Kenyan's carbon impact is already 14 times larger than the average Burundian's. Overall Kenyan CO<sub>2</sub> emissions are rapidly increasing at double the rate of the average African level. Although it is also worth noting that on average a Kenyan's CO<sub>2</sub> impact is still 39 times smaller than an American's. Kenyans still have comparatively low carbon emissions per capita, globally and regionally, emitting just half the CO<sub>2</sub> per capita compared to Zimbabwe, a quarter of Namibia's emissions and only a tenth of South Africa's emissions. Interestingly the rate that Kenyan emissions are increasing is similar to those in Ireland (ibid.), a nation that typifies the dominant conceptualisation of the circular economy from the Global North (DCCAE, 2019). Kenyan emissions have continued to rapidly increase despite several environmental policies from the Kenyan government that have followed on from their *Green Economy Strategy and Implementation Plan* (GoK, 2016a) and led to President Uhuru Kenyatta's claim that Kenya would be powered by 100% green energy by 2020 (Bhalla, 2019). Therefore, in this regard the Kenyan economy provides a pertinent comparison with many Western economies where similarly prominent and long-standing environmental activism and policies have not managed to reduce the continually increasing overall environmental impact of their economies (Gould et al., 1996; Crippa et al., 2019). As the circular economy is proposed as a solution to climate change (Wysokińska, 2016; Ellen MacArthur Foundation, 2019g) then the Kenyan

economy provides an apposite case study to question the climate change mitigation potential of the concept.

Thirdly, Kenya has a long history of international influences that have influenced the way Kenyan governments have approached these development challenges, ranging from economic systems to development priorities (Ogot and Ochieng', 1995). Nairobi has hosted the United Nations Environment Programme (UNEP) headquarters since 1972 (Baker, 2006, p. 54) and has often been a focus of environmental activism. For example, Kenya's most prominent environmental activist Professor Wangari Maathai was notably involved with UNEP in Nairobi from the 1970s onwards (Maathai, 2006, p. 120) with her Green Belt Movement being directly supported by UNEP (Gorsevski, 2012). Maathai's Green Belt Movement revolutionised reforestation in Kenya (Maathai, 2006, p. 137) and is now recognised internationally for pushing the boundaries of early ecofeminism (Hunt, 2014). Kenya's history with internationally promoted sustainability concepts proves particularly valuable for comparisons as the circular economy is being promoted from the Global North as a global sustainability concept.

The influence of the United Nations in Kenya is particularly relevant because of the UN-led document that explicitly brought the circular economy terminology into Kenyan government strategies for the first time. In 2016, through the UNDP Low Emission Capacity Building Programme, the Kenyan Ministry of Environment and Natural Resources, published *A Circular Economy Solid Waste Management Approach For Urban Areas In Kenya* (Soezer, 2016). This policy subsequently led to several politicians and some business leaders using the terminology of the circular economy in public statements (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019; Wakiaga, 2018). This places this study of the circular economy in Kenya at an ideal time when the concept is beginning to emerge at the policy level.

In some ways the prominence of Kenyan environmentalism has given Kenyans the opportunity to encourage Western scholarship to take indigenous technology seriously, something that has long been overlooked by Western development paradigms (Belshaw, 1979). Notably, previous failures to respect Kenyan agricultural technology resulted in the British colonials' forced terracing campaigns that were so environmentally damaging and unproductive that they led to political mobilisation in Kenya (Fiona and Mackenzie, 2000; Easterly, 2007, p. 248). To date the circular

economy has generally repeated the geographical zoning and directionality of technology from the Global North onto the Global South (Mavhunga, 2017) and in doing so may be perpetuating the 'pedagogy of colonisation' (Nyabola, 2018, p. xxi). Whilst it is important not to take an over-romantic view of local knowledge (Bebbington, 2002; Dasgupta, 1998), this does not mean that quiet sustainability should be ignored either (Smith and Jehlička, 2013; Leach and Scoones, 2015, p. 129). Indeed, as will be seen shortly through the case of M-Pesa, in the last few decades Kenyan technologies are being taken more seriously (Hersman, 2012; Mutua, 2016). Building onto this rich background, this study can therefore engage on a more level playing field to challenge the Northern conceptualisation of the circular economy and in a small way helps to reverse this imbalance.

The presence of the United Nations and the African headquarters of major international non-governmental organisations and development charities has also meant that Kenya has long been a focus for researchers to investigate the environmental impact of development and the use of inappropriate Western technologies (Langdon, 1975; James, 2019). For example, how livelihoods have adapted to exogenous environmental and socio-economic change by trying to maintain traditional systems of resource management including the productive adaptation of agricultural husbandry in Machakos, Kenya (Tiffen et al., 1994). These international influences, historic and contemporary, give Kenya a useful breadth and depth of literature to draw upon in comparisons with related sustainability concepts.

This is particularly important for this research to draw upon as it enables linkages to the circular economy concept that is too nascent in Kenya to appear in much Kenyan academic debate. For example, King's *Jua Kali Kenya* (1996) predates the circular economy; yet King's analysis of bricolage entrepreneurship - creating something from waste (Baker and Nelson, 2005) - in the informal economy helps to directly trace aspects of the circular economy as far back as the 1970s. Furthermore, this work was fundamental to this research's methodology, demonstrating ways of using a series of examples and case studies. In a similar way, the available literature that explores dimensions of Kenya's economy that contrast with equivalent dimensions found in the Global North, such as the informal sector (e.g. Odeh, 2010; King, 1977; Akama, 1996; Doherty et al., 2015; Prahalad, 2006) enable this research to engage with relevant and

comparable literatures despite the lack of existing work on the circular economy in Kenya.

The influences of the United Nations and donor nations have resonated with Kenya's rich history of environmental movements. Subsequently this has helped to foster a wealth of academic interest surrounding sustainability in Kenya that enables apposite comparisons with the terminology of the circular economy (e.g. Mackenzie, 1998; Asiema and Situma, 1994; Rocheleau et al., 1995; Campbell and Olson, 1991; Lado, 1992; Anderson and Grove, 1989; Hunt, 2014; Maathai, 2006). This environmental legacy is conspicuous in Kenyan culture, recently demonstrated by Kenya's most prominent newspaper proudly proclaiming that Kenya was the 'least toxic country in the world' (Daily Nation, 2017). However, it is worth noting that whilst based on data from the International Energy Agency and World Health Organization, this recognition has yet to be formally acknowledged by any major international body (EcoExperts, 2017). More recent movements, such as DeCOALonize Kenya, have demonstrated significant and popular environmental consciousness in Kenya. DeCOALonize Kenya rallied national support against the construction of Kenya's first coal plant and culminated in the African Development Bank pulling their support from this project after a protracted four year long campaign (Wanderi, 2019; Reuters, 2019a; DeCOALonize, 2019). This popular concern is most simply evidenced by the 90% of Kenyans that say climate change is affecting the country and their personal lives (Afrobarometer, 2018). All of this suggests that Kenya is a suitable site to study the circular economy.

The circular economy is primarily concerned with industry; therefore, this research was based in Nairobi, Kenya's industrial capital which has been described as 'East Africa's economic hotbed and engine' (Goodman, 2015). Whilst Nairobi is not representative of the rest of Kenya, basing the research from the capital does enable the industrial heart of the circular economy to be more directly addressed. Similarly, as the circular economy is predominately a technocentric concept - meaning that technology can be relied upon to address ecological problems (Mugge & Bakker, 2018) - Nairobi was highly relevant location to base this research. The capital city has been famed as 'Africa's most vibrant tech scene' (Nyabola, 2018, p. 19) and coined the Silicon Savannah (Akamanzi et al., 2016). This concentration of high-tech has been

enabled by Kenya having 'the highest rate of internet penetration in Africa' (Nyabola, 2018, p. 58). This makes Nairobi a particularly good site for investigating relevant companies, such as those incubated by the Kenya Climate Innovation Center. Beyond these reasons lie several other aspects that also make Nairobi uniquely suited to analyse the circular economy.

The city hosts a wealth of multinational corporations as businesses have clustered to take advantage of an innovation ecosystem and economies of agglomeration that are unique in East Africa (Anholt, 2005, p. 70). This includes the African headquarters of international tech giants such as Google, Cisco, Nokia, Siemens, and Airtel, many of who are members of the Ellen MacArthur Foundation's *Circular Economy 100* group (Ellen MacArthur Foundation, 2019c). On the face of it the presence of these companies should be a benefit to the Kenyan economy. For example, IBM opened their first research laboratory in Africa in Nairobi in 2013, which is developing circular economy technologies for local challenges according to a member of their new Kenyan team when interviewed.<sup>1</sup> However, there is little evidence to suggest these corporations are the benign elites envisaged by technocentric models (Scoones et al., 2015, p. 17) similar to the circular economy. Instead the presence of these multinational corporations (MNCs) in Kenya's private sector alludes to previously seen impacts of neoliberalism that have typically undermined local industry (Ogot and Ochieng', 1995; Glennie, 2008, p. 39). Such questions will be tested through the Safaricom case study in Chapter 7 where we will see the role of this MNC in articulating forms of the circular economy.

Flynn and Hacking (2019, p. 1261) have highlighted how the development of the circular economy has taken a 'neoliberal approach to environmental governance.' For example in seeking to use material standards (such as ISO management schemes) so that the private sector can self-regulate the flow of materials that are central to the circular economy. Hobson (2016, p. 93) goes on to describe how extant renditions of the circular economy exemplify existing forms of environmental governance under advanced neoliberalism. These mechanisms include green tax incentives, a reliance on

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<sup>1</sup> Interview with N. Nyoike on 30 March 2017 in Nairobi, Kenya.

consumers to make greener choices via education and labelling interventions and discourses of 'win-win' scenarios (ibid.) Therefore, it is worth exploring if the circular economy is promoting neoliberal processes such as these in Kenya; especially when considering that neoliberalism is still seen as an active quandary in Kenya (Mati, 2014). Therefore, Nairobi provides a useful location to question the impacts of MNCs and their environmental credentials as espoused by their membership of the Ellen MacArthur Foundation's exclusive *Circular Economy 100* group. These can then be compared against the socially and environmentally harmful influences that MNCs have had in Kenya under a neoliberal capitalist paradigm (e.g. Njeru, 2013; Mwangi, 2008).

On the other hand, one of these multinational companies, Safaricom, helped give prominence to a recently developed Kenyan technology that is globally recognised, M-Pesa. In doing so, this makes Kenya a suitable site to question whether the circular economy might be reinforcing ideas that innovation originates in the Global North (Mavhunga, 2017). Regionally Kenya is a significant location for the growth of high-tech industries (Bramann, 2017, Akamanzi et al., 2016). Kenya is the home of the internationally acclaimed M-Pesa mobile money transfer system that revolutionised the Kenyan economy (Mbogo, 2010, Mbiti and Weil, 2015).

One pertinent aspect of the M-Pesa system is how it embodied the ideas of 'appropriate technology' by being designed to work with dated SMS technology (Altamirano and van Beers, 2018). In doing so M-Pesa was highly successful and brought banking features to millions of basic feature phones, subsequently extending the useful lifespan of these technologically dated phones, rather than adding to the growing e-waste problem in Kenya (Böni et al., 2015; Liza and Mwaura, 2016). Whilst M-Pesa was not designed with the circular economy in mind, it is particularly important as it was the first of its kind in the world and enabled Kenyan technologies to gain international recognition in their own right. That said, it is also worth noting the complex history behind M-Pesa's innovation.

Firstly, it is contested whether the inventor of M-Pesa was a Kenyan or not whilst it emerged from the part British-owned MNC Safaricom. And secondly the international influence of a grant issued by the Department for International Development in the United Kingdom that supported the early stages of the innovation (Tuko, 2019). Nevertheless, M-Pesa has since been cited countless times as a Kenyan innovation

(Hayes et al., 2013; Ngugi and Komo, 2017). In this way M-Pesa began to reverse the North-South system of technology transfer, enabling Kenyan technologies to be taken seriously (Mavhunga, 2017). The prevalence of technological innovation in Kenya makes the country a particularly relevant place to analyse the circular economy as the concept is so often dominated by technocentric narratives from the Global North (Mugge & Bakker, 2018).

Since this crucial shift in the narrative of who can produce technology, many Kenyan companies have been creating innovative technology products with sustainability considerations at the forefront of their designs. For example, the Angaza pay-as-you-go solar light pioneered in Kenya, is an archetypal example of frugal innovation - the process of reducing the complexity and cost of a good and its production (McMurray and de Waal, 2019) - and speaks directly to the circular economy (Schäfer et al., 2015). The Angaza light encodes data in audio tones ensuring the product can work with the most basic mobile phones, helping to bring solar lanterns to low-income consumers through an innovative feature phone enabled credit and payment system.

Moving away from a Western understanding of 'high-tech' (Mavhunga, 2017; Nagendra, 2018) we can also see a variety of 'low-tech' indigenous innovations in Kenya too. Bricolage entrepreneurship - creating something from waste (Baker and Nelson, 2005) is an approach commonly seen in Nairobi and is generally supportive of a circular economy approach (Kalmykova et al., 2018). For example, bricolage entrepreneurship is evident in the biogas and wind energy systems that have been locally designed and manufactured specifically for Kenya's low-income consumers (Linna, 2013). These factors have accumulated to make Nairobi emerge as an important location for innovation in waste management (Total Access to Solar, 2014), and in this way speaks directly to the circular economy. Furthermore, the prominence of Kenyan technologies give Kenyan examples of quiet sustainability, that will be seen in later chapters, greater credibility in challenging the Northern conception of the circular economy.

It is also worth briefly establishing the logic in selecting Kenya over many other countries in the Global South that share many of the aspects described in this section. Firstly, there was a desire to study the conceptualisation of the circular economy in a

country where the concept was emerging, but still nascent. Secondly, partly because of China's significant adoption of the concept, there is comparatively more analysis of the circular economy in Asian contexts than African contexts (Geissdoerfer et al., 2017, p. 761). In a similar vein, the influence of organisations such as the Ellen MacArthur Foundation have invigorated circular economy research in India (Ellen MacArthur Foundation, 2016a) and Brazil (ibid., 2017). This highlights the comparative lack of interest in Africa, despite the important fact that the dominant conception of the circular economy from the Global North is being promulgated at significant global events such as the Davos World Economic Forum (Confino and Holtum, 2014; Hobson, 2016). In this way, the Global North's conception of the circular economy is more mobile than the Chinese conception that has largely remained focused within China (McDowall et al., 2017). Therefore, interrogating this dominant conception of the circular economy in an African context, such as Kenya, was of particular interest.

Overall, there are many facets of the Kenyan economy that make it a valuable location to explore the conceptualisation of the circular economy. In summary these primarily include: the recent and profound impacts of climate change, the rapid growth of the economy and subsequent increasing environmental damage, a significant history of environmental movements in Kenya and international influences on Kenya's environmental policies that facilitate comparisons with European countries, a regional concentration of industry and multinational corporations in Nairobi, the city as a hub for Kenyan technology innovation that links to the circular economy. With this background we can now turn to a summary of this research's key findings.

### **1.3 - Research Findings**

The first key finding of this thesis is that there are notable business activities and practices in Kenya that implicitly demonstrate aspects of the ideal type of the circular economy. These activities are often identified under the guise of quiet sustainability. This finding comes in response to research question two, where can the circular economy be found in Kenya? In attempting to locate the concept, the cases from the research showed that aspects of the circular economy could be found within most

businesses. However, those that came closest to the ideal type of the circular economy generally did so through forms of quiet sustainability. This also led to answering research question three, how can the circular economy be understood within the local Kenyan context? This study found that low-tech business models and low-income populations both played a significant role in enabling business models close to the ideal type of the circular economy. For example, the case of the Akala sandal industry, presented in Section 6.2, demonstrates frugal innovation and bricolage entrepreneurship in articulating many aspects of the ideal type of the circular economy.

Following this point, this study found that the dominant conception of the circular economy could be undermining these important quiet sustainability contributions. For example, the Bintis case study in Section 7.3 highlights the dichotomy of 'organic' agriculture against 'traditional' or *kienyeji* agriculture in Kenya. This shows how the loud sustainability of organic agriculture is undermining the quiet sustainability practices of 'traditional' *kienyeji* agriculture and results in lower prices for *kienyeji* farmers, who are often low income smallholders. As the Western concept of the circular economy gains traction in Kenya, it may well similarly undermine quiet sustainability practices as the Western concept of organic has done. In this way, when considered in the Kenyan context the dominant conception of the circular economy is lacking because it does not adequately include important quiet sustainability contributions. Instead, as will be seen in the cases of Bamburi Cement, Coca-Cola and Safaricom in Sections 6.2, 6.4 and 7.2 respectively, the dominant conception is encouraging loud sustainability to the detriment of quiet sustainability. In doing so, these cases show that the terminology of the circular economy could be enabling new forms of greenwashing.

This brings us to the second key finding of this thesis, that the dominant conception of the circular economy from the Global North is unsuited to the Kenyan context, primarily because it is overly technocentric and does not adequately address social justice. This argument stems from the response to research question four, how does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North? This emphasised the critical differences in these two conceptualisations. The dominant conceptualisation from the Global North is typically technocentric, whereas the Kenyan conceptualisation from this thesis emphasises low-tech systems and the social dimensions of the circular economy. For example, the

Sanergy case study demonstrates through the tippy tap and their use of *mkokoteni* pushcarts, presented in Sections 5.3 and 7.4 respectively, that low-tech bricolage entrepreneurship and frugal innovation can have a significant role in articulating aspects of the ideal type of the circular economy.

Importantly, all of the cases from this research, and the supporting empirical evidence from other sources, are connected and directly engage with Kenya's poor. In doing so these cases show that with emphasis on the social dimensions of the circular economy, the concept can address issues of income inequality by creating employment opportunities for low-income populations. This is critical in Kenya's lower-middle income economic context where there is extreme income inequality (Oxfam, 2019; SID, 2004) and over a third of Kenyan's live below the poverty line (World Bank, 2018). This is a context that fundamentally contrasts with the archetypal circular economy of the Global North. Therefore, to be a relevant development paradigm, any consideration of the concept in Kenya must address issues of social justice. This thesis proposes a Kenyan conceptualisation of the circular economy that addresses these failings by rebalancing the priorities of the concept so that it places equal importance on social equity, the environment and finally economy.

The third key finding to emerge from the empirical evidence responds directly to the first research question, what forms is the circular economy taking in Kenya? Initially, the circular economy could be identified implicitly throughout many Kenyan businesses. These business models typically took the forms of the actually existing, or instrumental types of the circular economy. Throughout all of the organisations studied there was a continual demonstration that the forms of the circular economy identified in Kenya were unable to meet the holistic ideals of the concept. For example Small and Medium-sized Enterprise (SME) cases, such as Sanergy, were unable to integrate the holistic dimensions of the ideal type of the circular economy within their small operational remits, such as addressing their comparatively high carbon emissions shown in Section 6.3. Subsequently, Sanergy were only able to demonstrate an actually existing type of the circular economy. Whereas whilst it was noted how MNCs have sufficient scale to take a more holistic approach, they generally articulated an instrumental type of the circular economy. This was seen in Section 7.2 through the way that Safaricom (a MNC) undermined the quiet sustainability contributions of Stonehouse (a SME) through

Safaricom's corporate social responsibility programme. Whilst it is important to note that ideals in themselves are inherently unrealistic, the key point is that in its current form the dominant conception of the circular economy does not adequately account for the social dimensions which would make the ideal more attainable through quiet sustainability.

Overall these arguments bring us to the concluding argument of this research, that when applied to the Kenyan case studies of this research, the dominant conceptualisation of the circular economy needs to be reimagined. By giving the concept a more equal emphasis on social equity, the environment and finally economy, the circular economy is of greater value in the Kenyan context. In this way this thesis argues that the Global North's dominance over the conceptualisation of the circular economy has undermined its utility in Kenya. This will be primarily seen through demonstrations of quiet sustainability in the case studies. These activities are often low-tech and are largely overlooked in current conceptions of the circular economy. Furthermore, this alludes to how the technocentric language of the circular economy is at times enabling new forms of greenwashing and subverting positive social and environmental contributions from quiet sustainability practices.

In order to address this critique I suggest that there needs to be a shift in the understanding of the circular economy. The concept needs to be reimagined so that it places equal importance on social equity, the environment and finally economy. Thus I propose a definition of the ideal type of the circular economy as follows:

*The circular economy describes an economy that is regenerative by design with a continual flow of materials that helps to achieve balance and harmony between economy, environment and an equitable society.*

## **1.4 - Contributions**

This thesis makes several contributions to bring circular economy debate forward, an important and growing field in sustainability discourse. This thesis does so by bringing a new perspective from an international development viewpoint, using a series

of Kenyan case studies to analyse the concept in a context from the Global South. Subsequently, this research primarily speaks to the field international development, specifically sustainable development discourse. This means that this research follows on from debates in sustainable development and begins to apply similar lines of argument in regard to the circular economy. However, this research also has implications for a wider range of interested academics too as circular economy debate continues to expand to most disciplines (Korhonen et al., 2018b). In particular this research contributes to mainstream circular economy debate that is often interdisciplinary (Stahel, 2016a) by adding an international development perspective. Furthermore, this research further challenges aspects of circular economy theory, such as the way it addresses social dimensions, advancing debate around this essentially contested concept (Korhonen et al., 2018b). It also questions the role of the powerful grey literature, such as that from the Ellen MacArthur Foundation (2015a). By situating the circular economy within the field of international development this thesis also contributes to recently growing body of literature that concerns the circular economy in the Global South (Velis, 2017; Schröder et al., 2018a, 2018b, 2019a; Hobson and Lynch, 2016). This research is equally relevant to international development practitioners and circular economy practice too.

The following table sets out the research questions alongside each of their key findings and introduces the subsequent contributions to various discourses. This section will then elaborate on this table to more fully introduce these contributions. It should also be noted that these contributions are covered in greater detail throughout the following chapters before being summarised in the conclusions at the end of this thesis in Section 8.5.

**Table 1: Key Contributions of the Research**

Research question	Key finding	Contributions
<p>1. What forms is the circular economy (CE) taking in Kenya?</p>	<p>The forms identified that most closely articulated the ideal type of the circular economy were typically low-tech business models that included low-income populations.</p>	<p>The low-tech business models identified show how circular economy theory can be linked to international development discourse in regard to poverty reduction.</p>
<p>2. Where can the circular economy be found in Kenya?</p>	<p>Implicit forms of circular economy activities can be readily identified in Kenya in most sectors, but under varying sustainability guises.</p> <p>Business activities that were closest to the ideal type of the circular economy generally did so through forms of quiet sustainability.</p>	<p>As the circular economy is not yet well established in Kenya the concept can often be implicitly identified through more popular environmental discourses such as sustainable development or the green economy.</p> <p>Identifying quiet sustainability in this way opens up new questions about CSR and greenwashing in environmental discourses.</p>
<p>3. How can the circular economy be understood within this local context?</p>	<p>Concepts such as frugal innovation, bricolage entrepreneurship, as well as local terminology, helped to identify implicit circular economy activities.</p>	<p>These interdisciplinary concepts - which blend discourses of development, business, sustainability and technology - support new circular economy models that are particularly relevant in the Global South.</p>
<p>4. How does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North?</p>	<p>Forms of the circular economy closest to the normative ideal were less technocentric and more socially inclusive in Kenya.</p>	<p>Circular economy theory at a global level must be adapted to be more inclusive of alternative models from the Global South.</p> <p>Further post-development critique of the circular economy would support this.</p>

By looking at the social, environmental and economic dimensions of the circular economy, using a country-specific perspective, this thesis makes several contributions to the study of the concept as well as more broadly to the field of international development and sustainability discourse. The research questions firstly enable this study to situate a Kenyan understanding of the concept within extant circular economy discourse. The subsequent findings of the research questions then help to develop the theoretical underpinnings of the circular economy.

A key initial finding of this research was that implicit forms of circular economy activities can be readily identified in Kenya in most sectors, but these forms are often 'hidden' under varying sustainability guises. For example, most research participants described activities that supported the circular economy as being part of their approach to sustainability and the environment. Whilst this finding is unsurprising, evidencing it lays a foundation for understanding the concept in Kenya where alternative concepts are more popular, such as the green economy. This finding then develops into identifying the circular economy within local understandings of alternative concepts, such as *kienyeji* or *jua kali*, which is a critical novel contribution that sets up the subsequent analysis of the circular economy in Kenya. This is also an important finding for practitioner debates as well as academic ones as it suggests work should be done to ensure these alternative modes for the circular economy can be more readily included within the concept.

Multi-lateral institutions, such as the United Nations, have recently begun promoting the circular economy in sub-Saharan Africa (European Commission, 2019), yet there have only been a few detailed academic studies exploring the concept in poorer countries (e.g. Schröder et al., 2019a). Therefore, this research questions the application of the concept in Kenya, comparing the concept with similar terminologies such as the green economy and sustainable development. By interrogating the history of these concepts and their applications this thesis notes the development of a circular economy discourse coalition from the Global North and goes on to challenge their conception.

This also enables this study to build an evidence base and contribute to wider debates in sustainable development as well as the green economy. For example, this study furthers the work of Schröder et al. (2018a), who situated the circular economy

within the context of the Sustainable Development Goals, by developing an understanding of how the concept is being forged within the dominant sustainable development paradigm in Kenya. Furthermore, this study begins to bridge the divide between the traditionally separate fields of international development and the circular economy. This is a particularly important contribution towards international development practice as there is a significant opportunity for practitioners to leverage interest in the circular economy in the Global North to support poverty reduction efforts in the Global South.

The following analysis also uses quiet sustainability as well as several other concepts to contribute to debates within sustainable development. These other key concepts include: bricolage entrepreneurship, frugal innovation, the triple bottom line, weak and strong sustainability, ideal types from sustainability discourse, actually existing sustainability, and corporate instrumentalism. This conceptual framework also highlights how it is possible to identify circular economy practices from a fresh viewpoint, in a Kenyan context that is distinct from a typical economy in the Global North. This develops the evidence base for the circular economy in the Global South that has only just begun to emerge (Velis, 2017; Schröder et al., 2018a, 2018b, 2019a; Hobson and Lynch, 2016).

This research particularly draws attention to existing quiet sustainability practices articulated by SMEs in Kenya. The empirical evidence from the case studies will show that business activities which were closest to the ideal type of the circular economy generally did so through forms of quiet sustainability. This thesis brings the concept of quiet sustainability into a new field - circular economy discourse. This challenges the extant discourse coalition from the Global North that has typically emphasised the role of MNCs in creating circularity (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017; Park et al., 2010). In identifying quiet sustainability in Kenya, as well as its important role in achieving the aims of the ideal type of the circular economy, this opens up questions surrounding instrumental type of the circular economy. This builds onto similar arguments made by Brockington and Ponte (2015) about corporate social responsibility (CSR), greenwashing and the use of the green economy in African economies. In this way this study builds onto the critique of Valenzuela and Böhm (2017) by further questioning if the circular economy is leading to new forms of

greenwashing. This novel contribution, highlighting the role of quiet sustainability in Kenya, is of particular importance for practitioners who need to be wary and call out instrumental forms of the circular economy and loud sustainability if the normative aims of the ideal are to be achieved.

Many of the case studies from this research also draw attention to the importance of social equity. This directly responds to calls from a small subset of the circular economy literature that questions the concept's lack of a holistic approach (Merli, 2018; Moreau et al., 2017). For example, by showcasing the social structures and systems that enable circular economy practices in Kenya, such as the Akala sandal case in Section 6.2, this demonstrates how low-tech business models can help close material loops using frugal innovation whilst simultaneously closing the equity gap through bricolage entrepreneurship. In this way this research challenges the dominant conception of the circular economy to be more inclusive of social equity. This finding was supported by several other empirical cases presented in this thesis. Together these cases suggest that business models in Kenya which support low-income populations through labour-intensive, low-tech solutions are more closely aligned to desired outcomes of the ideal type of the circular economy than the more technocentric models often proposed by the discourse coalition from the Global North (Mugge and Bakker, 2018; Ellen MacArthur Foundation, 2015a; UNIDO, 2019a; World Economic Forum, 2014; World Bank, 2019a). Moreover, this also alludes to how the concept can be understood and interpreted in an atypical context in the Global South. This is an important novel contribution as it connects circular economy theory to international development discourse by demonstrating how the concept could be adapted to be supportive of poverty reduction in the Global South. Deconstructing the circular economy in Kenya, in a similar way to how sustainable development has been opened up to critique from a range of academic disciplines, helps to advance circular economy discourse. It also gives this study an opportunity to suggest ways to address some of the concept's failings (see Section 8.5) and challenge the influence of the extant discourse coalition. Doing so also suggests that further critique from a post-development perspective is required to further challenge the discourse coalition from the Global North in order that global circular economy theory is more inclusive of alternative models from the Global South.

Furthermore, the structured analysis of each case study provides a framework for future research methodologies that can analyse and compare circular economy business models in other contexts. This framework has enabled this study to provide several valuable novel contributions to our understanding of the circular economy in Kenya specifically, with insights as to how it could also be understood in the Global South more generally. In this way this study provides an expanded view of the circular economy by acknowledging the myriad ways that the concept can be articulated in creating differing types of the circular economy. In doing so this thesis has introduced concepts such as bricolage entrepreneurship and frugal innovation to circular economy discourse, subsequently forging new connections with discourses of development, technology and business studies that often draw upon these concepts (McMurray et al., 2019; Bhatti, 2012; Baker and Nelson, 2005; Altamirano and van Beers, 2018; Kalmykova et al., 2018).

Importantly, identifying the way these interdisciplinary concepts relate to the circular economy through the Kenyan context of this study broadens the horizons of circular economy discourse. This is particularly important as these ideas that are often of greater relevance in the Global South, which has been largely absent from circular economy discourse to date. This also emphasises the need for a more nuanced understanding of the concept that can take into account local specificities as well as the need to mitigate instrumental types of the circular economy.

This leads to a further novel contribution in highlighting the importance of finding a balance between the social, environmental and economic dimensions of the circular economy if the ideal type is to be realised. Without this balance, the concept is unlikely to lead to absolute sustainability. Therefore, policymakers and other stakeholders should focus on creating an environment that promotes such a balance and can challenge the technocentrism of the discourse coalition to date (Mugge and Bakker, 2018). Furthermore, by immersing the circular economy into international development literature, this thesis aims to advance current thinking by reimagining the circular economy. In doing so, this research also contributes to the existing body of sustainable development literature in international development theory and practice, extending existing work by bringing a focus to new 'circular' modes of thinking to this discipline.

This thesis also contributes to circular economy discourse by providing a bottom-up perspective of the circular economy to complement the existing multitude of macro-level analyses (Murray et al., 2017; Ellen MacArthur Foundation, 2016a, 2017; Schröder et al., 2018b). It also contributes to wider academia by helping to redress the existing geographic imbalances in current debates that largely exclude sub-Saharan Africa from circular economy discourse. In this vein this research highlights the nuances of the Kenyan economy in order that these concerns might be accounted for and fulfilled should the concept come to be a global development paradigm shift in the future.

Practically these outputs have also helped to demystify the circular economy in Kenya. Through this research 102 participants from 71 organisations (detailed in Appendix A) were consulted to see how they might employ aspects of the ideal type of circular economy in their activities. This thesis has synthesised the empirical data gathered from these participants to build knowledge surrounding the circular economy and pertinent sustainability concerns in Kenya. These participants included: international and local non-governmental organisations (NGOs), Kenyan small and medium-sized enterprises (SMEs) as well as multinational corporations (MNCs), multilateral institutions and government departments. This covered a wide range of industrial sectors including: waste management, technology, energy, forestry, public services, agriculture, tourism, construction, media, textiles, professional services, conservation, education, and environmental management. Throughout these organisations a range of staff were interviewed, from chief executive officers (CEOs) and founders as well as interns to give a comprehensive picture of how the circular economy was interpreted at these different levels. Whilst the majority of these interactions were singular interviews, the main case studies were conducted in depth with multiple interviews for each case. For example, with one key informant, a founder of the company, was interviewed a total of nine separate times, spread over 11 months. This enabled an in-depth picture of sustainability issues to be understood and reveal what forms the circular economy was taking. During this process as pertinent conclusions from the research emerged these were shared with interviewees where appropriate. For example, for businesses, such as Bintis, these practical outputs included highlighting how their business model could speak to the circular economy

and how this might lead to new avenues for funding. For others, such as Sanergy, this research provided new learnings by revealing the previously unknown carbon impacts of their business model.

Overall, this thesis makes several novel contributions to circular economy debate. These contributions centre around how circular economy theory should be amended to be more inclusive of contexts from the Global South that can be radically different to those initially imagined in the Global North. In particular, this thesis reveals important low-tech and quiet sustainability contributions made by the poor through methods such as frugal innovation and bricolage entrepreneurship that are supportive of the ideal type of the circular economy. Identifying these implicit examples of circular economy practice has revealed new modes of the circular economy that are less technocentric and also suggests that further post-development critique of the concept is needed. This has also opened up questions about the instrumental use of circular economy terminology, particularly through corporate social responsibility, which may be leading to new forms of greenwashing. In conclusion, this thesis helps to advance circular economy debate in these ways, such that the concept can become more inclusive of alternative models from the Global South and support efforts towards absolute sustainability.

## **1.5 - Thesis Structure**

The thesis is structured as follows. This introductory chapter has briefly given an overview of: the research project, the object of study, the geographic focus, the aims of the thesis, the research questions and the methodology. Following this, the reasons for this research's focus on Kenya were given. To conclude Chapter 1 a brief statement of the research findings and the contributions of this thesis were outlined.

Chapter 2 goes on to give the background for the thesis through a literature review. It starts by explaining in more detail what the circular economy means, interrogating its history, research fields and some of the theories of the concept. Here the circular economy is also located geographically as well as within the various academic fields it relates to. This helps to explain the challenges in defining this contested concept. Then

the history of relevant sustainability concepts is given, followed by a comparison of these terms with the circular economy. This helps us to place this analysis of the circular economy within a sustainability context, also explaining how the circular economy relates to the Global South. Then this chapter leads to identifying how this research contributes to a shortcoming within extant literature as well as the three main types of the circular economy that help to qualify further analysis of the concept. Finally, this chapter uses discourse analysis to understand how the circular economy has gained power and investigate the existence of a discourse coalition from the Global North. In doing so, this section also develops the theoretical framework that sets up the empirical analysis in the following chapters.

Chapter 3 details the methodology behind this thesis, beginning by explaining the research questions in detail. After this there is an epistemological overview, followed by the details on the data collection and analysis. At this point there is also a short reflection on my positionality and the ethical considerations of this study. Then the various limitations of this study are outlined. This leads to the explanations for the case study selection as well as a short introduction into the three main companies studied.

Chapter 4 establishes one of the main arguments of this thesis, how the circular economy can be identified and understood in Kenya using this research's empirical evidence. This leads to an explanation of why the circular economy is important in Kenya. Then the extent to which the various forms of the circular economy have reached Kenya is discussed. Subsequently, recent Kenyan policies are analysed to see if a form of the circular economy is being supported by the government. In doing so this chapter analyses the circular economy using the conceptual framework of quiet sustainability. It concludes with some examples of 'circular' practices in the Kenyan economy.

Chapter 5 situates the analysis of the circular economy in Kenya and this research's case studies by establishing how these key businesses link to the circular economy and subsequently to international development. The three main examples of this research provide evidence demonstrating how different forms of the circular economy can be found throughout Kenya's industrial sectors. In many ways these systems are similar to the Global North's definition of a circular economy, such as Sanergy's innovative service model for sanitation in informal settlements. However, these companies also

show new avenues, and stress different aspects of the circular economy that are largely missing in extant literature. For example, Sanergy's business model that makes significant contributions to social justice, and the way that Bintis' business highlights how quiet sustainability contributions are being undermined by Western terminologies. Or alternatively how Stonehouse's product, a solar-powered computer lab known as the EBOKS, is a product of high-tech manufacturing, countering the African unindustrialised stereotype. Yet it is specifically because of the development challenges associated with a lack of grid electricity that the high-tech EBOKS exists. Therefore, this chapter dispels the myth that the circular economy might not be applicable to the Kenyan context and argues that such a context is actually enabling aspects of the ideal type of the circular economy.

Chapter 6 uses the concept of organisational scale to question the role of Kenyan small and medium-sized enterprises (SMEs) in articulating various forms of the circular economy. Here the term 'scale' is used in reference to a large size or growth of business operations, for example, the scale of multinational corporations. Within the dominant conception of the circular economy the role of SMEs against that of larger corporations is still being debated. Yet, this research shows that SMEs, as well as Kenya's large informal sector, are making significant contributions towards aspects of the ideal type of the circular economy. At the same time, the empirical evidence also demonstrates that achieving every aspect of the ideal type of the circular economy is unrealistic in these cases. Nevertheless, these SMEs are typically articulating an actually existing form of the circular economy whereas the multinational corporations (MNCs) concerned demonstrate an instrumental type. In this way this highlights that the contributions of the SMEs studied are closer to the ideal type of the circular economy than the MNCs studied.

Chapter 7 contrasts the conceptual framework of quiet sustainability with greenwashing and 'loud sustainability' to analyse various companies' contributions towards the ideal type of the circular economy. In several cases loud sustainability is noted, which I suggest as a watered-down version of greenwashing that is without any duplicitous intent. It is most often articulated by MNCs through the instrumental type of the circular economy, notably through corporate social responsibility initiatives. These cases show how detrimental such efforts can be in undermining the environmentally

friendly contributions from quiet sustainability. From this viewpoint we will see that the Global North's technocentric conception of the circular economy, that is exclusive of quiet sustainability, is at times enabling new forms of greenwashing.

Chapter 8 concludes the thesis. Initially, the examples of the circular economy in Kenya are given to produce a localised understanding of the circular economy concept. In summarising the answers to the research questions the overarching argument of this thesis is given. This argument is that the circular economy needs to be reimagined to be inclusive of a context such as Kenya's that is fundamentally different to most nations in the Global North where the dominant conception is focused. This is followed by a brief reiteration of the limitations of this study, leading to recommendations for further research. Then the main three arguments are presented to conclude on how the circular economy may become the paradigmatic shift needed to address the urgent environmental issues facing society today. These contributions are then summarised, highlighting recommendations for international development theory and practice. To conclude the thesis I suggest ways to achieve balance between the social, environmental and economic dimensions of a circular economy.



## Chapter 2 - Background and Literature Review: What Is the Circular Economy?

This chapter gives the background for the thesis by interrogating the predominately European history of the dominant conception of the circular economy. Looking at the wide range of research fields it interacts with helps to define what it means and to who. Exploring the range of definitions and the theories of the concept gives us a deeper understanding that enables us to see how the concept fits within a wealth of comparable sustainability concepts. In order to situate this thesis within the context of broader sustainable development this chapter will also detail some of the history of relevant sustainability concepts, followed by a comparison of these terms with the circular economy. This leads us to identifying the geographic research disparity in how the concept can be interpreted in the Global South. Furthermore, this identifies a significant shortcoming in circular economy literature, the failure of the concept to address social justice concerns. Here I argue that these shortcomings exist because of the Global North's dominance over the circular economy's conceptualisation. This has happened as research priorities by organisations, such as the Ellen MacArthur Foundation, have attempted to preserve the concept as an attractive new mode of sustainability that is compatible with the interests of multinational corporations. In this form the circular economy does not prescribe radical change and also overlooks social justice concerns.

At the outset of this thesis one must have good understanding what is meant by the 'circular economy'. As our starting point we can use the Ellen MacArthur Foundation's (2015a) seminal definition given in Section 1.1. However, it must be noted that this definition is not comprehensive, nor universally agreed upon. As will be seen, the circular economy is a concept that defies a simple, universal definition. Nevertheless, in most circular economy debate the concept is broadly understood within the conceptualisation put forward by the Ellen MacArthur Foundation. This understanding of the dominant conception is well visualised and encapsulated by the popular butterfly diagram (Ellen MacArthur Foundation, 2016c).

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
ReSOLVE levers: regenerate, virtualise, exchange



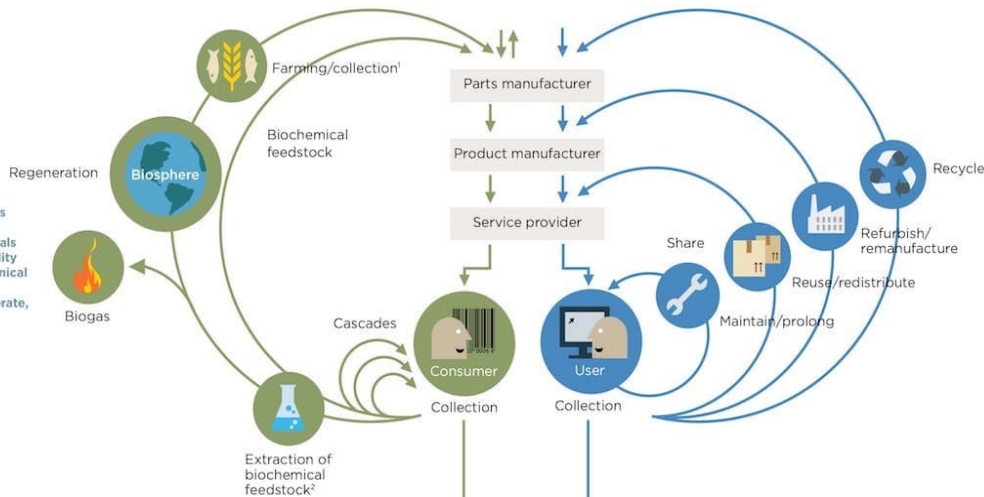
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities  
All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing  
2. Can take both post-harvest and post-consumer waste as an input  
Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Figure 1: The Butterfly Diagram (The Ellen MacArthur Foundation, 2016c)

From this understanding we can delve deeper into the history of the circular economy to discern what it means and to who. With this knowledge we can then analyse how the concept can be interpreted in the Kenyan context.

The work of authors such as Korhonen et al. (2018b) has established that the emergence of the circular economy is somewhat contested. It is typically traced to Walter Stahel and Genevieve Reday-Mulvey from their initial 1976 research report to the European Commission, *The Potential for Substituting Manpower for Energy*. The report was later published in 1981 as the book *Jobs for Tomorrow: The Potential for Substituting Manpower for Energy*. In this book they sketched the vision of an economy

in loops (a circular economy) with its impact on job creation, economic competitiveness, resource savings, and waste prevention (Stahel and Reday-Mulvey, 1981). Notably, Stahel emphasised selling utilisation instead of ownership of goods as the most sustainable business model (Stahel, 1982). This concept of selling utilisation is exemplified by the way in which in 2006 Michelin won a performance-based contract with the US armed forces. Under this contract payment was procured per service unit, such as the number of miles driven by road vehicles, rather than for each tyre bought (Stahel, 2010).

This model of selling utilisation rather than ownership did not belong within Stahel's architectural background and it appears that Stahel's initial forays outside of his discipline began the trend of the circular economy being an interdisciplinary concept. In the 1980s the theories of the circular economy were not well formed or defined, but more simply an overarching and idealistic idea of how an economic system could be redesigned with job creation at its heart. At this origin it was a European concept. Indeed Stahel later credited the European Commission for being 'instrumental in the initial search for a circular economy' (Stahel, 2016b) by commissioning this seminal paper.

Although there is some minor debate about who first coined the term 'circular economy' what is of most interest for this research is how the terminology came to prominence. Several contemporary circular economy researchers credit Pearce and Turner's (1990) UK-focused work for driving the concept forward (Andersen, 2007; Ghisellini et al., 2016; Su et al., 2013). Pearce and Turner's chapter on the circular economy developed an evolving analysis of the linear and open-ended characteristics of extant economic systems. In doing so, they brought a new academic interest for the circular economy to the UK. This also meant that the concept remained predominately European, an origin that has become fundamental to many of the concept's theoretical underpinnings.

References to the circular economy can be found erratically since 1976 as the concept of the circular economy developed. These references were often under varying guises such as 'industrial ecology,' 'industrial symbiosis,' a 'closed loop economy,' as well as local variants such as the German word 'Kreislaufwirtschaft' that has existed in German legislation since 1996. However, it was not until 2011 that the term 'circular

economy' became a mainstream way of describing these often similar but not identical concepts (Nissen, 2015). In the last ten years there has been more than tenfold growth in the number of publications the circular economy (Geissdoerfer et al., 2017, p. 760). Nevertheless, 'the absolute number of publications on the circular economy is small when compared to publications on sustainability... [suggesting] that research on the circular economy may be far from saturated, and there is great room for improvement in terms of conceptual development and cross-fertilisation from other research fields' (ibid.).

This space for further circular economy research was part of the inspiration for this research as fields such as international development have been largely absent in extant circular economy discourse. This shortcoming will be described in more detail in Section 2.13. In doing so, this research directly responds to Geissdoerfer et al.'s suggestion by diverging from mainstream circular economy debate and considering common issues from international development in this analysis of the circular economy from a Kenyan perspective. From the emergence of the circular economy what is most important is that the terminology was distinctly European in nature. This has significant implications regarding the surging popularity of the concept and asks questions as to the suitability of the concept for its global application through this Kenyan study.

## **2.1 - The Fields of the Circular Economy**

The origins of the circular economy are European, but the concept has since spread globally and throughout a variety of academic disciplines and fields of study. The circular economy is 'mainly rooted in ecological and environmental economics and industrial ecology' (Ghisellini, 2016, p. 17), going further in its propositions than its predecessor industrial ecology by eliminating waste altogether. The adoption of the concept over the last ten years has seen vast growth and multidisciplinary breadth of literature concerning the circular economy. In 2018 the existing literature included contributions from the following key subject areas, listed in order of prevalence: environmental science, engineering, energy, business and management, social sciences, economics. Amongst these are many interdisciplinary contributions, including

those from Stahel (2016a), who is still regarded as one of the world's most eminent thinkers on the circular economy. Beyond these fields, the circular economy has also encompassed academic areas ranging from computer science to the arts and humanities, or medicine to mathematics, and looks to be involved in almost every field in due time. Yet, interest from some of these fields is often fleeting. International development is one of these fields where there has been relatively little consideration of the concept to date - an issue this research begins to address.

From this broad engagement with the circular economy there are a wide range of perspectives on how the circular economy can be envisaged. For example, engineering perspectives largely focus on technological advancements surrounding waste management, resource use and environmental impacts (Leipold and Petit-Boix, 2018). This contrasts with much of the business, management and accompanying grey literature that is often focuses on the size of the economic opportunities the circular economy presents (e.g. Perey et al., 2018; Ellen MacArthur Foundation, 2016a) as well strategic, logistical and political aspects of doing business (e.g. Lacy et al., 2014; Park et al., 2010). It is worth noting that despite these differences, the dominant conception in the Global North largely falls under the version of the circular economy promoted by the Ellen MacArthur Foundation. This conception is fundamentally technocentric and largely sidesteps social concerns (Murray et al., 2017; Moreau et al., 2017; Hobson and Lynch, 2016; Mugge and Bakker, 2018). The technocentrism of this dominant conception generally manifests through ideas of new technologies that might substantially improve material and energy resource efficiency (Stahel, 2016a), such as 3D printing (Despeisse et al., 2017; Prendeville et al., 2016). In part due to this focus on technology, there is limited reflection on the social dimensions of change.

In many ways this breadth of academic engagement is necessary considering the all-encompassing territory of the circular economy. As seen through the work of Blaikie et al. (1995, p. 1) 'environmental issues are by definition also social ones, and therefore our understanding must rest on a broader interdisciplinary perspective that transcends institutional and professional barriers.' Therefore, as similarly seen from the wealth of literature concerning sustainable development, research on global environmental change, such as the circular economy, must be pursued through collaboration between the natural and social sciences. However, despite this necessity, the differing

perspectives of ecologists and economists have long provided difficult terrain for effective engagement on issues of sustainability (Tisdell, 1988). Although circular economy discourse, at times, attempts to transcend existing disciplines, in doing so it often echoes the problems of communication across disciplines noted by Agrawal and Ostrom (2006). In this way circular economy debate follows the tradition whereby authors from the fields of development and environment often make 'confident inroads onto each other's territory with scant regard for the exact meaning or purpose of terminology' (Adams, 2008, p. 20). This explains why as an interdisciplinary subject the circular economy faces significant challenges from a lack of consensus. This is the context from which the circular economy has emerged and helps to explain some facets of its development, particularly its inconsistent definitions.

The considerable academic interest in the circular economy, typified by the conceptual work by Kirchherr et al. (2017), has led to ever more diverse interpretations of the circular economy. Whilst the circular economy can be traced back to academia, it was the popularisation of the concept by the Ellen MacArthur Foundation that has led to such widespread adoption (Cayzer et al., 2017). Although the Ellen MacArthur Foundation itself is an advocacy-focused charity, it is far removed from typical international development focused non-governmental organisations (NGOs). Instead, the Ellen MacArthur Foundation generally appeals to large Western multinational corporations, offering consultancy services whilst lobbying governments to promote its business-orientated ideation of the circular economy. The linkages that the Ellen MacArthur Foundation have helped to establish between grey literature and certain fields, such as policy studies, help to explain the breadth of the circular economy.

The dominant conceptualisation of the circular economy is often accompanied in such grey literature by a 'seemingly unrealistically promising business case for the private sector' (Geissdoerfer et al., 2017, p. 766). Perhaps so, because such positive conceptualisations of the circular economy (e.g. Allwood et al., 2012; Ellen MacArthur Foundation, 2016a; Webster, 2017) generally 'exclude large parts of the social dimension, emphasise economic benefits, and simplify the environmental perspective' (Geissdoerfer et al., 2017, p. 766). This makes this dominant conception of the circular economy appear more attractive for policy makers and private business than alternative sustainability approaches such as 'strong sustainability'. At this juncture it is helpful to

briefly explain the differences between the concepts of weak and strong sustainability that comprise part of this study's conceptual framework.

Weak sustainability is a theory from environmental economics that suggests human capital can substitute natural capital. Under this theory technological innovation and monetary compensation can overcome environmental degradation. Whereas strong sustainability claims this substitutability is severely limited and therefore requires conservation of irreplaceable and critical stocks of natural capital for future generations (Pelenc and Deduerwaerdere, 2015). From the dominant conception of the circular economy, that is fundamentally technocentric (Mugge and Bakker, 2018), the opposing concepts of weak and strong sustainability provide a useful framework from which to analyse the varying forms of the circular economy. This helps this research to contribute to debate at the fringes of circular economy discourse, where the normative values of the concept, typically espoused by the grey literature, are being questioned by academia (Hobson and Lynch, 2016).

The motivations and major influencers behind the movement for the circular economy are critical when considering its relevance for the Global South. The circular economy has not been explicitly linked to greenwashing to date (Sauvé et al., 2016), yet there are nonetheless several related concerns around the concept. Greenwashing is generally defined as organisations intentionally making claims of environmental responsibility for marketing purposes that do not correspond with their actual practices on the ground (Seele and Gatti, 2017). There are a few academics, such as Hobson and Lynch, who have voiced concern over the dominant conception's 'unquestioned reliance upon, and uptake of, technologically-mediated forms of social engagement' as well as requirements for us all to become green consumers (Hobson and Lynch, 2016, p. 3). This critique of the circular economy has largely been sidelined by the dominant rhetoric from the grey literature that espouses the virtues of the circular economy and has a 'heavily technical and celebratory emphasis' (Gregson and Crang, 2015, p. 31). Nevertheless, considering the Kenyan focus of this thesis, such critiques are of particular interest. Alongside Hobson and Lynch a few other authors have also questioned the linkages between the Global South and the circular economy. For example, Schröder et al. (2018b) have highlighted that the circular economy may negatively impact the employment and livelihoods of vulnerable populations in the

Global South, something also Velis (2017) also noted concerning informal waste pickers.

To date however, the predominant interest in the circular economy remains around how businesses can decouple economic growth from the use of natural resources and ecosystems by using those resources more effectively. In this way it is essentially a reimagining of green growth. This is exemplified by Lacy et al.'s Accenture consultancy report (2014, p. 1) that claims the circular economy can 'create value in a world without limits to growth.' Frankly, against such powerful rhetoric, negative viewpoints regarding the circular economy are simply not welcome in these contexts. Therefore, this research builds upon initial concerns about the circular economy in the Global South to further interrogate the experienced values of the circular economy in Kenya as opposed to the normative rhetoric that is so often heard. In order to analyse the circular economy in Kenya we must first develop a wider understanding of how the concept is positioned globally and subsequently the extent of its influence in Kenya.

## **2.2 - Locating the Circular Economy**

Since the circular economy emerged from Europe, the Global North has collectively dominated the concept, although China has notably taken an immense interest in the concept. This is most simply demonstrated by the concept's prevalence in academia. Geissdoerfer et al. (2017) show that the most common geographical locations of academic publications concerning the circular economy are in order: China, UK, Netherlands, USA, Italy, Japan, Sweden and Germany. Together countries from the Global North have published over twice as much circular economy literature as China. In looking further down Geissdoerfer et al.'s list the Global South is notably absent, apart from the important Chinese exception and a few articles featuring India (*ibid.*). This demonstrates the importance of the Global North's collective conception. Furthermore, this dominant conception is of particular interest because this is the form of the circular economy that is being promoted at significant global events. For example at the Davos World Economic Forum which influenced the United Nation's adoption of the concept (Confino and Holtum, 2014; Hobson, 2016; UNIDO, 2019a; UN, 2018a).

The dominant conception of the circular economy, which is broadly the form proposed by the Ellen MacArthur Foundation, is arguably Eurocentric (Cayzer et al., 2017). That said it is important to note the role China has had in shaping their own unique conception of the circular economy. Recently China has become a global leader in the circular economy. This is a significant exception as they are the only country from the Global South to do so. China was the third country in the world, after Germany and Japan, to introduce legislation in 2009 that specifically promotes a national circular economy approach (Geissdoerfer et al., 2017, p. 759). Subsequently, by 2016 China had produced almost four times the volume of published circular economy work compared to the UK that came second placed (ibid., p. 761). This immense volume of work from a single country is typical in demonstrating how 'a few players have taken the lead in the conceptual development of this emerging topic' (ibid., p. 760).

The Chinese conception of the circular economy is notably different to that of the European Union with a greater focus on pollution and being framed as a response to rapid growth and recent industrialisation (McDowall et al., 2017). In China the circular economy is being promoted as 'a top-down national political objective' (Ghisellini, 2016, p. 1). Whereas Japan's eight circular economy laws established in 2000, are more comparable to approaches from the USA and the majority of the EU, where the circular economy is 'a tool to design bottom-up environmental and waste management policies' (ibid.). However, it is worth noting that Japan's laws did not provide a holistic approach to the ecological aspects of material flows (Heck, 2006). Nonetheless, similar to the dominant conception of the circular economy from the Global North, the Chinese conception has been equally critiqued for failing to address social dimensions. Professor Yong Geng, who specialises in quantitative social research and is one of China's most prolific circular economy authors, regularly cites this failing of the Chinese conception of the circular economy and China's multilevel circular economy indicators (McDowall et al., 2017; Geng and Doberstein, 2008; Geng et al., 2016). Overall, we can see that the Chinese conception of the circular economy is slightly different to that from the Global North. However, this important Chinese exception hardly means that the voices of the entire heterogeneous Global South have played a role in the conceptualisation of the circular economy.

The paucity of academic debate concerning the circular economy in Africa in particular is notable. In 2016, Scopus, the world's largest abstract and citation database of peer-reviewed literature, was able to find only one article containing both the 'circular economy' and 'Africa' within the title, keywords and abstract, yet even this article only considered the harmful impacts of e-waste in Africa, rather than considering the concept and its relationship to the continent. This theme was echoed throughout a variety of platforms, even when expanding the search criteria to include the full text of documents held by platforms including Science Direct, ProQuest and Google Scholar. These results were also repeated through a range of searches concerning African countries that were leading circular economy debate in sub-Saharan Africa at the time such as South Africa, Nigeria, Rwanda and Kenya. Apart from South Africa, these searches were unable to produce any relevant articles for these countries.

At the start of this research in 2016, the few instances where work referenced the continent and the circular economy, African concerns were only mentioned in passing. A typical example was how *The circular economy and developing countries* (de Jong et al., 2016, p. 22), mentions Kenya just once, in the context that Kenya exports a critical raw material, Fluorspar, to the EU. There have been a few more subsequent relevant publications as this research process has progressed. However, these have generally echoed the shallow references to the concept. For example, the way that Ololade et al. (2019, p. 16) claim through their sole reference to the circular economy that 'the implementation of a circular economy in Bloemfontein will translate to less pollution and enhance sustainable development' without defining what their understanding of the circular economy is. Only recently in 2019 have more in-depth studies emerged such as Asamba's (2019) Kenyan contribution to the pioneering volume by Schröder et al. (2019a) that focuses on the circular economy in the Global South. Perhaps one of the most striking facts that demonstrates how overlooked the African continent was in 2016 is that the leading global proponent of the circular economy, the Ellen MacArthur Foundation's slogan was solely exclusive of Africa. Their website slogan read 'circular economy - UK, USA, Europe, Asia and South America' (Ellen MacArthur Foundation, 2016b).

One of the main reasons why interest in the circular economy in Africa has been lacking stems from the dominant conception's focus on high-tech industrialised

processes. In general, this has meant that this high-tech conception has remained disassociated from less industrialised economies in the Global South, notably most African economies. The circular economy stems from a background of waste management. This industrial sector still dominates as the concept as it is inherently about transforming waste into resources. However, following this sector, manufacturing is the next most prevalent context of the circular economy. Otherwise, the concept is sporadically found in most sectors as the concept has gained significant traction with policymakers and academics. Subsequently, there are instances of businesses, predominantly multi-national companies (MNCs), that claim to follow a circular economy mantra, particularly in their waste and manufacturing processes. Many of these examples, as featured by the Ellen MacArthur Foundation (2020b), show MNCs vertically integrating their operations so as to reclaim their own waste. Subsequently, because of the low levels of industrialisation in many African countries (Rodrik, 2017, p. 244), the circular economy can be seen as being not relevant. This amongst other reasons, has resulted in a lack of African perspectives on the circular economy. Yet, the overarching nature of material flows globally means that the concept inevitably interacts at a global level as well as in local contexts. Therefore, analysing the circular economy from the Kenyan perspective will help to address this imbalance.

The relationship of MNCs to the circular economy proves to be of particular interest because the case studies from this research highlight that scale can be a critical aspect to realising the ideal type of the circular economy. Therefore, at this point it is necessary to give a brief theoretical understanding of organisational scale. First, it is helpful to establish what is meant by 'scale'. The term is popularly used in reference to a large size or growth of business operations, for example, the scale of multinational corporations. Building on from the classic exposition on economies of scale by Chandler (1994), scale is predominately used in this thesis in reference to economies of scale.

Economies of scale generally are understood as a proportionate saving in costs gained by an increased level of production. A simple example of economies of scale is bulk purchasing - simply by purchasing products in larger quantities you can often consolidate transportation costs by using a larger delivery van, helping to reduce the average cost of transporting each unit, essentially reducing the average variable cost

per unit. Or alternatively, by accommodating larger fixed costs (such as machinery and equipment) this can result in economies of scale, reducing the fixed cost per unit. Such a strategy is also known as technical economies of scale - investing in specialist machinery. There are also many more complex types of economies of scale such as: financial economies of scale - larger firms will have greater access to more favourable credit facilities, or alternatively the specialisation of the workforce which enables complex tasks to be separated helping to boost productivity. It is not necessary to go into greater detail on the theory of economies of scale until later in Chapter 6 when the most relevant aspects of scale will be highlighted. For now the pertinent point from this understanding of economies of scale is the idea that with sufficient economies of scale it becomes profitable to conduct activities that would be prohibitively inefficient at smaller scales.

This phenomenon from economies of scale has been noted by academics, such as Mulley et al. (2009), in how economies of scale are critical to enabling more sustainable public transport systems. This leads directly to one of the main case studies, Sanergy - who will be introduced in the following Chapter in more detail, who's business model revolves around efficient collection systems and requires a mass user base in a concentrated area. Whilst scale is largely atypical to most sustainability discourse, it is often pertinent in discourse considering limits to growth and degrowth. For example, Said and MacMillan's (2020) work demonstrates how small-scale enterprises can support a degrowth agenda. Similar arguments can be found amongst myriad authors who have been inspired by Schumacher's (1974) seminal argument that 'small is beautiful' (Hopkins, 2014; Kish and Quilley, 2017). In general, these arguments stem around the idea that a more localised (as opposed to globalised) economic system and politics alongside appropriate technologies that place greater value on human relationships and the environment can lead to human flourishing in harmony with absolute sustainability.

There have been myriad critiques of such ideas and degrowth in general (see Kallis et al., 2018). Whilst such critiques accept that GDP (per capita) is a very imperfect indicator of social welfare (van den Bergh, 2011), there remains a central question around whether scale is necessary to enable vital technologies such as widespread installation of photovoltaics and solar water heaters (Schwartzman, 2012). This

question is pertinent to several of this thesis' case studies and also leads to questions concerning the role of large corporates in realising absolute sustainability. In this vein the arguments of diseconomies of scale (a proportionate increase in costs from an increased level of production) are particularly pertinent in considering how SMEs might contribute to the ideal type of the circular economy as compared to MNCs (Stahel, 2013).

Within circular economy discourse there has been relatively little consideration of how scale can enable or frustrate progress towards the ideal type of the concept. On one hand a few academics, including Stahel (2013) and Webster (2013), have suggested that large-scale companies are incompatible with the concept, as scale can encourage ever-larger production and consumption flows that inevitably result in short-lifecycles of products. However, on the other side of the debate, some academics, such as Park et al. (2010), have identified scale as a tool that enables companies to increase circularity. Such ideas can be simplistically represented by considering that most recycling systems that require the aggregation of waste materials in order for them to be efficiently processed. This outlook is echoed by some advocates for the circular economy who have highlighted the importance of MNCs in building towards the ideal type of the circular economy (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). Both of these arguments will be explored in greater detail in Chapter 6 alongside several cases from Kenya. For now it is only necessary to introduce this contested theme within circular economy discourse to set up the analysis in the following chapters. Subsequently, the analysis of this research's empirical data will help us in questioning the ways in which scale is an enabler of the ideal type of the circular economy, as well as how economies of scale might also lead away from this ideal too.

Now with an understanding of the history and geographical spread of the circular economy we can narrow in on its contemporary meaning. The circular economy brings about several somewhat transient definitions due to the complexity of the idea itself and how elusive the normative ideal is in real world systems. There have been numerous attempts to synthesise the varied interpretations of a circular economy, most notably the analysis of 114 definitions by Kirchherr et al. (2017). A key point from these conceptual reviews is that the grey literature from the Ellen MacArthur Foundation has been cited as seminal for its definition of the circular economy (Bruel et al., 2019;

Kirchherr et al., 2017). This claim is largely due to the consistent and forceful way the Ellen MacArthur Foundation have been advocating for the promotion of the circular economy, such that they are now seen as a global circular economy thought leader (Kozlova et al., 2017). According to Geissdoerfer et al. (2017, p. 759) the Ellen MacArthur Foundation's definition has become the 'most renowned definition' introducing the circular economy as 'an industrial economy that is restorative or regenerative by intention and design' (Ellen MacArthur Foundation, 2013, p. 23). This becomes particularly relevant as we look at what the circular economy means, and to who, noting that Korhonen et al. (2018b) have shown that the circular economy is an essentially contested concept.

The technical elements of the Ellen MacArthur Foundation's (2015a) definition have been generally accepted as starting point of what the circular economy means (Kirchherr et al., 2017). There is consensus that the concept is an ideation of an economy with a closed loop for materials where 'materials of sufficient quality are recovered to be used in the same type of product they came from, or that components or whole products are recovered in a way that enables them to be reused' (Benton et al., 2014, p. 21). The basics of this understanding are also seen in the Chinese implementation of the concept and is well illustrated by Geng and Doberstein (2008); Geng being one of China's most prolific circular economy authors. In practice the concept is used to describe closed loop practices beyond classical examples of recycling steel or iron. For example, companies such as Hengji are cited as for implementing circular economy principles by treating residential wastewater and sending this treated water to ten nearby companies within the Dalian Economic and Development Zone for reuse (Geng et al., 2009). This typifies the Chinese implementation of the circular economy where eco-industrial parks have been designed to capitalise on the trading of industrial by-products such as heat energy, wastewater and manufacturing wastes (Geng and Doberstein, 2008).

To summarise, Geissdoerfer et al. have put forward a collective suggestion defining 'the circular economy as a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling' (Geissdoerfer

et al., 2017, p. 759). As an example, in practice this can be seen through how European Union circular economy funding was used to support a bicycle repair workshop in Dublin (European Union, 2020). This business takes bicycles that would otherwise be at end-of-life and be recycled. Instead the workshop refurbishes the bicycles so that they can be reused. This act of restoration minimises leakage from this material and energy loop. So to give a more succinct definition, the circular economy can be described as a model which replaces the end-of-life concept with restoration.

With this understanding we can begin to explore some of the complexity and nuance behind the various theories of the circular economy. Despite the recent popularisation of the circular economy and the subsequent volume of publications, the 'basic assumptions concerning the values, societal structures, cultures, underlying world-views and the paradigmatic potential of [the circular economy] remain largely unexplored' (Korhonen et al., 2018b, p. 1). So although most circular economy advocates claim that through innovation and technological change this new economic model is fully compatible with ecological sustainability, there remain considerable questions as to how this can be achieved.

The idealistic and unrealistic ideas behind the circular economy are in part due to the duality and lack of consensus of the varied parties involved in developing the concept. On one side, there are business-led interests, for example advocacy groups such as the Ellen MacArthur Foundation (2019), that have produced vast volumes of circular economy grey literature. This has led to formal definitions for the concept from bodies like the World Bank (2019a), as well as more informal, adapted definitions from interested corporations such as Unilever (2019). On the other side, there are academic interests that have often redefined the concept to fit within their specific discipline or particular field of interest. The tensions between these disparate groups mean that debate surrounding the evolving concept often lacks focus. It is thus pulled in different directions as a vague rhetoric suits policy interests whilst scientific disciplines try to enforce a greater emphasis on metrics, tools, instruments and computations. This dichotomy is then seen in the way the concept travels through advocacy efforts largely from business interests into policy, but also from NGOs and academics trying to use its popularity in the hope they might direct it towards their individual objectives. In order to

understand these varied interpretations of the concept it is necessary to detail some of the theories of the circular economy.

## **2.3 - The Theories of the Circular Economy**

Several different strategies and theories have been suggested to advance circularity and help realise a circular economy. At times these strategies can be as broad as simply closing material loops by increasing reuse and recycling (Unilever, 2019). Alternatively, social ecologists have suggested that the concept requires a shift from fossil to renewable energy sources. Doing so would then translate efficiency gains into a reduction of the overall level of resource consumption which help create a circular economy (Haas et al., 2015). Both of these strategies are explicitly supported by the Ellen MacArthur Foundation (2013a, 2019b).

As shown earlier, circular economy debate is found in a wide range of subjects, which has led to a wide variety of circular theories. Most commonly these revolve around business models, manufacturing systems, industrial processes, environmental economics, production economics, operations research and on occasion global strategy (Lahti et al., 2018). Some of the most important theoretical influences (Geissdoerfer et al., 2017) on the circular economy are: cradle-to-cradle (McDonough and Braungart, 2002), laws of ecology (Commoner, 1971), looped and performance economy (Stahel, 2010), regenerative design (Lyle, 1994), industrial ecology (Graedel and Allenby, 1995), biomimicry (Benyus, 2002), and the blue economy (Pauli, 2010). However, in looking at these theoretical influences, it must be again emphasised that the circular economy has been dominated by grey literature 'rather than peer-reviewed scientific work' (Lahti et al., 2018, p. 2). Therefore there has been a focus on fixing problems rather than generating theories (ibid.). Subsequently, many of the ideas of the circular economy are tools rather than theoretical constructs. Many of these ideas stem from the grey literature and tend to be practical and speculative rather than academic theories.

From this grey literature the Ellen MacArthur Foundation put forward their construct of the four sources of value creation that they claim are part of the building blocks of the

circular economy (Ellen MacArthur Foundation, 2013b, p. 34). The first source of value creation is known as the power of the inner circle. This describes materials staying in 'inner loops' to save embedded resources and impacts. This can most easily be understood in the sense that it is more circular to maintain a product than it is having to recycle it and go through further industrial process to remake a second similar product. As will be seen from later case studies such as Stonehouse in Section 5.5, this approach is often easily identified as an easily replicated circular strategy.

The second source is known as the power of circling longer. This strategy tries to keep materials in play through multiple cycling or by lengthening cycling duration to save on virgin material inputs. The third source is the power of cascaded use that transforms materials across product categories to offset the need for virgin material inputs. This strategy is slightly more challenging to effect as it requires particular supply chains to align. Nevertheless, as will be seen by the later Sanergy case study in Section 5.3, such an approach can create substantial value from waste. The fourth and final source is the power of pure materials which describes designing better products to facilitate reverse logistics and maintain material quality. Overall, this theoretical construct helps us to simply understand how a circular economy approach can be taken by many businesses as almost all companies can in some way use at least one of these approaches in some way.

Another theoretical construct that is common throughout academic debate regards the recovery of materials in the biosphere and the technosphere. This describes a reclassification of materials into two distinct metabolisms. Firstly, there is the biological metabolism made up of biological nutrients that can be reintroduced into the natural system and represents the cycles of nature. This is also known as the biosphere. Secondly, there is the technical metabolism that represents the cycles of industry. Here manmade technical ingredients are envisaged to be recoverable through industrial recycling mechanisms and can endlessly loop through this technosphere (Geisendorf and Pietrulla, 2017; McDonough and Braungart, 2009, p. 104). This construct is particularly helpful in helping those unfamiliar with the concept of the circular economy to envisage how the natural cycles of the biosphere can be replicated through the ideal of the technosphere. As will be seen in Section 3.6, this construct was used to further explain the circular economy concept to research participants.

In attempting to unify some of these discrete circular economy theories, some advocates have tried to underpin the circular economy with a holistic backing. For example, Haas et al. (2015) explain that the wide variety of different circular economy strategies for different material flows and their interdependencies mean that it is important to consider their overall contributions both to closing material loops within the economy and making use of ecological material cycles. Such holistic approaches have also led to idealistic and shallow considerations of how the concept can also make a positive social impact through a focus on material cycles. For example, the Green Alliance (2015), a charity and environmental think tank, have suggested a circular economy will create jobs in the repair sector, without acknowledging the jobs that would be lost in manufacturing if demand for new products is offset as intended. Nevertheless, despite these theoretical ideas, and many more not discussed here that now form the conceptual framework of the circular economy, circular economy practice is often far removed from these theoretical ideals (Franco, 2017; Winans et al., 2017).

Few of these theories have been applied in practice despite the rapid growth of academic work and accompanying grey literature. Generally, the implementation of circular economy initiatives are in the early stages, mainly focused on recycling rather than reuse (Ghisellini, 2016). It is worth elaborating that recycling, whilst part of the circular economy, is a strategy that is often underplayed in grey circular economy literature. This is because the concept is typically positioned as novel. Therefore, as recycling systems were mainstreamed in the 1970s they are hardly novel, and so this aspect of the circular economy is often only mentioned briefly in grey literature (e.g. Ellen MacArthur Foundation, 2016a, 2017). Yet recycling is by far the most widespread strategy employed in practice that is described as part of the circular economy (Franco, 2017; Winans et al., 2017). For some materials, recycling is already very advanced (e.g. metals, paper, and glass) and therefore is a realistic route to achieving a circular economy (Haas et al., 2015). However, for other materials, due to high energy requirements for recycling and the fact that the secondary material is often lower quality than the original, it often subsequently still leads to virgin material demand (Graedel et al., 2011). In summary, this short explanation shows that circular economy theory is often far removed from praxis.

Nonetheless, the contemporary circular economy has become established as an environmental movement, aiming to push society away from the growing narrative of a 'take, make and dispose' model and ultimately decouple 'environmental pressure from economic growth' (Ghisellini, 2016, p. 16). Yet, considering how recycling practices are globally ubiquitous in a wide variety of forms, then perhaps forms of the circular economy exist in Kenya but under a different terminology? Perhaps there might exist an unidentified 'quiet' circular economy in Kenya, that follows the ideas of 'quiet sustainability' (Smith and Jehlička, 2013)?

In order to answer this question it is necessary to give a more detailed explanation of the quiet sustainability concept that is a core component of this thesis' conceptual framework. Originally described by the environmental geographers Smith and Jehlička (2013, p.34), quiet sustainability is the idea that 'large sections of humanity may already be on [sustainable pathways] without feeling the need to proclaim the fact loudly.' In essence quiet sustainability conceptualises the 'widespread practices that result in beneficial environmental or social outcomes and that do not relate directly or indirectly to market transactions, but are not represented by their practitioners as relating directly to environmental or sustainability goals' (Smith and Jehlička, 2013, p. 1). Although the concept of quiet sustainability remains on the fringes of academic environmental debate, it helps us to envisage circular economy practices in Kenya through the ways that many people 'carve out livelihoods that very often have positive environmental benefits... [such as] multifunctional agricultural practices [or] the recycling of urban waste' (Leach and Scoones, 2015, p. 129). These important practices are simply demonstrated by the fact that the poorest half of the world's population, 3.5 billion people, is responsible for just 10 percent of global carbon emissions (Oxfam, 2015). Although such viewpoints can be cursorily dismissed as simply environmentalism through poverty, 'everyday environmentally oriented practices, rooted in the cultures of sharing, guardianship, repairing and responsibility, should not be dismissed lightly' (Leach and Scoones, 2015, p. 129).

That said, quiet sustainability has yet to be adopted into mainstream sustainability debate. Therefore, it is necessary to take a critical look at the concept. As a relatively new and fringe concept, quiet sustainability has only a few advocates and subsequently there is little extant academic critique to draw upon. However, the concept shares a

similar basis to other concepts that can be accused of romanticising the lifestyles of the poor, such as bricolage entrepreneurship and frugal innovation (McMurray and de Waal, 2019), concepts that also form part of this thesis' conceptual framework. Firstly, it is important to note that 'romanticising the poor harms the poor' Karnani (2009). Then to take account of the fact that although many quiet sustainability activities are arguably 'environmentalism through poverty' these environmental benefits should not be ignored either (Leach and Scoones, 2015, p. 129).

Alternatively, quiet sustainability also shares the basis of some degrowth critiques too. For example, a few economists have accused the degrowth movement of '(re-)setting the global agenda in a neocolonial manner' by suggesting that the Global South should not attain growth in a similar manner to the path largely followed in the Global North (Dengler and Seebacher, 2018, p. 247). In this way, quiet sustainability also conflicts with the more established proposition of 'converge and contract' (Meyer, 1995). The idea of 'coverage and contract' is that it essentially gives developing countries room to increase their emissions in a distorted recompense for the fact that most nations in the Global South have contributed the least to global warming yet will suffer the most (Nelson, 2010, p. 295). Quiet sustainability is somewhat in conflict with this proposition as it suggests that the preservation of low-carbon, traditional livelihoods, such as unindustrialised agriculture, are more desirable development paths (Smith and Jehlička, 2013, p. 22). Despite these critiques, using a quiet sustainability lens to analyse the circular economy in Kenya helps to illuminate several valid and universal ideas. For example, many Kenyans living in rural areas (Sheahan et al., 2013) exemplify the closed-cycle practices identified by Mathews and Tan (2010) that echo those found in Asian village life, such as using manure as fertiliser. This builds upon Desrochers' (2000) argument that there is a long and global history of closing industrial material loops, many of which are now being reintroduced to modern industry to disrupt the linear consumption model (Desrochers, 2001, 2002, 2008).

Quiet sustainability is also a useful conceptual tool to analyse social impacts. Quiet sustainability practices often promote social justice as these collaborative community-based initiatives generally depend on pooling resources and acting collectively (Smith and Jehlička, 2013). Therefore, the quiet sustainability framework helps us to analyse these initiatives and some of the experiential knowledge, norms and taboos that

attribute an intangible value to the environment and often make a more significant impact on sustainability than new technologies do (Konadu-Agyemang and Panford, 2006, p. 205). To date, these aspects have been notably absent from the Global North's technocentric conception of the circular economy. Therefore, in analysing the circular economy in Kenya this research will illuminate the contributions of quiet sustainability practices and thus develop the conceptualisation of the circular economy.

Quiet sustainability is also a particularly useful analytical tool as it juxtaposes ideas of greenwashing. Greenwashing as a term became popular following Greer and Bruno's 1996 publication (Greer and Bruno, 1996; Seele and Gatti, 2017). Since the environmental movement began gaining momentum in the 1960s, greenwashing has become continually more common with one industry study claiming that as much as 95% of all 'green' products in 2010 were not actually 'green' but rather had been greenwashed (Terrachoice, 2010). Greenwashing is commonly defined as 'disinformation disseminated by an organisation so as to present an environmentally responsible public image' (Seele and Gatti, 2017, p. 241). Often the term is used in relation to corporate social responsibility, which has become common in the current context of a proactive model of capitalism (Seele and Gatti, 2017; Fleming and Jones, 2013). Greenwashing does not have a generally accepted antonym; but the opposite of greenwashing is inherently ideal sustainability. However, for the purposes of this thesis it is often useful to diverge from greenwashing and instead use the concept of quiet sustainability with a more direct antonym - 'loud sustainability'.

Loud sustainability is a concept I introduce to separate out the cynicism of greenwashing against more naive exaggerations of sustainability marketing. Greenwashing typically defines a broad range of activities that cynically and falsely claim environmental benefits when there is not a sufficient basis for these claims (Seele and Gatti, 2017; Fleming and Jones, 2013). I use my conception of loud sustainability to distinguish between these cynical activities against unintentional activities that may ultimately lead to similar outcomes, but where the actor's intent was not deliberate subterfuge, as would be expected from greenwashing. Furthermore, I use loud sustainability as a more direct antonym to the academic concept of quiet sustainability. In this way I attempt to avoid the baggage and ambiguity that comes from greenwashing's basis as a popular concept. Hence for this thesis the terms loud and

quiet sustainability are suitable diametric opposites from which to interpret phenomena closely related to greenwashing, in regard to the conceptualisation of the circular economy in Kenya.

From this understanding of how quiet and loud sustainability comprise part of this thesis' conceptual framework, it is worth going into the details of other terminologies that help us to understand the circular economy in Kenya. Up to this point an understanding of 'sustainability' has been assumed. However, in order to explore the circular economy that shares so much with the concept of sustainability it is necessary to go into some depth on this popular term and some of its contemporary equivalents that are often used in Kenya. Doing so also helps us to further trace the lineage of the circular economy and see if the concept might follow a similar path as other long-established sustainability paradigms.

## **2.4 - What Does 'Sustainability' Actually Mean?**

To begin our analysis of similar concepts and terminologies, the logical starting point is the vast world of 'sustainability'. The circular economy is a concept that is innately linked to all manner of sustainability concerns and the majority of circular economy literature is situated explicitly within this field. However, with estimates by Johnston et al. (2007) that there are around 300 distinct definitions of 'sustainability' it is important to situate the circular economy within this near endless expanse of sustainability. This will then help us to understand the circular economy's relationship to other terms relevant for this study, such as sustainable development, 'green' and the green economy. Each of these terms has its own unique history and meanings, yet all are equally important to understand how the circular economy can be interpreted in Kenya.

Sustainability is a term that has been all encompassing and predates the other terminologies used in this thesis. This long-standing popularity and ambiguity have led to concerns that anything can be claimed as 'sustainable' (Jacobs, 1991). After decades of sustainability discourse the concept still defies a defining vision. Even among those 'sharing a broad 'green' consensus lie a range of hotly contested visions

of sustainability' (Scoones, 2015, p. 9). Whilst, the term 'sustainability' originally belongs to ecology, with such widespread diffusion of the term it now means all things to all people. It is thanks to 'this 'big tent' approach [that] has enabled articulation with a range of global forces and challenges' (Leach and Scoones, 2015, p. 123). Indeed, the terminology has become as popular in the Global South as in the Global North. Similarly, international development literature is filled with references to sustainability (Scoones, 2007; Fowler, 2013).

To give a small introduction to the enormous field of sustainability here is a brief summary of one of the more common contemporary interpretations of sustainability - the 'triple bottom line' which was initially put forward by the business writer John Elkington, in 1994 (Elkington, 2013). The triple bottom line has been prevalent in Kenya for over a decade and remains relevant today (Manyara, 2005; Hussain, 2018). It is based on three pillars of sustainability: people, profit, and planet. From these pillars the triple bottom line aims to measure the financial, social and environmental performance of a business, encouraging businesses to think beyond the traditionally narrow measure of performance - profit. This terminology and understanding gained a substantial following from the United Nations Environment Programme World Summit on Sustainable Development in 2002. Since 2002 the triple bottom line has commonly 'referred to as the balanced integration of economic, environmental and social performance' (Geissdoerfer et al., 2017, p. 759). These three dynamics are intertwined and affect one another through mutual causality and positive feedbacks (McKelvey, 2002). In this sense they act as 'interdependent and mutually reinforcing pillars' (UN, 2005, p. 12). Since becoming popularised in the 2000s the triple bottom line has encouraged more corporate social responsibility reporting and subsequent measurement of social and environmental impacts. However, amongst the main criticisms of Elkington's model is that it has proven hard to reliably and consistently measure the people and planet bottom lines. This has primarily been because there has been no legally binding adoption which has resulted in poor and ineffective take-up (Sridhar, 2011).

Another critical concept to emerge from sustainability discourse is sustainable development. This is also a complex and often ambiguous term. It has even been described as a 'classic oxymoron' because development (in terms of economic growth)

often comes at the cost of doing environmental harm which undermines nature's regenerative capacity and makes sustainability unachievable (Adams, 2008, p. 2). The Brundtland Commission's definition of sustainable development, that has attained authoritative status (Baker, 2006, p. 12), is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland Commission, 1987). It is generally agreed that the sustainable development model emerged to challenge the conventional form of development described by Pepper as modernisation theory (Pepper, 1996). For this reason, sustainable development was connected with modern environmentalism to critique modernisation as a Western-centric development model that relied upon unlimited natural resources for industrial expansion. In this way sustainable development debate often appeals directly to the Global South. In doing so it also forms a subset of international development discourse.

Sustainable development has long been a 'rallying call for those concerned with the relationships between environment and development over several decades' (Scoones et al., 2015, p. 9). The phrase 'sustainable development' has become ubiquitous in development discourse. It was the development paradigm of the 1990s and has become fundamental to international development (Bebbington, 2000). Sustainable development was welcomed because it provided 'a way out of the impasse and away from past failure, a means of rerouting the lumbering juggernaut of development practice without endangering belief in the rightness and feasibility of its continued forward movement' (Adams, 2008, p. 15). This meant that mainstream sustainable development was 'firmly anchored within the existing economic paradigms of the industrialised North' (ibid., p. 124). So although sustainable development, gave significant attention to specific concerns from the Global South, it was not a term that was developed for, nor by, the Global South. This provides a useful anchor point from which to explore and compare the circular economy as a concept as it shares a similar evolution.

Although the term sustainable development is a theoretical maze of remarkable complexity, its appealing simplicity has enabled sustainable development to become a rhetorical flag for a range of political actors. Indeed, it has become the 'new jargon phrase in the development business' (Conroy, 2013, p. xi). Yet, despite such

proliferation of the terminology throughout the Global South, in practice there has been little progress. The 1992 *World Development Report* began with the declaration 'the achievement of sustained and equitable development remains the greatest challenge facing the human race' (World Bank, 1992, p. 1). Whilst there was substantial progress throughout the 1990s 'in the form of environmental legislation, policy, business and community action, locally, nationally and internationally... progress on the major 1992 targets was disappointing, and many national sustainability action plans... failed to challenge the economic and institutional interests and practices that supported unsustainability' (Scoones et al., 2015, p. 9). In this sense sustainable development was co-opted by political actors to suggest radical reform without being forced into specific action.

Today it seems that the misuse of sustainable development has gone even further and the phrase is often used to label unsustainable lifestyles (Luke, 2005). Overall, most scholars are in agreement that sustainable development is now used so widely that it is often used in 'empty rhetoric' (Scoones et al., 2015, p. 9; Victor, 2006; Waas et al., 2011). Nonetheless, sustainable development remains the dominant development paradigm, as elucidated by the United Nation's Sustainable Development Goals that were adopted by all member states in 2015. Furthermore, given how nascent the concept of the circular economy is in Kenya, we must seriously consider how dominant the sustainable development paradigm is in Kenya. In this sense sustainable development acts as a gatekeeper, opening up contemporary debate in Kenya concerning international development and sustainability. Therefore, for the purposes of this thesis, sustainable development remains a useful tool to help situate the circular economy within international development theory and practice in Kenya.

## **2.5 - The Expanse of Green Terminology**

Closely related to sustainability and sustainable development lies the world of 'green'. Green terminology is now attached 'to everything from policy concepts, political parties, campaigning organisations, movements and even consumer products can imply that this is a settled idea, connoting a clear set of shared values. At its bluntest, it

suggests that the environment, and nature, matter' (Leach, 2015, p. 25). However, like the popular terms discussed so far, green is also a contested concept. To some green has become an analogue of sustainability. Green espouses a wealth of ideas taken from sustainability and is over-used in popular culture where its unthinking use abounds. Subsequently green concepts can be 'mobilised to argue for radically different approaches' (ibid., p. 37) to achieve absolute sustainability.

Of course green is such a broad concept that when considered in Kenya its 'traditional' meaning is one that blurs contemporary meanings. According to the influential Kenyan author Binyavanga Wainaina, 'in Kenya, green is the ultimate accolade a person can give land: green is scarce, green is wealth, green is fertility' (Wainaina, 2011, p. 157). However, the long history connecting green to sustainability that developed in the Global North has also influenced understandings in Kenya too (Kaudia et al., 2012). Since the 1980s, there has been astonishing growth in apparently green ideas. Whilst the 'idea that development thinking needed to be 'greened' was a challenging idea in the 1980s... in the 1990s this argument became standard' (Adams, 2008, p. 3). The phenomenon of 'green capitalism' or 'green growth' 'was an important feature of the 1990s... and a significant contribution to wider thinking within mainstream sustainable development' (Adams, 2008, p. 123).

Following this, there has been discussion of a new green demand paradigm (Perez, 2013). This paradigm suggests that a green transformation would become economically self-sustaining thanks to lower costs of sustainable technologies and processes (Lockwood, 2015). Echoing these ideas were put forward notions that 'protecting the environment can actually yield *better* growth' (Jacobs, 2013, p. 6). However, such optimistic ideas have sternly been critiqued. For example, Wanner's (2015, p. 21) contention that green growth and the green economy are based on inherent contradictions such as 'the myth of decoupling growth from the environment.' On the other hand critiques have come suggesting that such discourse is just a passive revolution to support a neoliberalising of nature without leading to sustainability (Castree, 2008). This neoliberalisation is typically being articulated through tools such as emissions trading programmes. Critics claim that such economic mechanisms are diverting attention from the arguably more fundamental and overlooked social and political dimensions of sustainability and international justice (Wanner, 2015). Similar

lines of argument, questioning a neoliberal approach to sustainability, can also be found within the circular economy literature (Flynn and Hacking, 2019; Hobson, 2016). This research contributes to these debates by seeing whether such mechanisms are being used in Kenya and how they relate to a Kenyan conception of the circular economy, primarily through the Sanergy case study. In doing so this integrates this analysis of the circular economy into green and sustainability debates.

Many countries have been reacting to public demands to address climate change through the language of a green economy and by directing spending towards clean technologies (Mazzucato, 2015). Yet, it is worth noting that, despite the recent wave of climate activism, many voters, business and governments still see economic growth as their main priority (Scoones et al., 2015, p. 10). This was a significant influence on the development of 'green growth' as the concept tries to offer a positive spin about the economic potential of green ideas, as idealistic as such claims are. The ideas of green growth have equally resonated in Kenya as well as much of the Global North (Resnick et al., 2012; Momanyi, 2017). Yet, despite the 'rhetorical embracing of the concept of green transformations by governments, businesses and international organisations' (Newell, 2015, p. 69), debates about 'green growth' still prompt deeper reflections on whether the idea of 'green(er) capitalism constitutes an oxymoron' (Scoones et al., 2015, p. 5). Indeed, green has been developed into Marxist or 'green socialist' positions, used in these ways to prioritise social and justice concerns (Leach, 2015). This is seen in a more mainstream positioning of many green political parties worldwide (Wall, 2010), including Kenya's Green Party that was founded by the Nobel prize winning Professor Wangari Maathai (Maathai, 2006).

The wide spectrum of different approaches to green have been described as varying shades of green. These have ranged from 'light green' consumer understandings of green that are often narrow concerns about climate change (in line with early approaches to low-carbon growth) to 'dark' or 'deep green' positions. These deep green positions typically speak of a conservationist approach to green critiquing the environmental sustainability of modern capitalism and generally require fundamental structural change (Kelliher and Reinl, 2014; Leach 2015). In some ways green approaches are distinctly different to the circular economy. For example, radical notions of green differ from the largely reformist circular economy (Hobson and Lynch,

2016). In this vein, the socially focused green positions are in direct contrast to the dominant conceptualisation of the circular economy where social dimensions are significantly under explored (Murray et al., 2017; Moreau et al., 2017). Therefore, this study of the circular economy in Kenya will ensure that the social dimensions of the concept are given due consideration to see their importance in attaining absolute sustainability.

It is worth noting that green has retained such a constellation of meanings and purposes, such that there is not necessarily affinity between their various advocates. In practice, it seems that 'powerful actor-networks and discourse coalitions often converge strongly around certain green meanings and goals, while marginalising or crowding out others' (Leach, 2015, p. 26). In this way, the evolution of green is shared with that of the circular economy which has a similarly broad audience being influenced by many of the world's largest companies (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017).

Overall, many of these authors concur that the terminology of green shares much with the expanse of 'sustainability'. Although there is no singular contemporary meaning of green, and perhaps because of this facet, the term is as ubiquitous as 'sustainability' and this popularity seems likely to continue far into the future. In this way green similarly provides a useful point of reference to compare with the circular economy, particularly in the Kenyan context where this opens up a variety of traditional and contemporary meanings. In order to situate this research concerning the circular economy in such a plethora of green interpretations, we turn to the green economy, a more direct comparator to the circular economy. This is particularly helpful for this study as the sustainable development and green economy concepts are the 'most visible and mainstream' within existing sustainability literature (Scoones et al., 2015, p. 10) and so enable direct connections with relevant Kenyan debates.

The green economy is a similar and commonly used sustainability concept to compare with the circular economy. The following comparison helps us to understand the development of the green economy in Africa, the trajectory of which the circular economy seems likely to follow in the coming decade.

The green economy has origins from the publication *Blueprint for a green economy* (Pearce et al., 1989), only a few years apart from the conception of the circular

economy that was also promoted by the same environmental economist, David Pearce, noted earlier in this chapter (Pearce and Turner, 1990). A useful definition to begin this analysis of the green economy is an economy where economic growth and environmental responsibility are in harmony whilst supporting social development. This conception of a green economy failed to gain significant traction until well into the twenty-first century when the green economy was seen to replace 'the managerial, statist concept of sustainable development' (Scoones et al., 2015, p. 10) around the time of the United Nations Conference on Sustainable Development, known as Rio 2012 or Rio+20. It was at this point that the green economy emerged as a new policy innovation from ecological modernisation and as an altered successor to sustainable development discourses from the 1980s (Symons, 2018; Adams, 2017; Wanner, 2015).

Again, the widespread adoption of the green economy in sustainability debate and policy rhetoric happened within just a year of the rise of the circular economy. Similar to the circular economy, the notion of a green economy, like its predecessors sustainability and sustainable development, is disputed and defies universal agreement. Smit and Musango (2015) have detailed how challenging a singular, concise definition of a green economy is due to the myriad of approaches and perspectives on what should be greened. Of particular interest is that early definitions had little emphasis on the social dimensions of sustainable development (Allen, 2012). However, more recent definitions have expanded the green economy to become inclusive, firmly situating the green economy in the context of sustainable development and poverty eradication (ibid.). In this way it seems likely that circular economy will follow a similar trend as highlighted throughout this thesis where the concept is emerging in international development debate with greater emphasis on the role of social dimensions (Schröder et al., 2019a; Gregson and Crang, 2015; Velis, 2017).

Another important note is that the green economy is continuing to grow and gain greater traction both in academic and in popular use, unlike sustainability, sustainable development and green which are all well established. This is in part due to the newness of the green economy, a facet shared with the circular economy. This means there has not yet been such universal adoption and adaptation of the concept as with these other terms. Without such widespread use, the green economy still retains a distinct meaning from swathes of other green understandings. This makes highlighting

the distinctions between the circular economy and the green economy a more manageable task.

So here follows a brief introduction to some of the differences in the approach of the green economy and the circular economy. Such as the way that in 'contrast to the circular economy which seeks regulation and efficiency, green economy advocates believe that the market will automatically respond to incentives which value ecologically sustainable modes of production more highly than polluting or ecologically degrading ones' (Symons, 2017, p. 25). Yet, the most significant distinction between the concepts comes from the fact that the green economy is seen through the primary aim for an economy that is built upon an infrastructure of renewable energy. In general, the green economy has been 'based around the decarbonization of production and consumption activities' (Janković and Bowman, 2014, p. 235). Whereas the circular economy is primarily concerned with cyclical flows of materials - it does also include renewable energy concerns, but these are not a primary aim. This renewable energy distinction is worth briefly expounding as it is somewhat nuanced.

Key to the green economy's renewable energy infrastructure is a dominant emphasis on technological innovation, mostly by the private sector (Kaggwa et al., 2013; Faccar et al., 2014; Wanner, 2015). Some economists go as far to describe green technoscience as being on the brink of creating a 'new industrial revolution' (Stern and Rydge, 2012). This certainly falls within the optimistic realms of 'bright green' ideas described by Leach (2015, p. 26) and shares a great deal with the dominant conception of the circular economy that is optimistic and technocentric (Mugge & Bakker, 2018). The circular economy ideal similarly requires decarbonisation suggesting it is largely possible through technological innovation, although this aspect is often underemphasised.

According to the Ellen MacArthur Foundation the circular economy is 'a potent contributor to achieving zero-carbon prosperity' (Ellen MacArthur Foundation, 2019b, p. 12). The concept is often presented being reliant on renewable energy because it would also decrease resource dependence (ibid., 2015). This essentially means that an ideal circular economy must be based on 100% renewable energy (ibid., 2019b). In this way the circular economy is incompatible with continuing use of fossil fuels as these energy sources are inherently unsustainable as oil takes over 300,000 years to form

naturally. Therefore, one aspect of the circular economy that is widely agreed upon, if underemphasised, is that the concept is based around renewable energy (Stahel, 2016a; Preston, 2012; Murray et al., 2017; Ellen MacArthur Foundation, 2019b). This similarity is an important juncture to note where the two concepts diverge.

The green economy aims to reduce environmental risks and ecological scarcities; however, it does not target total circularity of materials in a world without waste. The green economy is most different to the circular economy in that attempts to achieve the aims of the green economy have a strong energy focus in moving away from unsustainable oil-based technologies. Whilst the circular economy also contains elements that also advocate renewable energy technologies, this is not the primary focus of the circular economy. The primary focus of the circular economy is for design without waste, and in attempting to do so, some renewable energy technologies are not currently compatible with the circular economy. For example, waste-to-energy schemes are generally seen as suitable power sources in the green economy as this makes use of the waste that is continually being created by society (Brent, 2017, p. 209). However, in the circular economy waste-to-energy processes are seen as a last resort as it prevents a material from being recycled, essentially removing materials from circulation. Therefore, waste-to-energy schemes are generally incompatible with the ideals of the circular economy (Muznik, 2017).

Considering this nuanced difference between the circular economy and the green economy, it is surprising how differently the two concepts have been received in the Global South - particularly in Africa. Whilst there is comparatively little scholarship on the circular economy within the Global South to date (excluding China), there is significant work on the green economy in the Global South (Brown et al., 2014). For example, South Africa is cited as a global green economy leader (Death, 2014), despite the irony of 90% of South Africa's electricity production coming from coal-fired power stations (McDonald, 2009, p. xix). From this example we can also see how green economy theory similarly fails to translate into meaningful practice, as was earlier noted in the circular economy (Franco, 2017; Winans et al., 2017).

The prevalence of green economy discourse in Africa is well beyond that concerning the circular economy at present. One significant reason why the green economy has been adopted more rapidly is that it provides a way for African economies

to focus on new modes of energy generation more suited to the needs of their rural populations. Many sub-Saharan economies have urgent needs for increased energy generation. It is particularly needed in rural areas where traditional, centralised, non-renewable modes for power generation, that were developed in the Global North, are unsuitable. Subsequently, this interest has been developed into formal development plans, such as the Southern African Development Community's *Regional Green Growth Strategy and Action Plan for Sustainable Development*. This plan claims that 'the green economy will help to overhaul economies in a way that synergises economic growth and environmental protection' (SADC Secretariat, 2013). Overall, the African position has been described as 'cautiously supportive' of the green economy (Faccer et al., 2014). This strongly contrasts with an understanding of an African position on the circular economy, as there is so little circular economy debate in Africa to date to consider. This trend has been echoed in Kenya as the government has formally outlined its interest in the green economy through its *Green Economy Strategy and Implementation Plan* (GoK, 2016a).

From this understanding of relevant popular terms that also have more specific uses in academia we can now begin to more specifically locate the circular economy within this discourse for the Kenyan context of this thesis. Whilst there have been comparisons of the circular economy to similar terminologies before, there has been little investigation into how these terms have set the stage for the circular economy to be considered in regard to the Global South and more specifically, the Kenyan context. So now we can begin to analyse this territory to determine what these terminologies mean for the circular economy in Kenya.

## **2.6 - Locating the Circular Economy Within This Expanse of Sustainability**

All of the terms from this chapter share many similar precepts of general sustainability, some of which are self-evident. The differences in how these terms are used, by whom, for what reason, and how this has changed over time are more revealing for this study. Within these various subsets of sustainability we will see how

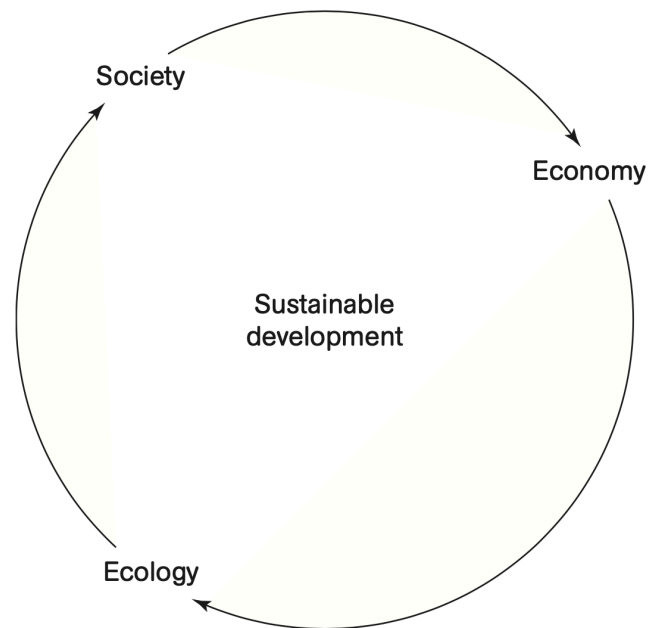
the circular economy is distinct yet can still be translated into an unfamiliar Kenyan context.

General 'sustainability' is a logical starting point as there have been studies comparing the main conceptual similarities and differences between sustainability and the circular economy. One of the most notable is the paper by Korhonen et al. (2018b), that concluded that the circular economy was not a new sustainability paradigm. Their argument stemmed from the fact that under the current conception, consumption culture will not be radically altered and therefore an ideal circular economy would not lead to sustainable consumption practices. As will be shown in following chapters, the Bintis case study helps us to question what role sustainable consumption and production plays in their articulation of the circular economy.

Furthermore, Korhonen et al.'s study also concurs with Geissdoerfer et al.'s conclusion that the dominant conception of the circular economy is less holistic than sustainability (Geissdoerfer et al., 2017). Generally the circular economy is seen by most to be more narrowly framed and has clearer directions for implementation than the myriad ideas surrounding sustainability. In this sense we can see that the circular economy is situated within the ambiguity of sustainability as a subset, or a singular theory aiming to achieve 'sustainability'. This relationship does however mean that, in regard to the circular economy, sustainability is often 'used to justify a broader variety of institutional commitments and to signal a wider set of risks and opportunities' (Geissdoerfer et al., 2017, p. 760). Thus, the circular economy is often pigeon-holed and debate often overlooks the holistic issues critical to achieving ideal sustainability (Kirchherr et al., 2017; Murray et al., 2017; Moreau et al., 2017). In addressing this critique, this thesis strives to retain a holistic perspective throughout this analysis of the circular economy.

The ambiguity of aspirational buzzwords such as development and sustainability has been noted in extant debates. These terms often are 'unavoidable, powerful and floating free from concrete referents in a world of make-me-believe' (Adams, 2008, p. 2). However, by using more specific conceptual comparisons it is possible to differentiate why each of these buzzwords matter and how their use by powerful global actors shape development in the Kenyan context of this thesis.

Fundamentally sustainable development has much to link it to the circular economy as these concepts both seek the same overarching goal of absolute sustainability. Previous visualisations of sustainable development have even been presented as a continuous circle linking economy, ecology and society together (Baker, 2006, p. 8).



**Figure 2: Sustainable development: linking economy, ecology and society** (Baker, 2006)

This should be unsurprising as in several fundamental ways the circular economy has developed from the experienced reality of mainstream sustainable development. In many ways the circular economy is similar to the contemporary form of sustainable development in being essentially reformist and convergent in its propositions (Robinson, 2004; Clifton, 2010). Following on from these debates in sustainable development a similar line of argument can be made in regard to the circular economy. The reformist nature of the dominant conceptualisation of the circular economy means that it continues to push along the same lines as mainstream sustainable development, ensuring it does not challenge the dominant capitalist industrialising model (Hobson

and Lynch, 2016). Furthermore, the circular economy does not address the critique that capitalism is by definition extractive and therefore leads to environmental degradation in a negative sum game (Schweickart, 2009; Liu et al., 2010). This will be further explored in Chapter 7, as the Bintis case study will demonstrate whether their articulation of an actually existing circular economy similarly echoes mainstream sustainable development.

One of the starkest contrasts between sustainable development and the circular economy is in how the two concepts consider social dimensions. According to some scholars the social aspects of the circular economy have been considerably under-defined or even entirely missing (Sauvé et al., 2016; Murray et al., 2017; Moreau et al., 2017). Whereas the social aspects of sustainable development have evolved to form a substantial literature in their own right (Dempsey et al., 2011; Murphy, 2012). Here I argue, that in this regard, the evolution of the dominant conception of the circular economy is distinct from sustainable development. Through the evolution of the sustainable development paradigm, environmental development models emerged to challenge the modernisation development paradigm and largely promote forms of social change rather than just material or technological change (Roseland, 2000). This means that approaches to sustainable development are often holistic and inclusive of social dimensions. This contrasts with the dominant conception of the circular economy which generally sidesteps social issues (Murray et al., 2017; Moreau et al., 2017; Hobson and Lynch, 2016, p. 3). Considering this conceptual difference, combined with the way that the circular economy has been proposed as a business-friendly path to sustainability, then it is important to consider how the terms of this chapter relate to corporate instrumentalism and greenwashing.

To varying degrees, these concepts share a similar history in how they have all in some way been co-opted through corporate instrumentalism. Over time the radical potential of debates about poverty and the environment have been dissipated as key words and phrases have been incorporated as 'greenwash' to enable business as usual by corporations and governments (Adams, 2008). Subsequently, the green agenda has been captured by neoliberal, conservative interests as these incumbent forces have reconfigured to accommodate 'green' rather than fundamentally change in order to become truly 'green' (Leach and Scoones, 2015, p. 131). At times this has

resulted in widespread greenwashing under the guise of the green economy and sustainable development, as noted in East Africa by Buseth (2017). Generally this has been done through corporate instrumentalism (Heikkurinen, 2013) and through corporate social responsibility (Hamann and Kapelus, 2004). Through the Stonehouse case study presented in Chapter 7 we will see how similar corporate involvement might also be undermining circular economy activities in Kenya. Initially though, the similarly young concept of the green economy gives us a useful comparator to build a picture of how these incumbent forces have been able to enable business as usual within the guise of this sustainability concept.

At its emergence the newness of the green economy, combined with a pro-business framing, helped unite diverse public and private organisations that were not previously able or willing to coalesce under the more radical flag of sustainable development. One of the reasons this was possible was because only 'weak' reforms were needed in order to adequately address the public understanding of the green economy. In this way the green economy was firmly situated within the concept of weak sustainability (Biely et al., 2018). The rapid adoption of the green economy indicated that many business interests were willing to accommodate these small step changes in sustainable practices in order to be perceived as 'green'.

In a similar vein the dominant conception of the circular economy offers businesses an attractive sustainability avenue. The concept's leading charity from the Global North, the Ellen MacArthur Foundation, have specifically pushed a pro-big business agenda and recruited some of the world's biggest companies to become members of their *Circular Economy 100* group (Ellen MacArthur Foundation, 2019c). This dominant conception of the circular economy promises win-win opportunities for businesses, economically and environmentally, whilst avoiding more radical forms of change (Hobson, 2016). For example, even some of the case studies chosen by the Ellen MacArthur Foundation to demonstrate the novel value of the circular economy often fall far from espousing ideal sustainability.

One case study features the way that Caterpillar are remanufacturing their own diesel engines as an original equipment manufacturer. Yet this case study fails to acknowledge that remanufacturing diesel engines is hardly novel as similar processes have been practiced for over 50 years. More questionable is the fact that this

constituted one of just a handful of case studies in their report *Towards the Circular Economy* (Ellen MacArthur Foundation, 2013d, p. 72). Therefore, in praising this instance of remanufacturing, they are subtly encouraging further dependency on fossil fuels by suggesting that diesel engines can be compatible with a 'sustainable' future. In such visions of the circular economy the concept follows the green economy in suggesting weak reforms and is reformist rather than radical. Subsequently, for the purposes of this thesis I use the ideal type of the circular economy to go beyond such conceptions and instead match with ideal forms of sustainability - these ideal types will be discussed in more detail at the end of this chapter. When compared against absolute forms of sustainability, remanufacturing diesel engines is not compatible with my interpretation of the ideal type of the circular economy.

Many scholars argue that the weak sustainability reforms of recent decades are far from sufficient (Page, 2018), but there has been at least some progress from businesses that have responded to the green challenge. Certainly, a succession of sectors and individual companies in the '1990s and 2000s took a deliberate step away from rivals to establish a 'green' brand and to claim emerging environmentally conscious markets' (Adams, 2008, p. 122). Some business studies academics went as far as claiming business has passed through three phases: pollution prevention around 1970, self-regulation in the 1980s and sustainability in the 1990s (Murphy and Bendell 1997). In reality the idea that business reached the ideals of sustainability by 2000 is inane as global carbon emissions per capita have continued to rise (World Bank, 2020a). In this sense, sustainability and its various terminologies over the last few decades have been insufficient to alter obdurate business as usual practices. Therefore, there is increasing urgency to see whether the circular economy has potential to create the paradigm shift needed to avert catastrophic climate change.

Critics of the concept would suggest that although the circular economy advocates for modifications to industrial systems, these changes can be minimised and co-opted in order to sustain 'business as (slightly un)usual' (Hobson, 2016, p. 93). Hobson elaborates how the 'win-win' technocentrism of the dominant conception of the circular economy hosts an unquestioning trajectory of continued resource throughputs. What is put forward as a key part of this problem is that the social dimensions of the concept are under-explored within current debates. If these are not addressed then potential

gains from a global circular economy would be undermined by a rebound effect. This would see behavioural or systemic responses from increased efficiency resulting in lower costs and subsequent increases consumption (Hobson and Lynch, 2016; Ghisellini et al., 2016). The exclusion of social considerations also contrasts with sustainable development where from early on the principle of equity was 'inserted into the development paradigm' (Baker, 2006, p. 161).

The dominant conception of the circular economy does not explicitly challenge global inequalities. However, at least with such a strong focus on closed-loop systems for material wastes it might be a step change away from the long-standing global economic system that 'thrives on passing on the costs of environmental degradation to the ecosystem' and peoples of the Global South (Gadgil and Guha, 1995, p. 122) and still prevails (López et al., 2018). In this way this research touches upon issues of globalisation in the sense that an ideal circular economy might avoid some of the detrimental impacts of the approach to sustainable development taken by industrialised countries that led to 'the export of unsustainability offshore' (Adams, 2008, p. 359; McDonough and Braungart, 2010, p. 13). For example, if the circular economy ideal of internalising material loops within regions or nations themselves was realised then this would help mitigate some of the challenges from unsustainability being exported (Nar, 2014).

The exportation of unsustainability is particularly relevant for Kenya and in how it relates to the 'Africa Rising' narrative. Africa Rising is a phrase that was coined by Western journalists to explain the rapid economic growth in sub-Saharan Africa after 2000 whilst also suggesting the inevitability of its continuation (Drummond et al., 2014; Okorie, 2018; Taylor, 2016). Kenyan political analyst Nanjala Nyabola perceives that the African Rising narrative is also being used to export unsustainability from the West to Africa. Nyabola describes a form of globalisation that reimagines 'Africa as a consumer of Western manufacturing excess' (Nyabola, 2018, p. 112). For example, one of the knock-on consequences of the ecologically damaging Western fast-fashion industry is the destruction of the Kenyan textile industry. This is because extremely cheap, low-quality, second-hand clothing is discarded in the Global North and reappears in low-income markets, many of which can be found in Kenya (Glennie, 2008, p. 39; Brooks, 2019). Nyabola's perspective suggests that a regional circular

economy approach to waste might alleviate some of these social as well as environmental concerns about globalisation and unsustainable consumption. Therefore, in Chapter 7, this thesis considers how globalisation and the scale of multinational corporations might influence the circular economy in Kenya.

## **2.7 - How Does the Circular Economy Relate to Social Justice?**

The consideration of social justice in the circular economy helps us to further understand the evolution of the concept and how it might address issues of extreme inequality in Kenya. Firstly, it is worth emphasising the difference in how the circular economy has evolved when compared to sustainable development in how the concepts address inequity. What has largely been left behind in contemporary understandings of sustainable development is that the Brundtland definition went on to argue that the essential needs of the world's poor should be given priority (Brundtland Commission, 1987). There are certainly strong moral as well as practical reasons for putting poor people first. Indeed the Brundtland definition indicated that there is a 'strong functional relationship between social justice and sustainable development, because poverty is a major cause of environmental deterioration' (Baker, 2006, p. 39). Subsequently, in normative accounts of sustainable development equity is a constant theme and it is an inescapable commitment (Brown and Corbera, 2003; Fleurbaey et al., 2014).

Yet, a major critique of contemporary iterations of mainstream sustainable development, such as the Sustainable Development Goals (SDGs), is that they fail to adequately address social justice. For example, the SDGs rely on growth as a poverty reduction strategy because the prospect of growth enables advocates to sidestep the challenge of having to distribute resources more equitably. The SDG Target 10.1 has been cited for being particularly weak in regard to solving inequality as it essentially suggests that inequality can grow until 2029 when it will gradually start to reduce (Hickel, 2015). However, despite such critique, there is at least significant debate surrounding inequality and poverty reduction throughout sustainable development discourse. This contrasts starkly with the circular economy where social dimensions in

general have been overlooked (Kirchherr, 2017; Sauvé et al., 2016; Murray et al., 2017; Geissdoerfer et al., 2017, p. 766; Moreau et al., 2017).

This is a critical difference in the key principles of sustainable development and the circular economy. Whilst mainstream sustainable development has been blurred overtime by dubious rhetoric, at the core of the original definition from the Brundtland Commission (1987) was a strong argument for the radical transformation of the structures of political and economic power. On the other hand, the conceptualisation of the circular economy started from an interest in material flows and has only recent been opened up to critique regarding the missing social dimensions.

Recently Alexandre Lemille, a co-founder of the African Circular Economy Network, has envisaged a 'Circular Economy 2.0' to explicitly promote equity within the concept. In this new model Lemille amends the butterfly diagram by adding a 'humansphere' to the original biosphere and technosphere. This humansphere would then provide for a results-based economy to meet all social needs whilst also supporting restorative jobs and regenerative activities through collaborative strategies (Lemille, 2019). The fact that Lemille approaches the circular economy with a particular African focus also helps to highlight that the social dimensions of the concept should be of particular interest in Kenya. Overall, the way that social dimensions have only recently been included within circular economy discourse, whereas they have always been prevalent in sustainable development debate, is critical for considering the circular economy in Kenya.

It is important to acknowledge that poverty reduction, and therefore social justice, is a precondition for environmentally sound development. As highlighted by Baker (2006) and Nagendra (2018), although the industrial world has used much of the planet's ecological capital, it is actually the inequality with the developing world that is the planet's main 'environmental' problem and therefore the main development problem. Therefore, this difference between sustainable development and the dominant conceptualisation of the circular economy raises questions as to whether the circular economy is a suitable development concept in a country where there is extreme inequality. Indeed, one of the pioneers of the circular economy concept, Stahel (2013), has previously suggested that the linear economy is best suited for overcoming scarcity. Therefore, the case studies of this research will test if and how circular

economy business models in Kenya can help to reduce inequality as suggested by Lemille.

The green economy again provides a useful comparator here for us to interrogate social dimensions of these largely technocentric sustainability concepts. Throughout the green economy narratives there is a notable 'neglect, explicitly at least, of questions of justice... [where] justice is implicitly assumed to be delivered' (Scoones et al., 2015, p. 17). There are arguments that in the technocentric version of a green economy, justice will occur through 'supposedly benign elites stewarding global public goods' (ibid.). However, Kenya's history of wide ranging corruption shows that ideas of such 'benign elites' are at best idealistic and at worst a pretext to try to justify indefensible moral positioning by elites (Githongo, 2006). Therefore, the potential social implications of the circular economy in Kenya certainly need to be critiqued. Particularly so as the green economy has been cited as being more inclusive of social and environmental issues than the circular economy (D'Amatoa et al., 2017).

North-South NGO networks have been quick to attack the dominant technocentric agenda of the green economy. Narratives from the citizen-led (bottom-up) version of a green economy have questioned the ability of technocratic elites to defend their citizens (Scoones et al., 2015, p. 17). From such critiques the green economy has evolved to become a more inclusive concept. Perhaps because the circular economy has not yet been adopted in most of the Global South (apart from China) in this way the concept has remained insulated from much critique in this regard. Essentially this means that the circular economy has largely remained conservatively within the industrial core where it was imagined.

This is a particular concern when considering the concept in Kenya. The circular economy may echo the way that technocentric green ideas appear 'as objective, necessary and universal, authorised by the best scientific and economic expertise... [and so] close out and stifle political debate about the concepts themselves' (Leach, 2015, p. 37). In doing so they have sidelined debate around 'alternative forms of knowledge, experience and ways of life... [and ignored] large swathes of human understanding, culture, values and experience' (ibid.). As we will see in Chapter 7, the Bintis case study will explore how Western terminologies are impacting quiet sustainability practices in Kenya. In doing so this study will help address calls for a

broader analysis of how the circular economy might create 'profound transformative change' and where 'socially transformative enactments of the circular economy are thus implicit but under-explored within current debates' (Hobson, 2016, p. 99).

At this juncture we can now see that the circular economy may not be a model best suited for delivering ideal sustainability in Kenya's lower-middle income context. Nonetheless, there are several aspects of the circular economy that do speak towards sustainable development for all, specifically including the Global South. The Chinese conception of the circular economy suggests a way for developing countries to leapfrog environmental damage from industrialisation (McDowall et al., 2017). This could potentially be achieved through improvements in resource productivity and eco-efficiency through a closed loop of material flows in the Chinese economic system (Geng and Doberstein, 2008).

This idea of leapfrogging aspects of industrialisation is particularly relevant in many African countries, as many countries are less industrialised now than they were in the 1980s (Rodrik, 2017, p. 244). According to Jeremy Rifkin, an influential economic and social theorist, African nations could leapfrog to the 'Third Industrial Revolution' that has so far been defined by the European Union (Rifkin, 2011). In some ways Kenya seems to be on this path and has been cited for hosting leapfrogging solar technologies, such as M-Kopa (Wakeford, 2018). In these ways Kenya is leading a path towards the Third Industrial Revolution, which describes how solar microgrids will provide more lateral power in both social and economic terms (Rifkin, 2011). Many of these ideas concerning leapfrogging are exemplified by the way China has become a world leader by incorporating renewable energy infrastructure at scale (Mazzucato, 2015). This has also been highlighted by the Ellen MacArthur Foundation (2018) as part of China's circular economy strategy.

The countries leading a movement to renewable energy infrastructure echo the pattern seen in those adopting the circular economy rhetoric. For example, in the EU, Germany has been a first mover, stimulating investments in clean technologies (Mazzucato, 2015, p. 140). As investments in innovation are cumulative and the results path dependent, these countries will enjoy an early mover advantage and likely remain sustainability leaders for years to come (ibid., p. 139).

There is already significant evidence showing that most African countries are far behind these circular economy pioneers in regard to renewable energy infrastructure investments. This stark contrast is easily seen when comparing the investments in renewable energy on a regional scale. The Middle East and Africa region has consistently invested less than US\$10 billion annually in renewable energy since 2004. Whereas, the European Union has continually invested more than US\$20 billion per annum, reaching heights in excess of US\$115 billion in 2011. In 2013, China overtook the European Union as the world's largest renewable energy investor (ibid., p. 140). 'Overarching these investments are intentions to adopt a 'circular' approach' (ibid., p. 124). Whilst the Chinese example gives hope for a new development path using renewable energy, it remains to be seen whether China will be able to truly decouple economic growth from environmental impact and produce an original development path never before seen in the history of industrialisation (ibid.).

On the other hand, it is important to consider that studies in Kenya have shown that renewable energy infrastructure does not necessarily lead to poverty alleviation or sustainable development. Instead it has been more closely tied to benefits that are less obviously linked to sustainability, such as increased television use and rural-urban connectivity (Jacobson, 2006). Furthermore, it has been suggested that for developing countries to leapfrog technologies there needs to be significant international cooperation in facilitating trade and technology transfer (Levidow, 2014). Yet green economy debate shows that technology transfer and leapfrogging reinforce ideas that innovation originates in the Global North (Mavhunga, 2017). This is a worrying precedent as continuing such a paternalistic relationship marginalises and devalues technoscientific innovation that emerges from the Global South (Scoones et al., 2015, p. 11). With this in mind it is worth highlighting how these sustainability concepts such as the green economy and the circular economy are being promoted in Kenya,

The influence of the United Nations Environment Programme (UNEP) is often prevalent in Kenyan debates on sustainability. UNEP was headquartered in Nairobi to implement the agreements made from the United Nations Conference on the Human Environment in Stockholm 1972. UNEP have been significantly promoting the green economy (Victor and Jackson, 2012) as well as more recently the circular economy (UNEP, 2020). Therefore, it is unsurprising that Kenya has recently published its own

*Green Economy Strategy and Implementation Plan* (GoK, 2016a). This strategy document was explicitly made with the support of the United Nations Environment Programme (UNEP), the European Union, the Danish International Development Agency (DANIDA) and the German Corporation for International Cooperation (GIZ). From this example we can see a directionality of this technocentric sustainability concept from the Global North onto Kenya. A similar pattern is also seen in the way that circular economy terminology is being integrated into Kenyan strategies through the UNDP (Soezer, 2016). This document will be explored in more detail in Section 4.4, but for now it is sufficient to highlight that this circular economy strategy document was funded by the European Commission, the German Federal Ministry for the Environment, and the Australian Government. In these ways the green economy and circular economy appear to reinforce the idea that innovation emerges solely from the Global North. In questioning this idea, this thesis will later use the Sanergy and Stonehouse case studies, amongst others, to see if alternative business models and innovations in Kenya are providing an original development path by following circular economy principles.

## **2.8 - Where Does the Circular Economy Belong?**

This chapter has given an understanding of how the circular economy relates to similar earlier concepts so we can now situate the circular economy within the expanse of sustainability. Certainly, the circular economy can be identified as a concept that is essentially a subset of sustainability. It has been suggested by Geissdoerfer et al. (2017) that this subset relationship is suitable to maintain diversity within the circular economy and retain a wide range of complementary strategies for policymakers to adopt. However, when it comes to understanding the circular economy's relationship to sustainable development it is more complex.

It has been suggested that the circular economy 'could be a new paradigm of sustainable development' (Korhonen et al., 2018b, p. 550). However, this is far from agreed upon as there remain important conceptual challenges that need to be addressed. For example, the dominant conception of the circular economy generally

sidesteps issues concerning the structural power relations that lie at the heart of our environmental crisis. Moreover, in suggesting growth without limits (Lacy et al., 2014) the dominant conception of the circular economy ignores the structural and natural limits of absolute sustainability. Indeed, the circular economy's technosphere promotes the idea that the industrial appropriation of nature can promote sustainability (McDonough and Braungart, 2009, p. 104). On the fringes of circular economy debate, some academics have cited the circular economy for allowing a 'form of business as (slightly un)usual to be sustained' (Hobson, p. 93). This viewpoint has been sidelined by the majority of circular economy literature that amplifies the 'win-win' outlook of its most prominent advocates, such as the Ellen MacArthur Foundation. This powerful grey literature has often resulted in little critical debate over the normative versus descriptive values of the concept (Korhonen et al., 2018a, 2018b; Sauv   et al., 2016).

The circular economy is emblematic of the tensions between the differing worlds of academia and practitioners. On the one hand practitioners often require a 'commercial' version of the circular economy that is hard-headed, practical and can be sold as an attractive proposition to companies and governments. For example, the 'win-win' benefits of the dominant circular economy that were presented by the heads of several MNCs at the Davos World Economic Forum in 2014 (Confino and Holtum, 2014). However, on the other hand academia tends to be more idealistic and impractical in its understanding of the circular economy. Often different disciplines sway the theories of the circular economy towards their chosen area of focus. Whilst this can reframe the concept under a more holistic agenda, it also diverges further from a common understanding and usage of the terminology. Inevitably this means that empirical critics are largely disappointed by the practical implications of such a utopian idea (Franco, 2017; Winans et al., 2017). Certainly, the next decade will see advocates of the circular economy continue to make explicit use of the slipperiness of this buzzword to promote their solutions. In this way the concept seems to be following similar paths to its predecessors, such as sustainable development, in meaning all things to all people. Therefore, it remains to be seen whether the concept will be a tool for the construction of a radically new environmental future and replace the sustainable development paradigm or whether it will become little more than an anthropocentric management tool.

In regard to how the circular economy relates more specifically to sustainable development in Kenya, there are several other issues to consider. These generally arise from Kenya's lower-middle income context, which contrasts to the high income context of the Global North that dominates circular economy debate, with the notable exception of China. For example, issues of social justice are of great concern in Kenya's context of extreme inequality, yet the dominant conception of the circular economy is notably lacking in this regard. Alternatively, a few academics have cited the concept for supporting a neoliberal approach (Flynn and Hacking, 2019), which is of particular concern as Kenya was 'major victim' of neoliberalism in the 1980s (Nyabola, 2018, p. 63; Gibbon, 1992; Rono, 2002; Glennie, 2008). There are also issues surrounding how the concept might be repeating the geographical zoning and directionality of technology from the Global North onto the Global South (Mavhunga, 2017) and in doing so may be perpetuating the 'pedagogy of colonisation' (Nyabola, 2018, p. xxi). On the other hand, the circular economy also looks to provide several opportunities in the Kenyan context. For example, the potential for leapfrogging to green technologies or mitigating the exportation of unsustainability from the Global North.

Overall, this potential means that the concept must be analysed such that countries can construct 'relevant development paradigms that reflect their needs, values and aspirations' Baker (2006, p. 161). This study therefore aims to promote an understanding of the circular economy that is specifically targeted towards Kenya. With this in mind, we can now identify three types of the circular economy that I suggest to help categorise different forms of the concept outside of the singular mass that I have so far described as the dominant conception from the Global North.

Firstly, I will present the 'ideal' type of the circular economy. This is how I have chosen to describe the circular economy in its most idealistic form, following on from 'ideal types' in sustainability discourse (Sharma et al., 2007; Rametsteiner et al., 2011). In this ideal type the circular economy is seen to deliver economic benefits whilst also ensuring both environmental and social benefits with minimal negative outcomes or knock-on effects. In this way the circular economy is seen to eliminate waste through the cyclical use of resources whilst creating economic growth, supporting wider social issues and reducing carbon emissions. This is the vision of the circular economy that is

often promoted by circular economy advocates such as the Ellen MacArthur Foundation. In order for a business model to be compatible with my ideal type of the circular economy, it is necessary for its cumulative activities to demonstrate positive contributions to all of these dimensions, without significantly compromising one dimension and making negative impacts in doing so.

Whilst it is important to note that ideals in themselves are inherently unrealistic, and are often used for agenda setting (Biermann et al., 2017), the purpose of this ideal type of the circular economy is not to be entirely unrealistic. Instead, this ideal type is to be used to see if the circular economy is a viable model for addressing all three pillars of Elkington's triple bottom line: people, profit and planet (Elkington, 2013), without needing to compromise one of these aspects. This is particularly relevant as extant circular economy discourse has highlighted how social dimensions of the concept are often compromised in the search to maximise environmental and economic impacts. Therefore, I introduce this ideal type of the circular economy to test whether, through following circular economy best practice, it is possible to address all three of these dimensions simultaneously.

The ideal type that I propose is therefore expected to be attainable as it does not require perfection, but simply positive contributions throughout when compared to average industry performance. For example, if a business makes positive environmental contributions, such as reducing local pollution by eliminating more waste than a typical business, as well as positive social contributions by creating quality employment opportunities, and finally positive economic impact by creating monetary wealth for the company's stakeholders, then such a business would be compatible with this ideal type of the circular economy. However, a critical point is that if any of the businesses activities also make a negative contribution, for example in using a carbon emitting energy source in part of its operations that is more carbon intensive than reasonable alternatives in use by other businesses, then the business is no longer compatible with this ideal type of the circular economy. In order for this business to become compatible with the ideal type the externality could be internalised through say carbon offsetting. Then in this way the business would be positively contributing socially, environmentally and economically, beyond an industry average and be articulating this ideal type of the circular economy.

Secondly, I suggest the 'actually existing' type of the circular economy. This is the form of the circular economy that is most often found in real world examples and is the experienced reality of most implementations of the concept. This type of the circular economy builds onto similar descriptions of 'actually existing unsustainability' (Barry, 2012), as well as 'actually existing sustainability' (Krueger and Agyeman, 2005), that emphasise the need for urgent action, beyond rhetoric, to address the pressing issues of sustainability. In the 'actually existing' type of the circular economy there are articulations of parts of the 'ideal' type, but also failures to attain the lofty and holistic aims of the 'ideal' type. Therefore, to be classified as an 'actually existing' type of the circular economy a business model must contribute in a significant way to at least two of the pillars of sustainability, such as the economic and environmental, but may fail to make positive contributions towards social challenges.

For example, an 'actually existing' type of the circular economy might demonstrate increased flows of materials through means such as recycling and do so in an economical way with some environmental benefits. However, the methods used to achieve this might result in increased social inequality, or the process be reliant on fossil fuels, and therefore be incompatible with the 'ideal' type of the circular economy. In these ways, the 'actually existing' type of the circular economy falls short of the aspirational claims of circular economy advocates. Instead the 'actually existing' type of the circular economy is largely comparable with other similarly imperfect sustainability concepts such as the green economy (Newton and Cantarello, 2014, p. 14). Overall, the 'actually existing' type of the circular economy describes business models that can make meaningful contributions towards some of the positive aspects of the ideal type of the circular economy, but fail to do so holistically.

Lastly, I put forward the 'instrumental' type of the circular economy. This is how I describe the least sustainable type of the circular economy. This builds onto studies of corporate instrumentalism that typically come from business studies concerning corporate social responsibility (Heikkurinen, 2013) as well as more general approaches to the social and environmental performance of companies (Arend, 2014). Instrumentalism comes from an understanding that a theory should be interpreted as an instrument purely for practical applications (Popper, 1983, p. 111-12). In this sense corporate instrumentalism sees concepts, that can be taken as moral arguments, as

mere tools that enable a business opportunity without a need to be concerned about the ethical implications of doing so (Heikkurinen, 2013).

From this background I use the 'instrumental' type of the circular economy to describe business models that typically fail to address the environmental nor social aspects of the ideal type. This type helps to describe the often cynical approach that corporations take in using the terminology of the circular economy either in new forms of greenwashing or in articulating loud sustainability. In this form the 'instrumental' type of the circular economy sees the circular economy terminology used to describe activities that are akin to a pollution control approach and are fundamentally unsustainable. For example, the way that the remanufacture of Caterpillar's diesel engines was positioned as part of the circular economy (Ellen MacArthur Foundation, 2019d, 2013a, p. 72) exemplifies the instrumental type. This case for remanufacturing ignores the contradiction that diesel engines are fundamentally reliant on unsustainable fossil fuels, and yet, according to the Ellen MacArthur Foundation's own definition, the 'energy required to fuel the circular economy should be renewable by nature' (Ellen MacArthur Foundation, 2015a, p. 8). Furthermore, it is hard to see how supporting such a business model would have significant social impacts. Instead, it seems that these activities are more likely to accrue economic benefits than address the environmental and social dimensions of Caterpillar's triple bottom line. Therefore, from this example we can see how the language of the circular economy is being used under loud sustainability by Caterpillar and may well represent a new form of greenwashing. The 'instrumental' type is thus used to describe these kinds of activities that are largely incompatible with the holistic aims of the 'ideal' type of the circular economy. It also helps us to identify where the vogue of the circular economy is being used as a branding tool, rather than a model pushing for absolute sustainability. Overall, the 'instrumental' type of the circular economy describes a near business as usual model and is commensurate with weak sustainability.

With these forms of the circular economy we can now use them to further analyse circular economy discourse. This will help us to develop a conceptual framework that will ground the critique of circular economy practice in the following chapters. To do so the following section introduces discourse analysis as a tool that helps reveal how the

concept of the circular economy gains power, particularly in African contexts that are often distinct from contexts in the Global North where the concept has emerged from.

## **2.9 - Using Discourse Analysis to Analyse the Circular Economy**

Discourse analysis provides a useful research method to help us understand how the concept of the circular economy has gained power over the last decade and how it is becoming a global phenomenon through a discourse coalition that has emerged in the Global North. In the following section I will use a Foucauldian understanding of discourse analysis to help single out the circular economy as an encompassing space whilst simultaneously separating this analysis from it by perceiving the concept afresh (Foucault, 1986; Escobar, 1995). This method of analysing actual discourse and the argumentative structure within it will help us to see that the circular economy concept falls within broader Western systems of thought and economic organisation, as well as how in practice it often echoes neoliberalism. Whilst the majority of this study focuses on practice, supplementing this with an introductory analysis of discourse helps to give us a framework to build upon. This then enables us to understand how ideas from the circular economy are being interpreted and practised in Kenya's unique cultural, economic and institutional context.

For the purposes of this study I use Hajer's (1993, p. 45) definition of discourse - 'an ensemble of ideas, concepts, and categories through which meaning is given to phenomena.' Following this definition I understand discourse analysis to be a qualitative and interpretive research method, suitable for studying written or spoken language in relation to its social context. This goes beyond purely linguistic analysis and investigates meaning within the wider context in which language is used, particularly in regard to how power dynamics emerge from discourse (Salkind, 2010). In this exploration I also use Hajer's concept of a discourse coalition to describe how social constructs, such as the circular economy, can be used to frame political problems. Furthermore, how they can enable actors to 'impose their views of reality on others, sometimes through debate and persuasion, but also through manipulation and the exercise of power' (Hajer, 1993, p. 45).

Throughout this study I take a Foucauldian approach to discourse analysis, drawing from Foucault's seminal ideation of 'metapower' and 'power/knowledge'. This understanding signifies how power can be constituted through accepted forms of knowledge and scientific understanding which lead to 'truth' (Foucault, 1998, p. 63). I use Foucault's idea that 'power is everywhere', appreciating that it is diffused and embodied in discourse (Rabinow, 1991), to help understand how circular economy discourse might impact power dynamics in Kenya. Taking a Foucauldian approach to understanding discourse means that I am perceiving power as 'discursive rather than purely coercive, and constitutes agents rather than being deployed by them' (Gaventa, 2003, p. 1). Applying Foucault's ideas helps us to understand how circular economy discourse and institutions create 'regimes of truth' surrounding the concept which are reinforced and redefined constantly through systems of education, the media and the flux of political and economic ideologies (Foucault, 1991). Such power dynamics result in boundaries that enable and constrain possibilities for action as well as people's relative capacities to know and shape these boundaries (Hayward, 1998). Beyond this a Foucauldian understanding of power also implies that power can operate at a distance by 'educating desires and configuring habits, aspirations and beliefs... [as] people are not necessarily aware of how their conduct is being conducted or why, so the question of consent does not arise' (Li, 2007, p. 5). This is particularly pertinent considering how the circular economy is being promoted in Kenya and yet there has been minimal Kenyan input toward the concept to date.

There is a wealth of literature that similarly takes a Foucauldian approach to discourse analysis, particularly development discourse, that this section draws from to further this understanding of circular economy discourse. Furthermore, using a Foucauldian approach to discourse analysis helps this research to address the role of language and discourse in constructing social realities of concepts such as the circular economy (Willig, 2008). Taking this approach means that I assume that discourses are inextricably bound with social practices and material realities. In this sense it is not possible to analyse circular economy discourse in the Global South without noting how discourse in this context is impacted by alternate discourses, such as sustainable development and international development. A Foucauldian approach to discourse analysis is particularly useful because this study is cross-cultural qualitative research

(in analysing the circular economy from the Global North in a Kenyan context).

Therefore, it is helpful to begin from Foucault's interpretation that discourses arise within given cultural contexts which can be simultaneously enabling and constraining, facilitating and limiting what can be said, where, when and by who (Parker 1992).

Importantly a Foucauldian approach stems from understanding that there are numerous versions of the world, each of which are constructed through discourses and practices. Some of these are more strongly supported by institutions and so 'constitute more legitimate ways-of-seeing' (Willig, 2008, p. 126) by dominating the discursive space. Therefore, Foucauldian discourse analysis helps us to acknowledge these power dynamics and identify alternative understandings of the circular economy. Furthermore, this viewpoint is concerned with the role of discourse in wider social processes of power. This is of particular relevance as dominant discourses can privilege versions of social reality that legitimate existing power relations and social structures (Willig, 2008). This is pertinent for circular economy discourse, a form of expertise discourse, as such discourse can often highlight the politics surrounding 'expert' knowledge (Parker, 1992). Therefore, this section aims to use Foucauldian discourse analysis to map the discursive world of the circular economy, to trace possible ways-of-being afforded, to ask questions about the historical origin of circular economy discourse and its relationship with institutions and social structures (Willig, 2008, p. 125).

Furthermore, this thesis aims to understand if the circular economy may be producing new forms of epistemic violence (Spivak, 1988) by promoting a new concept onto the Global South from the Global North. Here I use the term of epistemic violence to describe how the discursive framing of social-scientific data can determine what is thinkable, legitimate, rational and modern whilst on the other hand designating other ideas as traditional, backwards or underdeveloped. This can be understood in the context of the circular economy as how data could be interpreted to show the inferiority of alternative systems (such as quiet sustainability from the Global South being inferior to forms of the circular economy from the Global North) even when data allow for equally viable alternative interpretations (such as quiet sustainability from the Global South being closer to absolute sustainability than forms of the circular economy from the Global North).

This argumentative turn provides us an opportunity to analyse how certain relations of dominance are structured and are potentially being reproduced through the circular economy. Determining the way that the circular economy phenomenon is linguistically represented has significant political repercussions in determining who is responsible and what should be done in order to realise the ideals of the circular economy. Moreover, it is critical in determining what the ideal type of the circular economy entails and who is able to determine this vision and on the behalf of who.

Having noted the ways that discourse analysis is a useful approach to understand circular economy discourse, it is also important to note the limits of taking such an approach. Discourse is only part of how reality is constructed and practice is defined. This is perhaps the most important limit of this research method, noting the extent of the relationship between discourse and material reality. Whilst there is consensus that discursive constructions have 'real' effects, there is less clarity about what the limits of discourse are upon social and material reality (Willig, 2008). For this research, the difference between the ideal imagination of the circular economy often strongly contrasts the physical outcomes of the concept's application (Franco, 2017; Winans et al., 2017). Beyond this, taking the view that meanings cannot be fixed, such that 'everything is always open to interpretation and negotiation' (Morgan, 2010, p. 4) presents challenges in settling on a singular unit for analysis. However, considering that the conceptualisation of the circular economy is far from complete (Korhonen et al., 2018b), this disadvantage of discourse analysis is thought to be outweighed by the many advantages of the approach. With this understanding of the method we can now begin to draw on this approach to understand how the circular economy has gained power and how this has the potential to impact countries in the Global South.

To understand such phenomena we can draw from development discourse, which shares much with the circular economy, in how the power of Western concepts can manifest in the Global South. Typically in development discourse Foucauldian forms of power manifest through processes that are characterised in technical terms. Such 'practices of calculation, vocabularies, types of authority, forms of judgement' (Li, 2007, p. 6) can similarly be seen in circular economy discourse and are defined under the concept of 'professionalisation'. This professionalisation of development has brought the Global South into the 'politics of expert knowledge and Western science in general'

(Escobar, 1995, p. 45). Through this organisation of the generation of knowledge a politics of trust is created and maintained. This is a notable similarity between development discourse and circular economy discourse - the way that both fields are forms of expert discourse which often separates out academic discourse.

In Ferguson's exploration of development discourse and academic discourse he highlights why each discourse has differing rules of formation. Whilst development discourse might stem from the same epistemological world, drawing from a common stock of ideas and traditions, it is not beholden to the same 'ideological and institutional constraints' (Ferguson 1994, p. 29). Subsequently, development discourse will often disregard academic analysis unless it provides a charter for the sort of intervention that the development agency is set up to do (Ferguson, 1994, p. 69). Circular economy discourse can be seen repeating this pattern. For example, in the Ellen MacArthur Foundation's (2015a) 'seminal' (Bruehl et al., 2019) paper outlining their conceptualisation of the circular economy, the think-tank cites only one peer-reviewed source, otherwise relying on more favourable grey literature that makes up the remaining 40 citations. Indeed this report cites other reports written by the Ellen MacArthur Foundation no fewer than 22 times, making up no-less than 53% of all the sources given.

This self-referential nature of expert-led circular economy discourse (as opposed to academic discourse on the subject) has considerable implications, particularly in meeting the needs of circular economy institutions by doing what academic discourse inevitably fails to do. As seen in the recent report concerning the circular economy in India, the Ellen MacArthur Foundation (2016a) were able to make India seem to be an enormously promising candidate for the only sort of intervention that circular economy advocates are capable of launching, an apolitical, technocentric, circular economy intervention. The power of this expert discourse is such that it should not be underestimated in its ability to influence academic critique of the concept. From the 66 peer-reviewed papers found citing the Ellen MacArthur Foundation's (2016a) report, all of these had positively accepted the Ellen MacArthur Foundation's conception without substantial critique. For example, Indian academics Manju and Sajoy (2020) proposed that such a conception was a paradigm shift for sustainable development. Furthermore, even the most critical interpretation found was still largely supportive, proposing

solutions that they believed were in harmony with the ‘three key principles’ that had been outlined by the Ellen MacArthur Foundation (Sharma and Joshi, 2019, p. 179).

These accounts also further reinforce the theoretical work done by circular economy discourse. For example, the constitution of nations and companies as suitable theoretical objects of analysis suggests that nations or companies can singularly outline their circular economy strategies (Mathews and Tan, 2011; Ellen MacArthur Foundation, 2016a, 2017). This belies the international implications of global material loops which contest ideas that one nation or company could singularly achieve the ideals of the circular economy without material leakage to other nations or companies (McDowall et al., 2017). Nonetheless, circular economy discourse continues to enable and promote such national plans, including a recent Kenyan addition (Soezer, 2016). Such forms of analysis are of course most helpful to a circular economy agency as they naturally rise to the top of authoritative circular economy discourse and serve as a charter to justify and legitimate the sort of programme that circular economy institutions are prepared to execute. Conversely, other representations that are less useful to these institutions, such as neoliberal critiques (Hobson, 2016; Flynn and Hacking, 2019), are less used. Subsequently, circular economy discourse results in a homogenised set of standardised prescriptions that can be applied to almost any context. This was most overtly demonstrated by the recent strategy laid out for Brazil that repeated much of the strategy set out for India one year earlier (Ellen MacArthur Foundation, 2016a, 2017).

Furthermore, the professionalisation of discourse also helps to remove problems from political and cultural realms and recast them in terms of the ‘apparently more neutral realm of science’ (Escobar, 1995, p.45). This also enables the circular economy to become institutionalised and legitimised whilst sidelining political and cultural questions surrounding the concept. This trend can be noted in circular economy discourse by the fact that many major universities in the Global North have begun to introduce circular economy programmes (CEC, 2020), echoing how development discourse was entrenched into academia decades ago (Escobar, 1995, p. 45).

This theme of scientific neutrality is of considerable interest to this study as whilst the circular economy might be focused on materials flows, there are inevitably social tradeoffs with environmental and economic dimensions, and therefore the concept is unavoidably political. Here we can see similarities between circular economy discourse

and Ferguson's ideation of development as an 'anti-politics machine' that reposes 'political questions of land, resources, jobs, or wages as technical 'problems' responsive to the technical 'development' intervention' (Ferguson, 1994, p. 270). The use of 'expert discourse' (Li, 2007, p. 10) can be seen by circular economy experts whose claims to expertise depend on their capacity to diagnose problems in ways that match the kinds of solution that fall within their repertoire (see Stahel, 2019). This has been taken to an extreme by McDonough and Braungart who have gone as far as trademarking their cradle-to-cradle certification that claims to authenticate that a solution belongs to the ideal type of the circular economy (McDonough and Braungart, 2002). In doing so the professionalisation of circular economy discourse is following a Foucauldian construction of power by using expert knowledge to take 'what is essentially a political problem, removing it from the realm of political discourse, and recasting it in the neutral language of science' (Dreyfus and Rabinow, 1982, p. 196).

This also introduces another issue as circular economy expertise can appear closed, self-referencing and secure in using the technical matrix that has largely been established by the Ellen MacArthur Foundation (2016c), as similarly seen earlier in development discourse (Dreyfus and Rabinow, 1982, p. 196). Furthermore, development discourse has also demonstrated how experts can rule, often succeeding in disguising their failures and continuing to devise new programs without having their authority challenged (Mitchell, 2002). This is a trend that can be seen within extant circular economy discourse where the theory of concept remains secure despite often failing to achieve its aims in practice (Franco, 2017; Winans et al., 2017).

Moreover, the way that circular economy discourse straddles multiple academic disciplines enables circular economy discourse to further form a world unto itself. This is similar in nature to how development discourse evolved jargon so widespread to be coined "dev-speak" (Turner, 2006). Yet the importance of circular economy discourse goes beyond using specific terminology and involves a distinctive style of reasoning, often implicitly (perhaps unconsciously) reasoning backwards from the necessary conclusion that building circularity can solve the climate emergency without limiting growth (Lacy et al., 2014). The way that this discourse is being formed is critical as it is setting 'the rules of the game: who can speak, from what points of view, with what authority, and according to what criteria of expertise; it sets the rules that must be

followed for this or that problem, theory, or object to emerge and be named, analysed, and eventually transformed into a policy or a plan' (Escobar, 1995, p. 41).

To date the circular economy has emerged as a field of expertise (Stahel, 2019) and of science (Pomponi et al., 2016), making it often seen as a primarily technological concept (Mugge and Bakker, 2018). Considering the way that World Bank discourse has previously attempted to regulate the poor through new technologies (Alonso, 1992, p. 412), then it is important to ensure that such technocentrism from the circular economy does not evade the social issues faced by the poor by claiming scientific neutrality.

This potential flaw within extant circular economy discourse is substantial if it remains largely devoid of questions that cannot be addressed by the concept. In this way many questions are being essentially screened out because of this constitution of the circular economy as a technical domain. For example, despite the work of a few academics (Sauvé et al., 2016; Murray et al., 2017; Hobson and Lynch, 2016) who have highlighted how the circular economy furthers the structures that support systemic social inequalities, such considerations continue to be absent from mainstream circular economy debate. That said, from the evidence available, there does not appear to be a conspiracy in this vein. Instead, similar to how Ferguson (1994) rejects notions of conspiracy within development discourse, yet noting how the development apparatus has consistent, strategic effects, I propose that circular economy discourse has similar self-perpetuating impacts. This is because discourse is a structured practice with real effects that can produce permissible modes of thinking whilst disqualifying others (Foucault, 1971, 1973). Subsequently, much like development discourse (Ferguson, 1994), the thoughts and actions of circular economy economy agents are a product of the interests of various nations, classes and international agencies, who are architects of the complex structure of circular economy knowledge. This is of considerable concern when considering the circular economy in the Global South, as it has been shown that discourse which depoliticises social problems, such as poverty, can show remarkable productivity in maintaining a status quo rather than finding solutions to the grand problems said discourse was nominally proposed to solve (Escobar, 1994, p. 143). Therefore, challenging such extant discourse is critical as it can help to produce new policies with better outcomes for the poor. (Bebbington et al., 2004).

This study's consideration of the circular economy in Kenya, a lower-middle income country, brings a focus to the social dimensions of the circular economy, and particularly its potential impact on equity. In this regard, the influence of Western discourse is of critical importance as 'African worlds have been established as realities for knowledge' (Mudimbe, 1998, p. xi) in Western discourse. Therefore, it is vital that discourse is critiqued so that 'Africans can have greater autonomy over how they are represented and how they can construct their own social and cultural models in ways not so mediated by Western' discourse (Escobar, 1995). This point is emphasised by the Global North's dominance of the conception of the circular economy. The production of the concept has happened under conditions of unequal power between the Global North and the Global South and is reminiscent of what has previously been described as a 'colonialist move' (Mohanty, 1991). This is an issue I hope to begin to redress through the subsequent chapters where I consider the variety of ways in which Kenyans are articulating alternative ecological and economic rationalities through distinct forms of the circular economy.

It is also important to acknowledge that circular economy discourse was largely formed from a single knowledge system from the Global North. This is similar to development discourse and such bias can result in the marginalisation and disqualification of non-Western knowledge systems that might hold alternative rationalities that can guide social action away from economistic and reductionist ways of thinking (Apffel-Marglin, 1996). This is an aspect highlighted by post-development authors, such as Escobar (1995, p. 216), who have suggested strategies to contain the 'Western economy as a system of production, power and signification' such that energies might be instead focused on supporting local cultures and knowledge. Considering that the circular economy has emerged out of ideas to grow economies primarily in the Global North, then it is vital to challenge circular economy discourse and the prevailing arrangement of the global economy to see if countries in the Global South can truly benefit from such a concept.

Using this Foucauldian framework can also further help us understand how circular economy discourse may be following similar patterns to development discourse. Indeed circular economy advocates are 'organised their ways of talking in order to pursue particular aims... [so that we] find familiarity and regularity in how we talk and think,

but... impose particular views and language on our experience' (Lock and Strong, 2010, p. 274-275). This also helps to explain that because circular economy discourse has been accepted as a viable economic model in much of the Global North, this signifies its development as a 'regime of truth' and emphasises the status of those who are charged with saying what counts as true (Rabinow, 1991).

The way that circular economy advocates have become integrated into powerful forums, such as at the Davos World Economic Forum (Confino and Holtum, 2014; Hobson, 2016), also demonstrates how this economic model is being promoted primarily by actors from the Global North. In this way I argue that circular economy discourse is similarly leading to 'the (re)production of dominance and inequality' (van Dijk, 1993, p. 28) previously seen by development discourse. Indeed Lock and Strong (2010, p. 276) have noted how particular ideologies have long been pursued by Western governments that embrace economic discourses of 'new economies' and use this language to convey to people 'how things are and should be'. This has significant impacts on economic thinking not only in the Global North, but also in the Global South where the concept has begun to gain traction.

The way that circular economy discourse has gained power primarily from the Global North is a significant reason for analysing the circular economy within a context from the Global South. In order to do this it is helpful to draw from Foucauldian understandings of power through discourse that have been widely used to critique development thinking and paradigms as well as the ways development discourses are imbued with power (Gaventa, 2003). This is particularly relevant in Kenya where circular economy discourse is emerging solely in English, yet in Kenyan academia there has long been debate surrounding the politics of using the language of the British coloniser when trying to describe local phenomena (wa Thiong'o, 1986). Ngugi wa Thiong'o is widely recognised as one of the most vocal academics fighting against how Western imperialism and neoliberalism manifest through the use of language. This plays into how circular economy discourse in Kenya is solely emerging amongst Kenya's intellectual elite who typically engage with anglophone international organisations - this will be covered in greater detail in Section 4.3. This is significant as it means that any conversations around the circular economy in Kenya are currently being produced in such a way that alienates many Kenyans as technical English

language creates a barrier. This is critical in considering how 'traditional' Kenyan phenomena, often described in one of Kenya's 67 other languages (Lewis et al., 2017), may be excluded from this 'modern' discourse.

The professionalisation of circular economy discourse also has potential to echo failures of development discourse by appropriating African knowledge under a Western concept. Or as one African scholar put it, 'our own history, culture and practices, good or bad, are discovered and translated in the journals of the North and come back to us re-conceptualised, couched in languages and paradigms which make it all sound new and novel' (Namuddu, 1989, p. 28). The magnitude and consequences of such ideological operations have been highlighted by numerous post-development authors, most notably Escobar (1995), therefore it is vital to analyse whether circular economy discourse may be repeating this phenomenon. Escobar (*ibid.*, p. 46) goes on to note the influence that the world's intergovernmental organisations have had in consolidating an effective network of power that promote certain behaviours and rationalities - a similar system can now be seen being repeated and revitalised by intergovernmental organisations through circular economy discourse (see World Bank, 2019a; UNIDO, 2019a). In this way we can see circular economy discourse to be a revitalised development model built from historical Western systems of knowledge. Furthermore, this centrality of circular economy discourse is likely to marginalise local models of practice that become lost in the context of dominant conversations (Gudeman and Rivera, 1990).

To better understand how other international development and environmental ideas developed in the West have been employed in other African contexts, we can further interrogate how the green economy (an expert discourse in many ways comparable to the circular economy) has gained currency and been adopted in South Africa. This is a particularly pertinent case study to analyse because South Africa has been leading circular economy discourse in sub-Saharan Africa, something that was noted during the research through searches in 2016 and 2019 using Scopus and JSTOR. Furthermore, South Africa has been cited as a global green economy leader (Death, 2014). This is despite the irony of 90% of South Africa's electricity production coming from coal-fired power stations (McDonald, 2009, p. xix). Looking further into this discourse can help us

to understand how this contradiction is possible and why such conflicting opinions can be held about a single country's economy.

Firstly, it is helpful to establish the significant challenge South Africa faces in developing a green economy, even just in regard to the environmental aspects of this ideal. South Africa is the world's 14th largest emitter of greenhouse gases (Crippa et al., 2019). The majority of its CO<sub>2</sub> emissions are due to a heavy reliance on coal (McDonald, 2009, p. xix). This reliance stems from South Africa's ownership of the world's ninth largest proven reserves of coal, equating to 95% of all of the coal in the African continent (EIA, 2017). Coal is so pervasive in South Africa that 'clean coal' is funded under the 'Renewable Energy' sub-programme of the state-owned Central Energy Fund's 'Clean Energy' programme (ODI, 2015). Subsequently, state investment in coal continues at a rate of over \$4 billion per year through the state utility, Eskom. In recent years this has enabled the construction of coal-fired power plants such as Medupi and Kusile (ibid.).

Looking at South African environmental discourse reveals a duality whereby some actors claim the country is on a path towards a sustainable energy future whilst enabling 'business as (slightly un)usual' - to quote Hobson's (2016, p. 93) description of circular economy discourse. So despite such ongoing investment in coal power, Jacob Zuma, South Africa's president in 2017, continued to call upon South Africans to do 'extraordinary things' to address climate change (Gerber, 2017). There are myriad reasons as to why the South African government might wish to promote climate-friendly brand without pushing hard to reduce greenhouse gas emissions, a core aim of the green economy. For example, in 2011 the South African Government together with businesses, trade unions and civil society organisations adopted the wide-ranging Green Economy Accord (Amis et al., 2018), that contained several ambitious targets. However, despite such nominal agenda setting, the tangible results of such discourse are less clear. A cynical view on such discourse could suggest that they are more realistically part of a strategy to enhance South Africa's international reputation as a green policy leader and as a diplomatic ally to other nations interested in fighting climate change.

For example, the Green Economy Plan from the regional Limpopo Provincial Government (Letsoalo, 2013), which details idealistic renewable energy ambitions and

yet only mentions coal twice in a 54-page report. This skips over the inconvenient fact that there are two significant coal-fired power plants in Limpopo Province. This includes the plant at Medupi for which the African Development Bank loaned £1.81 billion to aid the development of the coal-fired facility in 2009 (BBC, 2010), and was still under construction at the time of the Limpopo Provincial Government's Green Economy Plan (Letsoalo, 2013). Nonetheless, such rhetorical framing through green economy discourse has enabled South Africa to gain an international reputation for its green economy ambitions. In this way it seems that by using the new language of the green economy, it is possible to overlook crucial aspects of absolute sustainability and instead focus on highlighting measures can more easily fit within a convenient conceptualisation of the green economy.

In 2017 the United Nations continued to praise South Africa's approach that has 'sharply increased' (PAGE, 2017, p.14) green economy initiatives since 2010 such that 'all key sectors... and all provinces are active in or associated with the green economy in some way' (ibid.). Again we find that considerations regarding coal have been sidelined - this report mentions coal just three times in a 92-page report. This implies that, even on an international stage and within the realms of the United Nations, South Africa's '32 green economy-related policies and strategies' (ibid.) have been effective in dominating green economy discourse and distracting from the immense climate change challenge presented by the ubiquity of coal as a power source in South Africa. Such a strategy has been sufficiently effective to establish South Africa as a leader that has been cited as being sufficiently 'well positioned to articulate Africa's position on green economy in the world' (Kaggwa et al., 2013, p.13). This is perhaps one of the key reasons why the green economy has become popularised, because it is possible to instrumentally become an active participant without necessitating radical sustainability actions.

Indeed South Africa has gone on to leverage its leadership position by taking a stand against Western approaches to climate change. For example, in 2012 South Africa 'declined a request by Switzerland to work with it to convince developing nations (many of which were African) to accept adverse financing conditions relating to suggested efforts to mitigate climate change' (ibid., p.16). Thus we can see through these examples that South Africa's interest in the green economy forms part of a

complex political milieu that is not necessarily led by the ideal form of the green economy that necessitates renewable energy. Instead, we can see that an instrumental form of the green economy has been used whilst essentially enabling business as usual in South Africa.

Overall, this short example of the green economy helps us to understand how environmental concepts, comparable to the circular economy that have also been developed in the West, have been employed instrumentally in African contexts. Pertinently the instrumental way that these concepts can be used can help them to gain power, subsequently negatively impacting efforts towards absolute sustainability. This gives poise for us to ask if a similar pattern may emerge regarding how the circular economy is leveraged in the Global South. This is particularly so as South Africa have also been taking the lead in circular economy discourse on the continent. This example highlights the need to question whether the circular economy might similarly be introducing a new language that can blur and obfuscate whether so-called environmental initiatives are truly leading to absolute sustainability. Furthermore, whether this new terminology might be reinforcing international power dynamics by promoting another economic mode developed by the Global North without sufficient consideration of the Global South.

From this viewpoint, it is helpful to draw from Hajer's (1993) perspectives on how social science has problematised language. In this way language is a system of signification through which actors not only describe the world but create the world (Bernstein, 1976). Notably in this way circular economy discourse builds on to the historic transformation of 'nature' into 'environment' that relegated nature to a more passive role, a 'mere appendage to the environment' (Escobar, 1995, p. 196). The environment has become an indispensable construct that includes a view of nature according to the urban-industrial system. In this view raw materials, industrial products, and resources all circulate, whilst nature's all encompassing role is segregated (Sachs, 1997). This has been encapsulated in the circular economy by the popular butterfly diagram (Ellen MacArthur Foundation, 2016c) shown at the start of this chapter. This presents nature as distinct and encapsulated in the biosphere, as a concept wholly removed from the technosphere of industry.

This theme is taken further in circular economy discourse from the Global North as the idea of 'waste' is given utmost importance. Through this mechanism the circular economy is established as a discourse that supports the environment, whilst enabling economic growth from within (Ellen MacArthur Foundation, 2015b). Through this focus on 'waste' the concept has been promoted as being compatible with sustainable development and wider normative environmental goals (Ellen MacArthur Foundation, 2019b). Yet whilst circular economy discourse does imply the reduction of greenhouse gas emissions, the salient point is that by changing the narrative - away from the predominant focus on global warming and refocusing on 'waste' - circular economy discourse is promoting new forms of 'sustainability' that have been described as 'business as (slightly un)usual' and 'advanced neoliberalism' (Hobson, 2016, p. 93).

To demonstrate this I will present the following example using Willig's (2008, p. 114-129) six stages of discourse analysis. This will also show how one conception of the circular economy has gained power - that presented in *Economic and business rationale for an accelerated transition* by the Ellen MacArthur Foundation (2014b). The first of Willig's stages is to outline how the discursive object (the circular economy) is constructed. Generally the concept is treated with utmost respect and as a 'proven concept' (ibid., p. 2). Often the benefits of the concept proposed are astounding. For example, 'the full potential of the circular economy [is estimated] to be as much as USD 700 billion in global consumer goods material savings' (ibid., p. 16). In this way, the concept has been constructed as an ideal and has been interpreted by some academics as a revolutionary paradigm-shift (Prieto-Sandoval et al., 2018; Sgroi et al., 2018).

The second stage of this analysis is to locate the discursive constructions of the object within wider discourses. Here the Ellen MacArthur Foundation cites the 'many leading academic, industry and government agency experts who provided invaluable perspectives and expertise' (Ellen MacArthur Foundation, 2014b, p. 15). The majority of these experts come from MNCs such as: McKinsey & Company (management consulting), Caterpillar (construction equipment manufacturer), Vestas (electronics) (ibid., p.3). The minority of academic experts generally came from backgrounds in management, environmental science and sustainable development (ibid., p. 4). In terms of the content, the predominant field concerned is business studies, shortly

followed by environmental science. In striving to be an economic paradigm this report does of course touch on many other fields in passing, most notably through the political implications of how it suggests 'policy makers [can] carry the concept to its breakthrough at scale' (ibid.). In summary, the Ellen MacArthur Foundation have conceptualised the circular economy as an expert discourse, professionalising the circular economy in a way that echoes how Escobar noted the professionalisation of development discourse (Escobar, 1995, p. 45).

The third stage is to examine the discursive context and attempt to see what is gained from the object being constructed in such a manner. In this regard, the intent is quite clear - the Ellen MacArthur Foundation (2014b, p. 1) are trying to provide an 'economic and business rationale for an accelerated transition' towards a circular economy. They aim to show 'the benefits of a restorative model to businesses... policy makers... [and] the European Union' (ibid., p. 2). Normatively, the purpose of these efforts is to support a push towards absolute sustainability. However, it is important to note that as a self-styled institution of expertise regarding the circular economy, the Ellen MacArthur Foundation are also furthering their own position and entrenching their power within this growing field.

The fourth stage is to identify what subject positions are being made available by these constructions. In this regard the paper in question contains the subject position of the circular economy expert. This privileges certain voices - the 'experts' identified by the Ellen MacArthur Foundation - affording them power to speak about the concept without challenging their ideas. Although the paper cites several data sources, it only briefly credits the 'leading academic and industry experts' who provided 'input and expertise' (ibid.), without indicating who provided what knowledge and which findings. In this way, this paper is subtly attributing the overall understanding and knowledge of the circular economy back to the Ellen MacArthur Foundation, placing themselves at the centre of who can speak and act as an expert in circular economy discourse. That said, parts of the report do also position the audience as agents of change, suggesting they should act upon the recommendations to enhance circularity within their own businesses or spheres of influence. For example, the example of Patagonia's approach to providing 'value-added offerings like repair, amendment, return and leasing' is given to suggest companies in similar markets could similarly 'redefine themselves as fashion

or style partners with superior customer insights and value opportunities along the life cycle' (ibid., p. 21). In this way, the report sets out two subject positions, that of the expert who is able to speak of their knowledge and that of the learner who is set out to implement the methods of the expert.

This leads us onto the fifth stage which asks what the possibilities for action are mapped out by these constructions. In this way the report opens up avenues for those following the guidance of circular economy experts. Simultaneously this expert discourse also limits alternative opportunities for action. For example, throughout the report there is a significant focus on the opportunities created by new technologies. Various forms of 'new circular technologies' (ibid., p. 19) are cited on almost every page. By legitimating the critical role of technology within circular economy discourse, the Ellen MacArthur Foundation is subsequently implying that low-tech activities do not belong within the concept. This serves to limit what can be said and done within circular economy discourse and explains why there has been such a technocentric focus in extant discourse (Mugge and Bakker, 2018).

The sixth and final stage is to trace the consequences of such subject positions and what can be thought and experienced from within these subject positions (Davies and Harré, 1999). In this regard, the expert position may be helping the Ellen MacArthur Foundation to speak with authority without thinking it necessary to question their own ideas and circular economy solutions. A further consequence is the implication that those occupying a learner position should also refrain from questioning the proposals of the expert and instead should defer to the greater knowledge of the circular economy expert. For example, by supporting the members of their CE100 platform through 'an online library of best practices, insights and learnings, acceleration workshops, an annual summit to showcase solutions and leading thinking' the Ellen MacArthur Foundation (2014a, p. 8) are stating their claim to expertise. Positioning themselves within circular economy discourse in this way enables the Ellen MacArthur Foundation to publicly claim their expertise and a role as a 'global' (ibid.) circular economy leader. The way that the Ellen MacArthur Foundation has positioned themselves ahead of this club of MNCs and academics, who they regard as 'experts', further enables the Ellen MacArthur Foundation to experience being regarded as circular economy experts. By

entrenching this power dynamic, they are consequently downplaying alternative ideas that can emerge from less powerful actors within circular economy discourse.

The power dynamics within circular economy discourse are of particular interest when considering how the concept is used in Kenya which is far removed from the more common context in the Global North. Therefore, it is worth asking if there is a circular economy discourse coalition from the Global North that gives the discourse an 'internal consistency' (Lock and Strong, 2010, p. 246). Such 'principles of consistency provide 'spaces' as to what might 'legitimately' be subsequently expressed... [and] acts to make some things appear to be 'the natural way that things are' (ibid.). This could be giving the proposition of a circular economy, that is only business as (slightly un)usual, a perceived credibility in sustainability discourse. Furthermore, this could be centering ideas of the circular economy in the Global North, suggesting that the Global North is forging a new economic paradigm, one that removes dependency on global trade and consequently relationships with the Global South.

Hajer suggests two conditions to test whether there is a discourse coalition in a given political realm surrounding a concept, such as the circular economy. The first condition asks whether the concept 'dominates the discursive space and central actors are persuaded by, or forced to accept, the rhetorical power of a new discourse' (Hajer, 1993, p. 48). In some circles this has been achieved as we can see that amongst intergovernmental institutions, including the World Bank (2019a) and agencies of the United Nations (UNIDO, 2019a; UNEP, 2020), the circular economy has become a popular form of discourse, reflecting the rhetorical power of this new discourse. Whether the circular economy has become dominant over all other environmental discourses is more debatable; however, for the purposes of this study the concept's popularity is enough to suggest the potential existence of a circular economy discourse coalition.

Hajer's second condition is that such acceptance 'is reflected in the institutional practices of that political domain; that is, the actual policy process is conducted according to the ideas of a given discourse' (Hajer, 1993, p. 48). This condition has more certainly been met as the circular economy has been explicitly included in legislation by several governments, such as Germany, Japan and China (Geissdoerfer et al., 2017; Heck, 2006; Lieder and Rashid, 2016). That said, the implementation of

these policies has been markedly less substantive (Heshmati, 2015), indicating that circular economy discourse may not yet be entirely dominant. Nonetheless, these policies demonstrate that the circular economy is beginning to be reflected in their respective institutional practices. This suggests that there exists the early forms of a discourse coalition surrounding the circular economy, comprised predominantly from the Global North (with the exception of China where a significant and alternative circular economy discourse exists, as described in Section 2.2). Considering how this discourse coalition from the Global North is more mobile than the Chinese alternative, this thesis will focus on using the dominant conception of the circular economy from the Global North as a framework to understand how the concept is being employed in the Kenyan context.

This discourse coalition has enabled various groups to coalesce around the circular economy, ranging from academics, business, intergovernmental organisations, as well as governments. This has subsequently seen the concept used in a variety of ways ranging from ideal forms, actually existing forms as well as instrumentally. For example, throughout reports produced by the Ellen MacArthur Foundation, the World Bank and the United Nations, there is a consistent narrative that employs a similar conceptual machinery. To summarise this discourse analysis section, we can conclude with a framework of this dominant conception. This framework is given in Table 2 below which sets out the dominant conception of the circular economy from the Global North and how these aspects often tend towards either weak or strong sustainability.

**Table 2: The Dominant Conception of the Circular Economy from the Global North**

Prevalence of an aspect	Common	Occasionally	Rare
Where aspects can be identified in the dominant conception of the circular economy	Waste as a resource		Renewable energy
	Growth from within		Social justice
	Limitless economic growth	Sustainable development	Quiet sustainability
	High-tech	Triple bottom line	Frugal innovation
	Technocentrism		Bricolage entrepreneurship
	Neoliberal mechanisms		Appropriate technology
Forms of sustainability	Weak		Strong

This theoretical framework highlights some of the ideas that are often seen within the circular economy discourse coalition. Firstly, perhaps the most common idea is that the circular economy reconceptualises waste and transforms waste into a resource (Perey et al., 2018). The idea is to eliminate ‘waste from the industrial chain by reusing materials to the maximum extent possible’ (Ellen MacArthur Foundation, 2013a, p. 9). One method suggested to achieve this is the ‘conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of so-called waste-to-energy processes, including combustion, gasification, pyrolysis, anaerobic digestion, and landfill gas recovery’ (ibid., p. 25). However, to do so is archetypal weak sustainability (Pelenc and Deduerwaerdere, 2015; Muznik, 2017). Nonetheless, such

ideas help build the potential for 'growth from within' (Ellen MacArthur Foundation, 2015b) and 'growth without limits' (Lacy et al., 2014). This is another oft-cited aspect of the circular economy, the idea that the concept can provide new opportunities for economic growth, particularly from within economies in the Global North (Ellen MacArthur Foundation, 2015b). By suggesting that limitless economic growth is obtainable (Lacy et al., 2014) circular economy discourse is essentially repeating environmental discourse of the 1980s that was fixated on the 'growth of the limits' (Sachs, 1988).

Beyond these ideas, the circular economy discourse coalition often focuses on the use of new technologies or 'high-tech' (Ellen MacArthur Foundation, 2015b, p. 58; UNIDO, 2019a; World Economic Forum, 2014), and categorises the concept within 'innovation, technology' for 'productivity and growth' (World Bank, 2019a). This focus on technology often leads to the concept being technocentric - meaning that technology can be relied upon to address ecological problems (Mugge & Bakker, 2018). In this way the discourse coalition again leans towards weak sustainability. The last common theme from the discourse coalition is that the concept often uses neoliberal mechanisms for change as outlined in Section 1.2 (Hobson, 2016; Flynn and Hacking, 2019).

In general the discourse coalition builds on ideas of sustainable development. Circular economy discourse has emerged from this legacy and still occasionally draws upon sustainable development discourse (Sauvé et al., 2016; Schröder et al., 2018a; UNIDO, 2019a, Ellen MacArthur Foundation, 2019h), as earlier discussed in Section 2.4. Similarly, the concept of the triple bottom line is occasionally used in circular economy discourse. This is often in reference to how economic concerns are prioritised in circular economy discourse whereas a more holistic approach is common in sustainability discourse (Geissdoerfer et al., 2017). These ideas are occasionally seen from the discourse coalition; however, taken individually they do not indicate a trend either towards, nor away, from weak or strong sustainability.

Renewable energy is something that is noted, albeit rarely, by the discourse coalition. For example, in one instance the transformation to a circular economy is claimed to shift 'towards the use of renewable energy' (Ellen MacArthur Foundation, 2014b, p. 14). Yet this guide 'towards the circular economy' (ibid., p. 1) only references

renewable energy twice in 42 pages, and in no more depth than the quotation given here. Such brevity, to what would be an immense global transformation, is similarly found in statements from the World Economic Forum (2014). This aspect is discussed in more detail in the earlier comparison with the green economy in Section 2.5; however, this is suffice to give an overall impression of how this aspect of the circular economy, that would lead to strong sustainability, is rarely considered in-depth by the discourse coalition (Korhonen, 2018a).

Several other aspects of sustainability discourse are also rarely referenced within the circular economy discourse coalition. For example, a few academics have noted how the mainstream conception largely evades considerations of social justice and wider social dimensions (Kirchherr, 2017; Sauvé et al., 2016; Murray et al., 2017; Geissdoerfer et al., 2017, p. 766). On the fringes of circular economy discourse there are also questions of whether the concept is compatible or not with degrowth (Perey et al., 2018; Loiseau et al., 2016; Schroeder et al., 2019; Ghisellini et al., 2016). Other concepts such as appropriate technology (Murray et al., 2017) and frugal innovation (Agarwal and Brem, 2017) have attracted even less attention from academics. Indeed, there were no articles found directly relating quiet sustainability nor bricolage entrepreneurship to the circular economy during the research period. That said, most of these concepts remain firmly within academic circular economy discourse and have rarely been integrated into the expert discourse of the discourse coalition I have presented in Table 2. For example, the sole reference to degrowth that could be identified from the Ellen MacArthur Foundation was a passing statement that the circular economy contrasts with economies modelled on 'degrowth assumptions' (Ellen MacArthur Foundation, 2017b, p. 12).

Together all of these dimensions form what I describe as the conceptual framework of the circular economy proposed by the extant discourse coalition. This theoretical framework will help us to identify and analyse circular economy theory and praxis in Kenya in the following chapters. As will be seen, there are many activities that are normatively aligned with the absolute sustainability ideals of the circular economy and yet do not fit under this framework. On the other hand, much of the dominant circular economy discourse from the Global North will often reference aspects of a circular economy that seem at odds with attaining absolute sustainability, such as 'growth

without limits' (Lacy et al., 2014). Yet without explaining how this can be achieved within the structural and natural limits of absolute sustainability, the discourse coalition is essentially supporting instrumental interpretations of the circular economy. Similarly circular economy discourse fails to address the commercialisation of nature nor the 'cultural limits that many societies posed to unchecked production' (Escobar, 1995, p. 197). Therefore, this research aims to show if and how the ideal type of the circular economy might be revealed in the Kenyan context.

Later on in this thesis I will go on argue that the extant focus of the circular economy from the Global North has resulted in a mobilisation of bias that is detrimental to the development of strong sustainability in the Global South. As will be seen in through the Coca-Cola case in Chapter 6, the technocentric circular economy articulated by Coca-Cola in the UK is vastly different to an actually existing form of the circular economy practised by the company's Kenyan operations. To summarise, throughout the following empirical chapters I will go on to present comparisons of cases against the theoretical framework presented in Table 2, to form an understanding of how the circular economy, a concept developed in the Global North, might need to be altered to foster absolute sustainability in a country in the Global South. Further studies may then be able to use this theoretical framework I have developed to similarly analyse other African contexts and build a body of evidence from the Global South beyond my Kenyan focused study.

In conclusion this literature review has presented the predominately European history of the circular economy that led to its adoption in the Global North as a new sustainability concept. In giving an in-depth explanation of what the circular economy means to various interested actors, this has revealed the predominately technocentric theories of the concept such as the biosphere and technosphere as well as business models preferring utilisation over ownership. However, it has also highlighted that circular economy practice generally results in increased recycling activities rather than the more idealistic propositions that come from the dominant grey literature that promotes a business-friendly circular economy. This review has also shown how the concept has become multidisciplinary, which has brought a wide variety of perspectives and blurred common understandings. Furthermore, this review has revealed the geographic disparity in the literature, where the Global South has been largely absent

in the conceptualisation of the circular economy, with the notable exception of China. Therefore, this research's Kenyan focus will help to address this disparity by analysing existing circular practices in Kenya.

Slowly increasing at the fringes of circular economy debate are arguments for a greater consideration of the Global South and social justice within the concept - themes that will be explored through this research in Kenya. This chapter has also compared the evolution of the circular economy with other sustainability terms including sustainable development, green, and the green economy. This enables us to draw from debates surrounding these terms that are more common in Kenya to help analyse the circular economy outside of the Global North where it originated. To more precisely differentiate varying types of the circular economy from the framework often presented by the discourse coalition from the Global North, I have introduced the ideal type of the circular economy as well as the actually existing type and the instrumental type. Using these typologies enables us to analyse the following empirical evidence using the concepts of: weak and strong sustainability, as well as quiet and loud sustainability, the triple bottom line, bricolage entrepreneurship and frugal innovation, to better understand the forms of the circular economy each of the following case studies articulate. With this conceptual framework this thesis questions what forms the circular economy is taking in Kenya to see how the concept might address these critiques.



## **Chapter 3 - Methodology**

This chapter establishes the methodology that guides this research. It explains how the research design was primarily based around case studies, where key personnel were available for up to a maximum of nine separate interviews, and shorter examples from key informants. The main case studies examples were selected through multi-stage sampling to ensure relevance to the overall research objective. A qualitative and quantitative empirical evidence base was generated by collecting data through semi-structured interviews with 102 interviewees, participant observation, secondary literature and five focus groups. This was done to build multiple case studies from a total of 71 different organisations. Data gathered from these processes was then used for a multiple-case embedded comparative analysis to generate answers to the research questions. This chapter also covers the ethical considerations, the positionality of the researcher and the limitations of this study.

### **3.1 - Research Questions**

The research and this thesis is shaped around the core research question, what forms is the circular economy taking in Kenya? In answering this overarching question, the following three questions help to provide a more detailed answer. The second question is where can the circular economy be found in Kenya? Followed by asking how can the circular economy be understood within this local context? And finally, how does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North? In order to answer these questions this thesis begins by analysing circular economy discourse and then comparing this with circular economy practice that could be identified through the case studies and pertinent examples in Kenya.

Starting with the first research question, this section will now delve into the details and the methodology behind these guiding research questions. In order to answer the

first question, about what forms the circular economy is taking in Kenya, it was helpful to follow the advice of Blaikie (2009), and begin with detailed descriptions of the processes involved. This initially helped to explore and map the concept of the circular economy such that it can be traced into an unfamiliar Kenyan context. By investigating how circular economy discourse and practice manifests in Kenya this method then enabled me to deconstruct what the circular economy means to who and why. In doing so I began to develop an understanding of the circular economy in Kenya, testing the concept against its preconceptions, and leading towards the objectives of the research. Aspects of this first question will be answered throughout the following chapters. In particular Chapter 4, through the case of the plastic bag ban that will detail how environmental legislation is forming the circular economy environment in Kenya. This will be built upon in Chapter 6 where the Sanergy case study reveals the pivotal role that policy must play for Kenya to achieve an ideal type of the circular economy. Chapter 6 will also reveal how forms of the circular economy in Kenya are typically dependent on scale as an enabling factor, through the Akala sandal subcase. This will also highlight that such activities are typically articulated through low-tech innovations and led by low income populations.

The second research question asks where can the circular economy be found in Kenya? Answering this more detailed research question, as well as the following questions, give the research a tighter focus. These more specific questions require explanations based on causal mechanisms that helped to generate new ideas (Ritchie and Lewis, 2003) about the circular economy in Kenya. In answering this question this research will identify in particular, what sectors, spaces, systems and populations are seen to relate with the circular economy? These details help to give a multiple views of the circular economy in Kenya. Furthermore, it is necessary to ask why the circular economy appears in these places? Developing the logic behind the appearance of circular economy practices in Kenya helps us to reimagine the concept from the bottom-up. Again this question is answered throughout the following chapters by a number of cases. The main responses are given in Chapter 5 that demonstrates how aspects of the circular economy can be identified in the main three cases of this research: Sanergy, Stonehouse and Bintis. This also leads to a key argument in Chapter 7, through the Bintis case study, that quiet sustainability can be pivotal in

bringing businesses closer to the ideal type of the circular economy. Conversely, the Stonehouse and Safaricom case study from Chapter 7 also allude to how loud sustainability can produce instrumental forms of the circular economy.

The third research question asks how can the circular economy be understood within this local context? In trying to understand the context it is helpful to understand in what ways does the circular economy interact with businesses in Kenya? Following this line of questioning helps to allude whether the circular economy is relevant to businesses in Kenya, as well as whether they are pro-actively articulating aspects of the concept. Initially, the way in which the circular economy can be understood within Kenya's international development landscape is explored in Chapter 5. This research question is then touched upon throughout the empirical cases in seeing how the concept can be understood through various businesses. From one of the main cases studies, Bintis, we will see in Chapter 7 the critical importance of local terminologies to determining an understanding of the circular economy within the Kenyan context. This understanding also helps us to develop the argument that quiet sustainability can lead to an actually existing type of the circular economy.

The fourth and final research question asks how does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North? This comparison necessitates an understanding of what other concepts and ideas relate to the circular economy in Kenya for example: sustainability, sustainable development, green or the green economy. Comparing the values of a Northern circular economy versus a Kenyan circular economy will help to demonstrate some of the differences of how the concept can be articulated in a context that is vastly different from where the concept originated. In doing so, this also brings new dimensions to the concept by situating the concept within the field of international development. This question is most directly answered in Chapter 6 where the Coca-Cola subcase highlights two distinct approaches to material use. This reveals an instrumental approach to the circular economy evident in the Global North which starkly contrasts quiet sustainability in the Global South that is much closer to the ideal type of the circular economy. This argument is echoed in several other cases throughout the thesis and is concluded in Chapter 8 which summarises the differences between a local interpretation of the circular economy compared to the archetypal circular economy of the Global North.

## 3.2 - Methodological Overview

To produce answers to these research questions it is necessary to assemble a set of theoretical and conceptual tools to identify the various factors that connect the Kenyan economy to the circular economy (Blaikie, 2009; Bryman, 2016). This core of this study's conceptual framework, which was outlined in Chapter 2, comprises of: ideal types from sustainability discourse (Sharma et al., 2007; Rametsteiner et al., 2011), actually existing sustainability (Barry, 2012; Krueger and Agyeman, 2005), corporate instrumentalism (Arend, 2014; Heikkurinen, 2013), the triple bottom line (Elkington, 2013), frugal innovation (McMurray and de Waal, 2019), bricolage entrepreneurship (Baker and Nelson, 2005), weak and strong sustainability (Pelenc and Deduerwaerdere, 2015), and lastly quiet sustainability (Smith and Jehlička, 2013).

Primarily this research takes an interpretivist stance (Saunders et al., 2007) to the case studies that enable an inductive approach to conceptual development (Welch et al., 2013). O'Reilly (2009, p. 104) explains inductive research as using an open minded approach that allows 'theory to emerge from the data.' Therefore, this research starts from these guiding research questions that draw from the interdisciplinary range of existing circular economy literature and theory discussed in the literature review of Chapter 2. It is then possible to test the dominant conceptualisation of the circular economy against the empirical evidence gathered through the research process. This helps to develop the conceptual framework of the circular economy; for example, by explaining how and why the circular economy might work differently in the lower-middle income context of Kenya. It is worth highlighting that this research follows the trend of interdisciplinary research within international development in being problem focused and so having an emphasis on practical relevance rather than on discipline related academic outcomes (Lyll et al., 2008).

This leads to the research strategy of theoretical sampling through several case studies. The conceptual framework of this study enabled the development of theoretical constructs and propositions from the empirical evidence gathered. As advised by Eisenhardt and Graebner (2007), a variety of accounts and contemporary descriptions of business processes were assembled and used as the basis from which to develop theory inductively. Furthermore, the research design is exploratory in how it aimed to

identify factors that affect the state of a situation and find out the level of influence of those factors (McNabb, 2010). Lastly, this research is built on the premise that the researcher is strongly connected to the object of study - the circular economy in Kenya. Therefore, it is vital to analyse how the empirical findings might be artefacts of the researcher's presence. This enables a consideration of the validity and accuracy of the research outcomes. This is done later in this chapter in Section 3.6.

In designing this study a range of literature was drawn from to determine the most appropriate methods for this research. Some of the most influential methodological works are illustrated here. For example, a particularly useful study of the circular economy strategy applied in Dalian, China by Geng et al. (2009) provided a useful guide to using a sectoral approach and using government reports and secondary literature. This paper also demonstrated ways of trying to identify barriers to scale by using semi-structured interviews with key informants and managing concerns around anonymity too. In these ways, this helped to formulate ways of studying the circular economy at a municipal level.

Comparable studies are also available for economies in the Global North. The paper by van der Hoek et al. (2015), provided an example of how flows of materials and energy were tracked in Amsterdam using a technical approach, this approach was later followed in my research process. In general, my background in civil engineering and as an international development practitioner influenced my approach. For example, I was naturally drawn to more technical reports concerning the circular economy, such as van der Hoek et al.'s work that is based within the faculty of civil engineering and geosciences at the Delft University of Technology. This paper was particularly helpful in inspiring the carbon footprint analysis was later done for the Sanergy case study of my research. Likewise, Andersen's (2007) use of a socio-economic analysis of the circular economy to create externality estimates in European economies at a policy level proved to be a useful guide too. In particular Andersen's paper gave inspiration to ways in which quantitative data could be harnessed and compared with other statistical data and estimates from grey literature, such as that produced by the Ellen MacArthur Foundation (2016a).

Beyond these papers a multitude of in-depth case studies were consulted in preparing the methods of this research. For example, the work of Moreira et al. (2015)

that focused solely on a single businesses to test a conceptual framework. This was useful for informing how my research could best select appropriate case studies that would be of most relevance to both my research questions as well as a company's relevance to the circular economy. Furthermore, this article also provided an example of how, and under what conditions, extrapolations could be used to make generalisations for an entire industry about circular economy practices from a single empirical case. In a similar manner, Del Borghi et al.'s, (2014) case study methodology demonstrated a pertinent case of testing circular economy theories, as proposed by the Ellen MacArthur Foundation, in practice. This was done to analyse the LiguriaCircular initiative in developing a circular economy in Genoa, Italy. This proved useful in suggesting ways of analysing circular economy phenomenon at both a regional level and through a single case study.

Looking towards the Global South, there are significantly fewer comparable studies largely due to the paucity of scholarship regarding the circular economy in sub-Saharan Africa, as established in Chapter 2. This is for many reasons, but two of the main causes are: the comparatively smaller number of research focused universities in sub-Saharan Africa compared to the Global North; and the comparatively smaller economic opportunity seen in transforming sub-Saharan African economies to a circular economy versus other economies such as India or Brazil (Ellen MacArthur Foundation, 2017a, 2016a). However, that said, there are numerous studies on sustainable development in sub-Saharan Africa, of which some consider the green economy. Whilst these studies generally come from the field of international development they often represent a diverse literature that often incorporates empirical, conceptual and theoretical work from a range of disciplines including economics, sociology, environmental studies, geography and politics (Sumner, 2006).

The following works are noted for particularly inspiring this research design. There were several papers that demonstrated ways of analysing the various understandings of 'green' and 'sustainable' and the ways these concepts intertwined and were reimagined which informed my research methodology. These included Nissing and von Blottnitz's (2010) evaluation of the role of renewable energy in sustainable urban development to redefine 'energisation' in South Africa. This was particularly helpful because it demonstrated how a wide variety of secondary data, often from the formal

sector, could be combined with interviews with both formal and informal businesses. Further to this the UNDP's (2015) extensive report on building green economies worldwide has a specific focus on integrating poverty reduction through a green economy approach to waste management. This was pivotal because it provided detailed contextual information that helped to analyse the sole circular economy strategy document from the Government of Kenya (Soezer, 2016). Lastly, there was Smit and Musango's (2015) review of the green economy and its connections to South Africa's informal economy. This proved to be valuable because of the methodology they used to form a distinctive understanding of the South African green economy perspective. This was done primarily through an analysis of key texts, starting from the national level and then drilling down to sector and time specific policies, initiatives and plans.

Methods were also used from studies that analysed small businesses. For example, King's *Jua Kali Kenya* (1996) demonstrated a constructive way of using multiple examples, presenting them as subcases, as well as more in-depth case studies to build a base of empirical evidence from which to challenge conceptions of development and technology. My research design was inspired by this approach as well as King's study providing a useful historical account of *jua kali* (informal repair) practices enabling contemporary comparisons to be drawn. Similar techniques were replicated by Charter and Keiller (2014), who detail their approach in *Grassroots Innovation and the Circular Economy*, that focused on Europe and the USA. This suggested that such methods would be suitable for this study to investigate the conceptualisation of the circular economy.

A common theme in the methods used by the authors mentioned here as well as throughout circular economy research and relevant literatures is the predominant use of case studies. Similarly, case studies were chosen as the primary research method for this research. Case studies are well suited to this research as they enable the accumulation of rich qualitative data necessary to analyse all encompassing subjects such as the circular economy. They are particularly well suited to exploratory research and for illustrating theories and concepts. In conducting several case studies this also enabled a multiple-case embedded comparative analysis (Yin, 2014). There are of course limitations in regard to the generalisability of results, researcher bias and the

time-consuming nature of this data collection tool. Overall, for these reasons case studies are a common approach in circular economy literature but also in the generally disparate field of international development (King, 1996; Wiesmann, 1998).

Whilst Nairobi, the capital city of Kenya, was a useful site to base this research it does not mean that the findings of this research are intended to be generalisable noting that 'each region's ecosystem is the product of its unique historical and economic processes' (Spigel, 2017, p. 15). Typically, as this research is based upon case studies, it is unable to be treated as generalisable (Birol et al., 2010). On a more general level, authors such as Briggs (2017) have shown that often research uses broad generalisations deduced from specific countries to produce a skewed image of sub-Saharan Africa. This was perhaps best summed up by Kapuscinski who said in 'reality, except as a geographical appellation, Africa does not exist' (2002, p. xii). The temptation to over-generalise is worsened by a sparsity of local scholarship but also due to a lack of in-depth understanding of the nuances between African nations by international researchers who are more likely to generalise about conditions on the continent (Briggs and Weathers, 2016). This research should therefore only be understood within its specific Kenyan context to avoid erroneous generalisation.

This study is inspired by Nyabola's lead to avoid preaching solutions. Instead it aims to provide a contemporary understanding and a more informed reflection on a 'shifting perspective of an African country... moving towards a more informed reflection on how Kenyan society works... about how people in an unexpected country in an unexpected continent are making use of technologies that were not designed with them in mind... about the lessons that Kenya can give the world, and a break from the stream of publications highlighting what the world can teach Kenya' (Nyabola, 2018, p. xxiv). To do this, this study 'acknowledges history but is not contained by it... [and] looks beyond 'Africa Rising' or 'Africa Failing' narratives to 'Africa being' stories' (Nyabola, 2018, p. xxiv).

That said, there are aspects of this research that could be applied to other contexts with the required interpretations. When done with care authors, such as Haram and Yamba (2004), have demonstrated that some processes from case studies can be generalisable in sub-Saharan African contexts. Some of the conclusions drawn from this research challenge conceptions of the circular economy at a global level; however,

these are done at macro-levels only as propositions, rather than statements of fact. In this sense this thesis does not strive to be generalisable beyond the immediate conclusions of the thesis. Indeed it cannot be overemphasised that Nairobi is not representative of Kenya. Indeed, many coastal Kenyans support the political movement *Pwani Si Kenya* - the coast is not Kenya, that has highlighted how divergent Kenya's regions are, particularly Nairobi (Willis and Gona, 2012). As this research aims to show why understanding local contexts and finding local solutions are of particular importance in international concepts such as the circular economy, therefore in this sense the findings of this research are not widely generalisable. Instead this research aims to show that locally focused research can test how effective broad concepts from other contexts are. In doing so this reveals locally tailored solutions from which general ideas can be seen to inspire further research in other contexts.

### **3.3 - Data Collection**

This study primarily used qualitative methods in a multi-stage methodology - a combination of more than one research method. The study was exploratory in nature and had analytical components. The study focused around three main case studies as well as additional examples from 102 interviews with key informants. Hartley (1994, p. 208) defines a case study as 'a detailed investigation, often with data collected over a period of time, of one or more organisations, or groups within organisations, with a view to providing an analysis of the context and processes involved in the phenomenon under study.' Case study research is often used to investigate a contemporary phenomenon within its real life context (Yin, 2014). This strategy was expected to be particularly useful to gain comparative insights (Hatem, 2012). Furthermore, the use of multiple comparative case studies enabled within and cross-case comparisons, as well as the search for patterns and general explanations to be developed (Eisenhardt, 1989; Yin, 2014; Hatem 2012). Overall, this method was chosen as it was expected to be effective for answering 'how' and 'why' questions as well as developing concepts and theories (Yin, 2014).

The primary method for data collection for these case studies and shorter examples of this research was via interviews with key informants who held expertise in an area relating to the circular economy. The choice of interviews as a primary data collection method was based on their efficacy as a source of case study information (Yin, 2014; Kvale and Brinkmann, 2009). This approach was conducted by means of face-to-face interviews using a semi-structured qualitative approach, i.e. conversations with a purpose (Mason, 2002). This gave the interviewer an opportunity to focus questions based on research objectives and also give the interviewee an opportunity to express themselves, thus allowing for an all-round in-depth understanding of the research issues (Douglas, 1985). When necessary interviews were restructured to follow advice by Rubin and Rubin (2005), so that questions and answers in interviews followed each other in logical pattern as happens in an ordinary conversation. Therefore, following interviewee answers, following questions were modified to suit the answer given rather than precisely following the set questions on the interview guide. However, any deviation was required to remain within the themes of questions set out initially. To obtain depth, detail and richness in the data, interviewee's were encouraged to elaborate answers, provide examples and clarifications, and discuss issues at length (Rubin and Rubin, 2005). With semi-structured interviews this allowed participants some freedom to shape the questions and topics covered gaining insight into their own perceptions and understand which issues people consider most significant and their reasons why. This was later cross-referenced with other interviews as well as being checked through triangulation with other data sources, which is discussed towards the end of this section.

The biases potentially introduced were addressed reflexively before and after interviews. For example, where appropriate interview notes and preliminary conclusions were shared with interviewees to give participants a chance to review their data and highlight any disparities. This data was also triangulated through focus groups and secondary data, which will be discussed later in this section as well as other dimensions of reflexivity. It was noted prior to any interviews the importance of leading questions. Therefore, all questions were somewhat general and open ended. This was done such that respondents were able to provide in-depth information on their personal areas of expertise and thus reduce the information that might have been given without

correct and proper knowledge. This was another reason for using semi-structured interviews, enabling flexibility to cater for the interviewee's personal knowledge relevant to the research area to come through.

Following methods suggested by Creswell (1998), a personal introduction helped to frame the research and the areas of particular relevance to the interviewee at the beginning of each interview. This also covered important areas such as how the data would be used and anonymised if requested by the interviewee. Interviewees were also invited to ask any questions at any stage during the interview. This prompted interesting discussions that, whilst leading away from the direct question asked, often alluded to areas that would otherwise not have been covered yet proved useful. Towards the start of each interview, questions began by focusing on identifying aspects of an interviewee's business that related to the circular economy, and the motivations behind such activities. During later stages of the interview specific avenues were explored, relating to the interviewee's expertise. In addition, respondents were asked about trends in their respective industry as well as material and institutional challenges that they were facing.

When given permission, interviews were recorded and transcribed later with additional thoughts. These interviews were conducted without a research assistant or translator as all respondents were conversant in English. These methods are typical from work done by other researchers working with similar content in the Global South, as seen in the earlier highlighted work by Nissing and von Blottnitz (2010). Their research primarily used interviews combined with participant observation from site visits. Following this example, a similar qualitative approach employing in-depth interviews to inspect the practices of the circular economy in Nairobi was also used.

Interviews were held with relevant stakeholders within the main case studies up to a maximum of nine times each. Interview durations ranged from 30 minutes up to 2 hours. Beyond these a significant number of key informants outside of these cases were interviewed to comprise a total of 102 interviewees, spread over 71 different organisations. Interviews were held between May 2016 and September 2019. This number of interviews and organisations ensured there was a diverse range of industrial sectors covered including: waste management, technology, energy, forestry, public services, agriculture, tourism, construction, media, textiles, professional services,

conservation, charities and NGOs, education, and environmental management. This ensured the research included many business sizes, ranging from SMEs and MNCs as well as multilateral institutions and government departments.

Throughout these organisations a range of staff were interviewed, from directors and founders to managers as well as interns to give a comprehensive picture of how the circular economy was interpreted at these different levels. This was done to build a multiple case study approach as seen in relevant literature. For example, these methods are equally demonstrated in detail in relevant Kenyan examples by Muiya (2014) and Bahri (2005) as well as in specific relation to the circular economy by Galati et al. (2018) amongst many others. Overall, these works and many others referenced earlier in this chapter, helped to inspire a core selection of interviews. Interviews were then added to with participant observation as well as supplemented by secondary data.

Participant observation was used to develop multi-dimensional data in furtherance to that available through interviews alone (Hammersley and Atkinson, 2007). Participant observation was conducted by briefly immersing myself within the selected businesses for a short period. For the main case studies, these periods ranged from several occasions spread over eleven months, to a more intensive four day field trip to visit a remote project site, staying with the company's team.

There are examples of this technique being extremely helpful to Europeans, such as myself, working in Nairobi where shadowing individuals from a business can give 'literal and figurative access to private domestic and social spaces usually hermetic to visitors' (Thieme, 2010, p. 336). This also helped to gather new informants to be interviewed. This was done to supplement interview data and did not aim to conduct a complete ethnography defined in terms of participant observation (Burawoy et al., 1991). Instead the ideas of such an approach were used to give more context so as to understand the nuances of data gathered from interviews. Brief participant observation in conjunction with interviews helped to give more context to some information gathered, improving the accuracy of conclusions drawn (Mason, 2002). This was done by observing meetings, team exercises and networking events. Where applicable, time was spent with customers of these businesses to understand fully how the business model was truly affecting the customers. This helped to identify the user base and how they were interacting with the company, again helping to improve interview data.

Moreover, in observing the interactions between the business and their clients, then following up with each party afterwards, this revealed some subtleties behind these interactions such as the motives behind their actions. Observation also gave time and space to gather information regarding contextually relevant meanings and practices. As suggested by O'Reilly (2011) this enabled data gathered through interviews to be confirmed, or in some cases be proven invalid. Of course, in only being involved with any particular business for a short period, observations were surely a somewhat altered version of the norm. However, in acknowledging the limits of this research to assimilate to the norm, it was still possible to make some inferences from observations.

Data from interviews and participant observation was paired with a historical and present day analysis of Nairobi's economy. This helped to investigate the evolution of the region's institutions and environment that directly impact the circular economy. Secondary data was used, such as documents that were shared as a result of the in-country research, in a similar fashion to that which was collected through the literature review. These publications comprised of literature such as government policy documents, stakeholder position documents and private internal reports. Likewise, because the research was exploratory, it was expected that field work would guide the researcher to consult other literature. This would then further guide the development of the research questions, which were added to and amended to be inclusive of new information. Subsequently, during the research process questions materialised cumulatively as the research progressed, as is expected according to Mayoux (2006). As the research developed and key themes were identified, these research questions were extended to address more prevalent issues. This was driven by enhanced quality of information that was constructed with local knowledge (McIlwaine, 2006).

This study primarily used qualitative data, such as that from field interviews. However, where possible this was supplemented with quantitative data through a multiplicity of methods (Ritchie and Lewis, 2003). Generally this quantitative data was obtained from secondary data, such as reports that were made available by participants, that enabled subsequent analysis (Fairclough, 2009; Bryman, 2016). These reports were generally non-specific to the circular economy and were primarily used to triangulate more specific data gained through the aforementioned qualitative methods. As per the recommendations of Richardson et al. (1998) textual information

was particularly sought out as it often differs or is not accessible in spoken form, and because texts endure they can give historical insight. Overall, this study followed Smit and Musango's (2015) example of using primary and secondary literature in a comprehensive analysis of the green economy within the context of sustainable development and poverty eradication.

Lastly, this study held five focus groups with research participants from various subcases, detailed in Appendix A, to obtain their views, differences and agreements on issues concerning the circular economy in the local context. These focus groups were designed to give wider contextual information to that ascertained from individual interviewees and to test whether generalised discussions were happening amongst these groups or whether individual interests were dominant in regard to the circular economy in Kenya. The focus groups were held by bringing several research participants together who were willing and interested in discussing the issues at hand with other participants. Often these included more than one member from the same organisation, as well as those from differing businesses. These roundtable discussions proved to be an effective way to ascertain research findings, as they fostered a more holistic understanding of multifaceted actualities and processes. For example, one session brought together two companies involved in waste management, TakaTaka solutions and the Mazingira Safi Initiative, to explore some of the reasons for their different approaches to waste collections. This particular focus group helped to clarify how businesses were responding to the changing policy environment. It also emphasised some of the findings presented in Section 6.5 in regard to how Sanergy, another waste management company, have responded to changes in Kenyan legislation.

These focus groups proved to be useful in checking potential biases of individual interviewees, such as those who held a greater interest in environmental issues compared to other participants, giving a more general sense of how the circular economy was being understood in Kenya. For example, during one focus group that brought together experts in forestry as well as others with a background in renewable energy, this revealed a stark contrast in how each party's expertise directly influenced their understanding of the circular economy. For those with an interest in forestry, the primary interest in the circular economy revolved around how the concept echoed

natural cycles and directly addressed biological cycles. However, participants working in renewable energy were much more interested and ready to adopt the circular economy's technosphere (Geisendorf and Pietrulla, 2017; McDonough and Braungart, 2009, p. 104). This difference was helpful to illuminate how the circular economy could be differentiated and segmented by interviewees who were largely unfamiliar with the concept prior to this research, rather than being interpreted as a holistic economic model which all businesses could equally contribute to. Overall, the collective open forum discussions helped to check the accuracy of information collated, to act as a validation, and to allow for synergies and clarifications to be raised. In these ways the focus groups provided a useful background that supplemented the main cases presented in the following chapters.

Overall, this combination of multiple methods for collecting data enabled triangulation to increase the reliability of research (Mikkelsen, 2005). This approach was intended to avoid distortions or single perspectives, as well as to allow for collation of additional information. O'Donoghue and Punch (2003) describe triangulation as a method of cross-checking data from multiple sources to search for regularities in the research data. For example, relying solely on interviews would have been ill-advised because interviews can be open to bias as they rely on the interviewer's personal opinion and interpretation. Although this can be somewhat mitigated by ensuring that the research will not focus on one interviewee, but gather data from various respondents. On the other hand, relying solely on documentary sources would have deprived this research of the advantages of interviews, which have been enumerated earlier. This approach was intended to avoid distortions or single perspectives, as well as to allow for collation of additional information. In summary, triangulation was used to verify information when more than one research method covered the same topic.

Fieldwork was conducted in Nairobi from May 2016 until March 2018. The field research benefited from this my prior research experience in Nairobi in 2014, and having lived in Nairobi for over two years. Notably, this enabled me to utilise my existing network of professional contacts and negotiate access in several companies.

Data was integrated and analysed qualitatively at the completion of data collection. Data was collated by themes as indicated by each interview's thematic structure to fulfil the overall research objectives. In this vein, during interviews notes were taken that

were then transferred and completed in an electronic format soon after the interview. This was supplemented with other annotations from each day of fieldwork as advised by Bryman (2004) to enable more detailed analysis on the completion of data collection. Furthermore, websites and other available public materials from the companies were analysed in order to supplement this data and compare it against the wider image portrayed by each company.

Following Gorden's (1998) six tactics for recording and coding interview data, basic categories and labels were assigned to recurring themes to help draw specific comparisons from one interview to another. Interview data was coded in relation to the following themes: quiet sustainability, greenwashing and loud sustainability, terminologies and branding, scale, local manufacturing capabilities, policy engagement, and lastly renewable energy. It is worth shortly detailing how these themes were identified and used for the analysis. In regard to terminologies and branding, this was used to categorise if and how a company was using specific terminology within their operations. For example, if terms such as the circular economy, green economy, sustainable development or organic were used publicly in branding materials or just internally within the company. In regard to scale, this was used in reference to categorising the size of a company's operations, classifying them as small, medium or large as well as whether they were a multinational company. Local manufacturing was simply used to see if and how a company was engaging in any manufacturing activities within Kenya. The policy engagement theme looked at whether a company was actively engaging in lobbying for policy change in Kenya. The renewable energy theme categorised whether a company had actively engaged in using renewable energy in their operations beyond using electricity from Kenya's grid power system. Lastly, the quiet sustainability and loud sustainability categories are the same as they have been introduced in Chapter 1, likewise with greenwashing in Chapter 2. Overall, each of these themes were used in similar ways for the analysis, gauging how often themes occurred and how closely this aligned to a company's relevance to the circular economy.

Under each theme interviewees received a combination of open questions such that comparisons could be drawn between interviewee responses. Through data analysis the grouped themes and issues were interpreted observing recurring issues (Wolcott,

1994). The quality of raw information that was processed using thematic analysis was critical to the interpretations made. The data provided multiple and overlapping vantage points from which it was possible to assess if, how and to what degree the various actors were engaging with the circular economy in Kenya. Furthermore, when analysing the interviewee's responses this was compared to a company's public persona that could be seen from their website, LinkedIn profile and social media accounts. Beyond this, coding each company's interview responses enabled each company to be differentiated in these ways alongside basic information such as their industrial sector and company age. Subsequently this revealed certain trends, such as how SMEs and MNCs typically took opposing approaches to local sustainability as will be detailed in Chapter 7. Further to these themes the concepts of bricolage entrepreneurship and frugal innovation were also used to provide a critical framework to analyse, where applicable, how companies might be using these strategies in articulating forms of the circular economy.

Overall, this thematic analysis enabled the construction of detailed narratives to describe how the various case studies operate on a day-to-day basis and how the regimes governing everyday activities relate to the circular economy. In developing these narratives, emphasis was placed on situating the circular economy within the context of these activities, regimes and business challenges. The goal here was to assess how the circular economy could be interpreted through these businesses and whether a reimagination of the concept was required to suit these contexts that were at times so disparate from the Global North. To ensure high quality data, a reflection on the research process was done in an attempt to produce more balanced data by giving an awareness of my preconceptions and biases, as well as those of the interviewees. These limitations, amongst others, in regard to the specificity of some of the data will shortly be discussed in more detail in Section 3.7.

### **3.4 - An Overview of the Case Studies**

The case studies were chosen for this practice based research through a multi-stage sampling strategy (Bryman, 2004) that combined convenience sampling,

snowball sampling and purposive sampling to provide deviant and critical instance cases. Critical instance cases are those where a phenomenon is highlighted by a particular set of circumstances or a specific situation. This enables investigation into generalised assertions through a detailed study of a single instance (Morra and Friedlander, 1999). Deviant (or extreme) cases are those that are special or unusual, generally in the sense that the cases are at an extreme in some regard compared to more typical cases. Deviant cases are useful in illuminating a particular phenomenon (Gerring, 2006).

Considering the limitations of this study and the all encompassing nature of the circular economy, it was determined that a random sampling strategy would be unfeasible and inappropriate. This choice of strategy follows previous circular economy research such as Laitala's (2014) and Esfahbodi et al.'s (2016) sampling strategies where only limited generalisability was sought. Furthermore, my sampling strategy aimed to ensure that the case studies selected were from a heterogenous range. This aimed to follow a 'most different system' criterion (Esser and Vliegenthart, 2017), although this was tempered by considerations of feasibility (Robson, 2002). In doing so it ensured that this research explored a variety of industrial sectors beyond waste management where circular economy debate is often compartmentalised.

Initial subjects for this research were selected by those preliminarily identified as key informants. This was done using previous informants, a random transect and press sources (Bryman, 2004; Ritchie and Lewis, 2003). These key informants were then contacted and those who responded favourably were selected for interview, a form of convenience sampling. It has been asserted that convenience research is suitable for exploratory research (Biggam, 2015). This was then built upon with snowball sampling, using these preliminary key informants industry knowledge in Kenya to identify other businesses articulating forms of the circular economy. This type of purposive sampling allowed more in-depth analysis (Patton, 2002). Another advantage of this non-random sampling strategy was that it helped to determine the population of interest through the eyes of actors themselves.

This selection was made with an awareness of the subsequent selection biases involved, limiting the validity of such a non-random sample. For example, the sample from this research is likely to be biased towards including individuals with pre-existing

relationships, and therefore will likely over-emphasise cohesiveness in social networks (Atkinson and Flint, 2001). Therefore, to counter-act this bias in some way, the three main case studies of this research were chosen making sure that none of them had previously met nor collaborated in some form before. It is also worth noting that through the range of interviews there was a broad range of informants who were unfamiliar with the terminology of the circular economy. This was largely due to the wide-spread lack of knowledge about the concept as the majority of those asked were unfamiliar with it. However, there was a conscious effort to ensure that both those familiar with and those not familiar with the concept were included to bring a wider range of perspectives to this research.

Lastly, the snowball sampling strategy was supplemented by using Ostrander's gaining access from the top principle (Ostrander, 1995). This meant recruiting senior members of the elite community as key informants, who in turn facilitated contact with subordinates or those they consider their equals (ibid.). In this study access to informants such as government officials and senior people in large companies presented some difficulty. However, some useful contacts were made at organisations with wide networks, such as UNESCO, UNICEF, the Society for International Development and Tearfund. These contacts then helped to make connections between development practitioners and companies relevant to various forms of the circular economy, such as Mazingira Safi, Elephants and Bees, and one of the main case studies Sanergy.

Overall, the goal of interviewing over 100 interviewees spread over 50 organisations was achieved and in total 102 individuals from 71 organisations were interviewed. These research participants are details in Appendix A. This wide spread of interviewees gave a suitable understanding of how various business networks interacted and the impacts of these networks on how each organisation addressed the circular economy. Where possible interviewees were asked to visualise their business network and supply chain, ideally through an illustration. This line of questioning is detailed in Appendix B. At times participants were unwilling to pass over what they considered to be valuable and sensitive information about their network, even after offering anonymity and confidentiality of such information. However, in some cases participants were willing to provide detailed diagrams of their supply chains and business networks. This helped to

build an understanding of how these external parties influenced how their business addressed various aspects of the circular economy. This also led to introductions to other potential interviewees through snowball sampling. In beginning to see some overlaps and repetition in answers from interviewees in this regard it was considered that the sample size was sufficient to build an understanding of the nascent circular economy in Kenya.

From this wide spread of organisations interviewed, three main case studies were chosen for more in-depth study. These were chosen primarily due to each organisation revealing notable facets that link closely to this research's main lines of enquiry. This did not mean that businesses needed to be conversant in circular economy terminology. Indeed, only a handful of interviewees found in Kenya were well rehearsed in circular economy nomenclature. A second critical factor was that significant access was available to various parts of each business including the senior management. As discussed shortly in Section 3.6, this study was limited in the access to large companies, particularly multinational corporations, that could be negotiated. Subsequently, the three main case studies chosen come from two small companies, Bintis and Stonehouse, and one medium-sized company, Sanergy. This ensured that access to the highest levels of management was possible, also enabling each company's strategies to be analysed. In following methods by King (1996) these three main case studies have been supplemented by shorter cases studied to form a tableau of empirical evidence through what are termed subcases. In total staff from 71 different organisations were interviewed which gave this study the breadth sought after to address a wide-ranging concept such as the circular economy. Many of these key informants were from large organisations where access for an in-depth study could not be negotiated, but individual interviews were possible that would help this study to cover a wider sectoral range. In total 13 large-sized organisations were recruited, comprising of: multi-lateral institutions such as UNICEF and UNESCO, global NGOs such as Tearfund and the Red Cross, corporations such as Safaricom and Coca-Cola. This variety of cases enabled this research to identify and explore deviant and critical instance cases.

Deviant case studies were selected to highlight particularly unusual cases where a form of the circular economy was being articulated. For example, Coca-Cola's glass

bottle recycling system in Kenya articulates much of the ideal type of the circular economy. It forms a useful subcase as Coca-Cola's public relations statements about striving to create 'circular economy that benefits society and works for our business' (Coca-Cola, 2018a) are entirely disparate from this Kenyan system, instead focusing on plastic recycling largely in the Global North. As will be seen in Section 5.5, this extreme example shows how a low-tech system that is compatible with the ideal type of the circular economy is being replaced by a high-tech system that fits the novel vogue seen in the instrumental type of the circular economy.

Critical case purposive sampling was used to provide an illustrative profile of the circular economy in Kenya that could be considered representative of such a wide ranging concept. This well established method for case studies (Eisenhardt, 1989, p. 537), as well as in circular economy literature (Ranta et al., 2018), was deemed to be the most appropriate considering the nascent use of the concept in Kenya. Critical cases were identified following Patton's (2002) and Saunderson's (2012) guidance, in that a particular confluence of dimensions should coalesce and highlight aspects of a phenomenon that are otherwise understated in typical cases. These critical cases enable this research to make certain points emphatically and directly address the aims of this research. In doing so they enable us to understand the phenomenon of the circular economy in these cases such that some local generalisations can be made. The critical instance cases of this study, Sanergy and Stonehouse, will be detailed at the end of this chapter.

Through the process of case selection, several companies were considered to be one of the three main case studies and subsequently not chosen. Issues of access were significant boundaries in larger companies, but in smaller companies there were often other reasons why they were not selected. These ranged from the company's relevance to the circular economy to the quality of the data that could be gathered. Perhaps the case that best explains the logic of not choosing certain cases was that of the Mazingira Safi Initiative. The founder of the Mazingira Safi Initiative was interviewed on three separate occasions as the suitability of the organisation was determined and initial research was conducted. Initially the organisation seemed to be highly relevant. The Mazingira Safi Initiative, which translates as 'Initiative to Clean the Environment' were engaged with community waste management solutions in urban areas and green

energy solutions using biomass briquettes. Later interviews revealed that although the company had actively engaged with green branding, the environmental credentials of their activities were challenging to substantiate. In part this was due to the company being too young to have been able to finalise many of their systems and processes. For these reasons, it was determined that further in-depth research with the Mazingira Safi Initiative would be unlikely to reveal pertinent data for this study. A similar process was also carried out for other businesses that initially held potential for analysing the circular economy in Kenya.

Overall, this sampling strategy was used such that each company considered was scored against several factors in order to determine which companies were the most suitable research participants. In summary these criteria included: their proximity to the circular economy, the level of access that could be expected, their industrial sector and their size. Through this process several companies were selected to form the subcases that supplement the key case studies. These subcases include notable data gathered from representatives of: Coca-Cola, the Akala sandal industry, Safaricom, the Jomo Kenyatta University of Agriculture and Technology, Gearbox and AB3D. For each of these subcases it was determined that more in-depth research would be unsuitable for achieving the aims of this research. These reasons will now briefly be outlined.

The main reason that Coca-Cola was selected to be a subcase for this research was because it proved impossible to negotiate sufficient access for the company to be a suitable in-depth case study. This was largely due to the size of the MNC as well as their sensitivity in regard to how closely they manage their public relations. In regard to the Akala sandal industry it was determined to be too challenging to obtain an in-depth and yet representative case for an informal industry that is so widely dispersed around the country. Therefore, the Akala subcase stems primarily from interviews with one artisan which has been supplemented with primary literature obtained in Kenya during field research. The Safaricom subcase stems from the in-depth research done with one of the three main case studies - Stonehouse; therefore it was deemed most appropriate for Safaricom to be a supplementary subcase for this research. The Taifa Laptop subcase stems from interviews with staff at the Jomo Kenyatta University of Agriculture and Technology. It was only possible to negotiate relatively limited access to staff and internal documents involved with the Taifa Laptop therefore the data gained was

deemed to only be sufficient for a subcase in this research. Lastly, although both Gearbox and AB3D were addressing the circular economy through their activities, they were doing so in ways that were so unique as to be unsuitable for in-depth comparison to the other main case studies chosen. Furthermore, a key criteria for the main in-depth case studies was the level of access that was available, where at least eight in-depth interviews with various members of staff could be conducted. This was achieved with the three companies listed below that comprise the key case studies of this research. Overall, these main three companies were chosen because they scored the highest against the matrix of factors set out to determine the main cases of this research. Now a short introduction to each company will be given before a more complete analysis of their operations is detailed in Chapter 5.

### **Sanergy**

Sanergy is a medium-sized company with 250 employees that has been building and operating container-based sanitation solutions in Nairobi since 2011. They sell self-contained toilets and provide the logistics to remove, treat and upcycle human waste. Sanergy are essentially working in the public services sector although they are a private company in Kenya. The company is a social enterprise, aiming to solve a development challenge in Kenyan slums through a scalable solution. Sanergy is a Kenyan company but also has an affiliated charity in the USA that raises funds to subsidise the company's experimental business model.

In many ways Sanergy are typical of a circular economy company, primarily because they operate in waste management. Essentially Sanergy are working to eliminate waste by closing the loops in the sanitation value chain from urban slums. However, their business is contributing to forms of the circular economy in several other ways beyond simply providing an alternative solution to waste. They are attempting to show that there is economic value in waste, a core pillar in the circular economy. They do this by creating products from the wastes they collect, including compost and animal feed. Their operations also claim to have a positive environmental impact by providing an alternative to Nairobi's 'flying toilet' (where a plastic bag is used and thrown away instead of a toilet) that contaminates land and watercourses in the slums (Lusambili, 2011). Sanergy also claim to be reducing waste through bricolage entrepreneurship by

promoting the 'Tippy Tap' a handwashing station made from upcycled waste materials.

Notably, Sanergy have a significant social impact that stems from their origins as an international development organisation with American founders. The founders of the social enterprise are striving to solve the development challenge of safe and affordable sanitation in Nairobi's slums. Nevertheless, as will be seen in Section 6.5, although Sanergy are articulating many aspects of the ideal type of the circular economy, this medium-sized social enterprise still failed to fully support environmental policies in Kenya despite this being a specific aim of the organisation. Notably though Sanergy are managing the ambiguity between their public image and the complex reality of their operations in a way that is articulating an actually existing type of the circular economy. Overall, these aspects combine to make Sanergy a critical instance case where international development practice meets a circular economy business model. In various ways Sanergy are addressing the economic, social and environmental dimensions, as well as the elimination of waste mantra, of the circular economy.

### **Bintis**

Bintis is a small company working in fast moving consumer goods, manufacturing and selling high-end honeys and nut butters. Bintis' founders set up the company in June 2016 believing they could contribute to Kenya's economy beyond the traditional bottom line of simply creating economic value. Bintis was founded on the belief they could build a business that will create positive social and environmental outcomes throughout their profit-making activities. However, it is important to note that Bintis is a for-profit company, unlike Sanergy, as well as the fact that both founders are Kenyan women. Although Bintis was a young company with just two staff at the time of research they had become sufficiently established to be of interest. Their range of products included four different types of nut butters and three different honeys and they were selling roughly 400 jars of their produce per month.

A core component of the circular economy is the idea that every business should be able to follow a circular economy model (Murray et al., 2017). Therefore this research set out to test this theory against suitable Kenyan business models. In this case Bintis enable this research to break out of the waste management sector, that circular economy debate is often restricted to, and build onto this heterogeneous range of case

studies. So although Bintis core business is less clearly linked to the circular economy than Sanergy's waste management focus, studying Bintis' business model is equally relevant if the circular economy is to become a new sustainability paradigm in Kenya. Such an approach has previously been taken by members of the Ellen MacArthur Foundation's *Circular Economy 100* group (2019c), where consumer goods businesses such as Unilever (2019, 2020) have tried to establish themselves as circular economy leaders. In a small way, Bintis share some similarities with Unilever as both companies sell competing brands of nut butters and honeys. Therefore, seeing if Bintis are able to address the circular economy, and comparing the forms in which they are doing so against more established companies that explicitly claim to be taking a circular economy approach, helps to test the theory that the concept can be applied to all business sectors.

Beyond these reasons, Bintis also share the agricultural underpinnings of quiet sustainability (Smith and Jehlička, 2013) which provides a platform for an investigation into the often overlooked biosphere, as opposed to the technosphere, of the circular economy (Giampietro, 2019). Here Bintis help to reveal some of the dichotomies of green labelling and the values placed on the Western imaginary of 'organic' versus Kenya's 'traditional' *kienyeji* farming practices. This enables us to question whether the Western conception of the circular economy might be undermining quiet sustainability in Kenya. Lastly, Bintis attempts to make their business environmentally friendly provide several detailed examples of how they are engaging with the sustainability challenges of the circular economy. This provides a platform to explore whether Bintis' articulation of the circular economy is echoing mainstream sustainable development. Furthermore, analysing these experiences enables us to see whether Bintis demonstrate an alternative pathway for the circular economy by using power from below through green consumers, or whether this merely represents weak sustainable consumption. Overall, this Bintis case study helps this research to expand beyond waste management where circular economy discourse is often constrained and test the more universal theories of the concept.

### **Stonehouse**

Stonehouse was established in 2010 selling the EBOKS, a rapid-build solar

powered computer laboratory, to Kenyan schools. The company's only employee is the founder and inventor of the EBOKS, although the company regularly contracts up to 11 workers for each individual computer lab construction. To date Stonehouse has built 24 EBOKS spread all over Kenya.

The company is articulating an actually existing form of the circular economy through a number of ways that stem from the EBOKS. Stonehouse's product design uses appropriate technology, renewable energy, local manufacture using robust and eco-friendly materials with a focus on maintenance and extending the life-span of the product. All of these elements combine to make the EBOKS significantly more 'circular' than comparable, more common alternatives such as using diesel generators to power off-grid classrooms. Stonehouse has a positive environmental impact by promoting renewable energy and following green design principles that enable opportunities for long-term maintenance and reuse at end-of-life. Additionally, although Stonehouse is also a for-profit company, the company has a clear social impact, enabling rural schools to start teaching using computers.

One unique aspect of Stonehouse found through this research was the way the company managed the ambiguity of their public image versus the lived reality of their operations. In this way Stonehouse stood out as an example of quiet sustainability, where the founder essentially neglected the positive environmental contributions of the company. This provided a critical instance case to explore the contrasting style of an SME demonstrating an actually existing type of the circular economy against the instrumental type of the circular economy that was seen through a MNC. This unique convergence of this SME through their partnership with Safaricom, a MNC, resulted in a conversion of quiet sustainability to results that are at best exemplifying loud sustainability, and perhaps are more akin to greenwashing. This critical instance case provides a unique opportunity to analyse how scale can impact articulations of circular economy business models in Kenya.

Overall, these three main case studies provided a useful transect, covering three disparate industrial sectors, from which to investigate the circular economy in Kenya. It is worth noting the inherent bias of these case studies where the majority are small companies, as well as the many other small companies that were also interviewed and provided shorter examples to draw from a significantly wider range of industrial sectors.

Whilst this has been tempered with inputs from MNCs and large organisations where possible, this research is limited by this sample and is not wholly representative of Kenya's diversified economy. Again, this thesis does not strive to be generalisable, but simply to provide a new narrative of 'Africa being' (Nyabola, 2018, p. xxiv).

The table below shows how these case studies are integrated alongside interviews from other subcases of this research throughout the following chapters. Several of the interviewees appear in more than one chapter. So to avoid repetition each interviewee has only been highlighted once in this table to indicate where they first appear in the following chapters. This summary of interviewees sets out some of the most important sources used. However, it is worth noting that these sources are also supplemented by the data gathered from the total of 102 interviews with key informants spread over 71 different organisations which are detailed in Appendix A.

**Table 3: Summary List of Key Interviewees**

<b>Chapter</b>	<b>Organisation</b>	<b>Interviewee</b>
4	Ellen MacArthur Foundation	S. Herrmann
	Tearfund	R. Gower
	Kantar	M. Asamba
	African Circular Economy Network	W. Zablon
	Recykla International	E. Guantai
	Aalborg University	C. Gregersen
5	Tearfund	C. Bevan
	Sanergy	S. Kibuthu
		D. Auerbach
		E. Karimi
	Stonehouse	M. Muckle
	Bintis	W. Maganjo
A. Chemweno		
6	AB3D	R. Ombatti
	TechForTrade	W. Hoyle and M. Menke
	Gearbox	P. Birkelo
	The Jomo Kenyatta University of Agriculture and Technology	S. Omondi
	Memusi Foundation	S. Etiang
	Coca-Cola	M. Mwangi
7	Safaricom	D. Munya
	Umbrella Pasha	L. Ndirangu
	Ubuntu Power	J. Herrada
	Society for International Development	A. Hersi
	Winnie's Pure Health	E. Gitau

### 3.5 - Ethics

A basic self-assessment of ethical risks was completed prior to undertaking field research as per the research ethics policy of the School of Social and Political Science at the University of Edinburgh. Subsequently research was conducted following the procedures laid out by the University of Edinburgh. In doing so advice was also taken from Mikkelsen's *Methods for Development Work and Research* (2005) that can essentially be reduced to three general prescriptions. Firstly, that research should not subject research participants to any psychological, physical or economic risks. Secondly, that informed consent for participation should be sought from research participants. Thirdly that research participants' confidentiality should be maintained as requested.

Interviewees were fully informed of the study and its purposes, and only those who consented to proceeding were used for the research. Confidentiality was maintained when requested. Respondents were informed in advance of interviews the rationale for the study and that information provided was strictly for academic purposes. At the beginning of interviews a sheet of information about this research project was given to the subjects. This sheet was reviewed and confirmation given that all the details on the sheet had been understood and the subject consented to be interviewed. During this process it was established whether any interview data would be anonymous and if there were any other conditions about privileged information given during the interview. Subjects were given the option to end the interview at any time and the choice to answer, or not, any questions asked. Likewise, permission was requested to record interviews. Recordings and any interview notes were stored securely and not shared with any party.

Interviewees did not receive any compensation for their participation other than a sharing of knowledge from the interviewer where relevant. My contact details and those of the supervisory team at the University of Edinburgh were shared with all subjects. The last step before beginning the interview was to ask the subject if they had any questions regarding the interview, the project or the research process. On several occasions this resulted in a short discussion about the project in more detail and the potential impact it may have on the business in question. In general the vast majority of

interviewees were happy to proceed with the interviews; however, many did not wish to be recorded and a few wished to remain anonymous. In the few exceptions where anonymity was requested and their data has been presented in the following chapters, this has been provided using pseudonyms. Overall, the interview process was well-received by interviewees and enabled effective collection of data.

### **3.6 - Positionality and Reflexivity**

Throughout this research I strived for a conscious, ethical neutrality so that the work produced is objective and contributory to the other related research as described by Braude (1964). Considering my positionality helped to inform this research and avoid contamination from my personal perspectives and social or political viewpoints (Throne, 2011). Therefore, this section presents a short exploration of my placement within the many contexts, layers, power structures, identities, and subjectivities of the research (England, 1994). This offers a necessary transparency to the perspectives brought to the inquiry and the perspectives that serve to frame it (Throne, 2011).

It is necessary to consider my identity as a white British researcher, in Kenya's post-colonial context. Nairobi hosts a multi-cultural society, and there are many foreigners spread throughout the city. However, there is a still wide divide between the majority of foreigners and Kenyans that is exemplified by the 'Kenyan Cowboys' a segment of white settlers' descendants who exist in enclaves of Kenyan society (Uusihakala, 1999; Stanford, 2016). Therefore, my nationality and ethnicity was undoubtedly prominent throughout interactions with interviewees. My basic knowledge of Swahili proved to be somewhat useful, but hardly balanced out my foreignness (Stahl et al., 2016). This identity bias was most obviously seen through the final selection of the case studies where greater access in companies was negotiated with interviewees possessing their own international experiences or where the directors were also immigrants to Kenya. Although it is worth noting that Kenya has the highest ratio of expatriate business founders in Africa at 37% (Timon Capital, 2019). Whilst this bias was noted early on it was considered to be tolerable considering the higher quality

data thought to be available in these companies through greater access that could be negotiated as well as their relevance to the topic of study.

In a similar vein, my previous experience working in various African countries for over a decade will have also influenced my interpretation of research data (Wisker, 2001). For example, what I might perceive to be similarities with phenomena I've previously encountered, say through my prior research in Malawi, may have led me to biased conclusions based upon these past research experiences. Moreover, my Eurocentric education will have brought culture bias from the 'importation and consumption of rigid Western meanings' (Mavhunga, 2017, p. 1; Nagendra, 2018). Furthermore, this study was conducted with the intention of revealing the circular economy in Kenya. Therefore, there is considerable bias in looking through a 'circular' lens throughout this work. Beyond this I will have also brought my own perspectives from having been involved in international development practice over a decade since founding the Turing Trust.

At no point during the research were any participants paid for their involvement. In exchange for access to research participants I offered my experience and network in the form of free consultancy. As I only spent a maximum of five days supporting any organisation in this manner, it was not perceived to have been significantly influential on the data collected.

Reflexivity was noted in several interviews where participants would steer their activities towards their understanding of the circular economy. In several cases when research participants were unfamiliar with the concept of the circular economy it was necessary for me to define the concept for them. In these situations I used the Ellen MacArthur Foundation's (2015a) seminal definition given in Chapter 1. This definition helped to frame research questions to interviewees who were unfamiliar with the terminology. However, it also undoubtedly skewed the research towards this understanding of the concept from the Global North.

In cases where research participants were unfamiliar with the circular economy, the following procedure was used. Firstly, the seminal definition from the Ellen MacArthur Foundation (2015a) was given from Section 1.1. Where possible, the following resources were shared for the interviewee to review (Ellen MacArthur Foundation, 2016d; World Economic Forum, 2014; Geng and Doberstein, 2008), particularly those

who would be interviewed on a second occasion. At this point, the rest of the interview was conducted following the interview questions given in Appendix B that did not require extensive understanding of the nuances of the circular economy. This gave an opportunity to see how the interviewee might interpret the dominant definition of the circular economy from their own unique perspective.

Of course, some of these questions required a more in-depth understanding of the concept from the interviewee. When possible these questions were returned to during a second interview which gave the interviewee time to privately review the aforementioned resources as well as conduct their own investigation as to what the concept meant. Otherwise, these questions were returned to during the latter stages of the interview after a longer discussion of what the circular economy means to help frame these more specific questions. This discussion often included further explanation of the concept using locally relevant examples. In such cases variations of the following examples were given.

The circular economy is a way of describing an economic system aimed at eliminating waste and the continual use of resources. To demonstrate this let us take an example of producing maize, a biological material in a circular economy. A farmer begins the process with maize seeds (ideally taken from a previous crop to simplify this cycle within one small plot of land) and plants these. In this process they may add organic compost to the soil as well as regular watering. All of these natural, organic 'ingredients' help the maize to grow using renewable energy (from the sun) and produce the maize crop.

After harvesting the maize, the chaff and other 'waste' from the crop can be reused by making more organic compost (there are many other options but for now we will simplify these feedback loops for the purposes of this illustration). This compost can then be put towards the next maize crop, creating a cyclical loop where waste can be recycled within this system. In a similar way we can see how the water is taken from a river, is used by the maize crop, and any leftover water returns to the river through the soil - this is also one of the feedback loops. This demonstrates a closed-loop cycle where the production of maize is enabled by circular practices of reusing materials, such as chaff, that might otherwise have been considered waste. From this example we

can see how a circular economy is achieved by retaining materials within these loops to ensure there is minimal waste whilst creating a sustainable production cycle.

It is slightly harder to visualise similar circular economy examples for more complex, technical materials, such as metals. However, a common example available in Kenya is seen from aluminium recycling. First aluminium has to be extracted from its ore, bauxite. This can be done using renewable energy sources such as biomass, when using sustainable forestry practices, to generate electricity. A product could then be made in a factory from the aluminium such as a ladder. There are many stages to this production but for simplicity we can proceed to the following stages of use. When in use it is likely that the ladder might break and if this cannot be repaired (repair being the most circular solution that requires the fewest additional resources) then it could be recycled to form a new aluminium product. This is relatively easy if the entire product was originally made from just pure aluminium. There are many examples of *jua kali* entrepreneurs who are melting down 'waste' aluminium products to make new products such as affordable cooking pots - locally known as *sufurias*. This is a simplified example of how a technical (non-organic) material such as aluminium can be kept within the circular economy by recycling.

These examples often led to further discussion whereby the interviewee would suggest their own examples of what might be part of the circular economy or not. Whilst this process of course led to some bias in regard to the following discussion with interviewees, without framing the conversation as such it would not have been possible to gain much of the participants perspective on the circular economy specifically. How the definitions of the circular economy might have influenced interviewees responses was noted throughout the process. For example, the above explanation of the circular economy might have led towards greater focus on organic agriculture, or on metal recycling practices in Kenya.

Alternatively, similar implications were noted in that interviewees may have swayed their answers to suggest that their company was more 'sustainable' (in which ever interpretation they saw fit) than the reality might be. In this way the positive framing through the ideal type of the circular economy that was presented in these definitions might have also influenced how interviewees interpreted the concept. Whilst this was not the aim, it was noted as an inherent bias in doing such sustainability focused

research (Kuckertz and Wagner, 2010), and subsequent answers were tempered with questions of feasibility. Overall, though the interviews noted such biases, it was not thought to materially change the main conclusions drawn that were largely supported throughout the 102 interviewees' contributions.

### **3.7 - Limitations**

This study was subject to several limitations typical of its size and timeframe. The use of interviews as a primary data collection mechanism created a heavy time burden to conduct interviews and travel to the individuals' locations, subsequently limiting the sample to a relatively small size of 102 different interviewees. However, the amount of data gained from interviews was generally excellent. The sample chosen was not intended to be representative of a particular field or industry. The limitations of this research meant that it was only possible to use non-probability sampling to identify participants. This has undoubtedly skewed data, but through purposive sampling I do not believe it has substantially impacted the conclusions of this research, which do not aim to be comprehensive.

It is also important to be aware of the impartiality of the research, as in qualitative interviewing the researcher is not neutral, distant or emotionally uninvolved (Rubin and Rubin, 2005) and preconceptions needed to be accounted for. In-depth interviews encourage researchers to develop a strong empathy for the interviewees as the depth of understanding required to do qualitative research makes it difficult for researchers to remain value free or neutral towards the issues raised (Bowman et al., 1984). Indeed, Rubin and Rubin (2005) argue that neutrality is not a legitimate goal in qualitative research, and neither is it attainable. Instead, a researcher should aim for balance rather than neutrality. Therefore, whilst every effort has been made to remain impartial, the reader should keep this in mind when reviewing the evidence and conclusions presented.

This study was also limited by my knowledge of Swahili. Although I had studied Swahili and worked in Nairobi previously, at the time of this research I only held a basic grasp of Swahili. Nonetheless, as the main language of government and most formal

businesses in Nairobi is English, there was no need for a translator and interviews could easily be conducted in English. That said, Swahili is still the dominant language in Nairobi and this limited aspects of the research as only some nuances and wider context were grasped when Swahili was intermingled in a largely English dominated conversation. This was also a reason for focusing this research in Nairobi where there was a smaller language barrier compared to other parts of Kenya where many other languages (beyond English and Swahili) are dominant. Overall, I was comfortable conducting this research in Nairobi's English environment and therefore do not think a research assistant would have fundamentally altered much of the data obtained nor the conclusions of this thesis.

The thesis was subject to analytical boundaries in accepting several terms that have not been fully challenged here. For example, whilst there is significant discourse surrounding terms such as 'development' or the 'Global North/South' several of these key notions have been utilised to explore phenomena that occur within these prevalent systems without questioning whether these systems are right or not. This has been done primarily because these terms, and their flaws, are largely understood by both the international development community as well as circular economy scholars. Furthermore, debates surrounding these terms are so vast it would that to challenge them sufficiently would be impossible without significantly distracting from the main subject of this study. In noting these limitations, where relevant the arguments of African post-development authors concerning the detrimental conceptualisations of African countries that international development can reinforce have been acknowledged and integrated into the analysis. Where necessary some of the most closely associated terms have been analysed, such as 'sustainable development' and 'green' as seen in Section 2.3.

This study was purposefully limited to considering the circular economy in Kenya from a base in Nairobi. There were a few instances of research being conducted outside the capital in some rural areas of Kenya such as Lodwar, Magadi, Voi and Kisii. However, the bulk of the research emanated from Nairobi where the circular economy could most easily be identified. As discussed earlier in Section 3.2 this thesis does not strive to be generalisable, but simply to provide a new narrative of 'Africa being' (Nyabola, 2018, p. xxiv).

In preparation for the main research study initial investigations were conducted in Nairobi in May to September 2016 that helped to identify suitable research participants. This was in furtherance to my previous experiences conducting research in Nairobi for a master's thesis that provided several pertinent contacts. This network enabled numerous opportunities for access, for example in observing and interviewing company staff during normal working hours, as well as on a more casual basis out of the office. This depth and variety of access was significant in enabling some participant observation that drew from a range of dimensions central to the production of knowledge beyond, for example, written responses to a questionnaire (Mason, 2002).

It was possible to gain some form of access to most businesses, generally where an informant was found that had a vague interest in this research topic. Where relevant I offered my support and knowledge, contributing through a programme of action research (Brydon-Miller et al., 2003) to these businesses. Here I found that my background in engineering was occasionally of interest to interviewees and helped my to speak to them in a more technical manner where relevant, that enabled greater depth of access. On several occasions I shared personal experiences as the founder of the Turing Trust, a UK based charity that has installed thousands of computers in over 150 schools across Malawi, Ghana and Kenya in an environmentally responsible manner. This helped to open doors and build affinity with interviewees as an international development practitioner who has personally experienced many of the challenges a small organisation faces.

On occasion it was possible to assist with personal knowledge of business networks, corporate social responsibility, international opportunities and act as a sustainability advisor. Whilst offering support to a business distracted from the main research objectives, in the long run it was beneficial as it enabled greater access and understanding of the business in question. However, understandably it was only small and medium sized companies where my contributions were well received. In larger companies there was less support I could offer in exchange for access. Which in part explains why it was significantly harder to negotiate access in these larger companies. Another key reason was the greater number of management levels and approvals that were needed to grant in-depth access to a large company. Moreover, my questions surrounding greenwashing in MNCs were understandably challenging and tended to

produce defensive responses that prevented more in-depth exploration of this aspect that was been identified in MNCs' articulations of loud sustainability. Subsequently this meant the research was generally limited to one or two interviews with staff from large companies without being able to get access to the higher levels of management. McNiff (2002) recommends that the challenges of limitations such as this can be tempered by critical self-reflection as discussed earlier in Section 3.4.

Overall, whilst this study was subject to several limitations there were not thought to adversely impact the intended research goals. This concludes this chapter which has outlined the methodology of this research. Now we can begin to answer the research questions in the following chapter and build an understanding of what forms the circular economy is taking in Kenya.



## **Chapter 4 - What Forms Is the Circular Economy taking in Kenya?**

The purpose of this chapter is to begin analysing the circular economy within the Kenyan focus of this study. To do this I will use discourse analysis to locate the understanding of the concept developed in Chapter 2 within the context of Kenya's environmental policies. Through this analysis, we can begin to answer the research questions, particularly question two in identifying where the circular economy can be found in Kenya. Here we begin to challenge some of the normative assumptions about how the circular economy is most commonly understood in discourse from the Global North. This then also leads towards answering the fourth research question by contrasting this local interpretation of the circular economy to the archetypal circular economy of the Global North. To do this, it is necessary to move from the varied definitions from the Global North of the circular economy and uses a specific singular definition, which I give at the start of the following Section 4.1, that helps to understand the concept in the Kenyan context. This launchpad enables us to establish links between the circular economy and the multiple dimensions of sustainability in Kenya, ranging from ideas behind sustainable development through to articulations of strong sustainability.

This chapter draws on literature from a range of disciplines. The majority comes from international development and explores dimensions of sustainability. This literature is often interdisciplinary, such as works considering sustainable development. Otherwise, the main fields that inform this analysis are human and environmental geography in relation to rural studies, conservation and political ecology in Kenya, as well as environmental economics. Several case studies from these fields are drawn upon to develop this research's inductive approach to theory development (Welch et al., 2013). Furthermore, in analysing political environmental discourse in Kenya, a selection of government strategy documents are used. Overall, this analysis of the circular economy draws from this interdisciplinary range of subjects and identifies the following themes that are part of sustainable development debate in Kenya. The key

themes identified include: environmentalism in Kenya, neoliberalism, internationalisation and the role of international actors in Kenyan development, formal and informal economies, climate justice, and lastly the role of the Kenyan media.

This chapter delves into a specific concept from the sustainability literature and uses Smith and Jehlička's (2013) concept of 'quiet sustainability' as a framework to explore the conceptualisation of the circular economy in Kenya. To date the links between the circular economy and quiet sustainability have not been explored in academic debate. Doing so helps to reveal the dichotomy of the ideal type of the circular economy against outcomes that have resulted from its instrumental use. This helps us in answering research question four by highlighting the way that the circular economy concept can be approached from distinct perspectives from the Global North and from the Global South, bringing different contributions to sustainable development debates.

As seen in Chapter 2, the majority of circular economy discourse to date focuses on the ideal type of the concept from a technocentric and Eurocentric point of view (Cayzer et al., 2017; Hobson and Lynch, 2016; Mugge & Bakker, 2018). In some cases advocates of the concept suggest that it is a form of strong sustainability (Perey et al., 2018; Loiseau et al., 2016). However, there are also critics of the concept who have identified it to be enabling 'business as (slightly un)usual to be sustained' primarily because of the technocentrism of the circular economy (Hobson, 2016, p. 93). This chapter develops some of this debate by using discourse analysis to identify articulations of the circular economy in a Kenyan policy context. This subsequently demonstrates some of the dominant conceptualisation's deficiencies in this atypical context. These differing perspectives confirm Korhonen et al.'s (2018b) assertion that the conceptualisation of the circular economy can be enhanced.

The chapter is divided into the following three sections. Firstly, the definition of the circular economy that is specifically suited for the Kenyan context from Chapter 1 is reviewed. This helps to emphasise the aspects of the circular economy, such as social dimensions and equity, that are central to the application of the concept in Kenya but are under-represented in current debates, as shown in the literature review of Chapter 2 (Hobson, 2016; Hobson and Lynch, 2016; Moreau et al., 2017; Sauvé et al., 2016; Murray et al., 2017). From this base, this section helps to form an answer to the third

research question by outlining where and how the circular economy can be understood in Kenya. Here the chapter introduces some of the primary sources from this research to critique the dominant circular economy concept using quiet sustainability as a conceptual framework.

Secondly, we question to what extent the circular economy has reached Kenya. This discussion is framed by the argument that articulations of the actually existing type of the circular economy have been evident in Kenya for decades, albeit primarily through various sustainability guises, such as eco-development (Riddell, 1981; Campbell and Olson, 1991; Lado, 1992; Okech, 2009). This framework then enables us to answer research question two, to give an understanding of where the circular economy can be found in Kenya. In doing so this section traces the ways that the circular economy formally spread to Kenya, primarily through international institutions, such as the United Nations. Here we see that the concept has reached the upper echelons of the Kenyan government. Yet field interviews also confirm that the terminology is still far removed from mainstream sustainability discourse in Kenya and is only known by a few specialists.

Lastly, we look at Kenya's political context concerning recent environmental policies that are strongly linked to the circular economy to see if and how the concept is being led from the top. Using discourse analysis this sections brings context from Kenya's political economy and enables us to see if the circular economy demonstrates a new policy direction. Furthermore, it also highlights how the discourse coalition from the Global North is influencing the Kenyan approach to the environment. Whilst the concept is being used at the top levels of government, we will see that the overall impacts share much with the shortcomings of the circular economy seen in the Global North as well as distinct failures too. Here we see the divergence of circular economy discourse and praxis whilst developing an answer to research question four.

This brings us to the main conclusions of the chapter. Firstly, that the normative elements of the ideal type of the circular economy exist in Kenya implicitly. Albeit that this is happening under various guises such as sustainable development, whereas explicit use of the terminology of the circular economy is still emergent. Secondly, that explicit use of the circular economy in Kenya has been evident through corporate instrumentalism and is leading to weak sustainability. Thirdly, analysing Kenyan

discourse highlights the ways that the power of the discourse coalition from the Global North is manifesting and influencing Kenyan approaches to developmental and environmental challenges. Overall these factors suggest that the circular economy is not sufficient to be a new sustainability paradigm in Kenya.

## **4.1 - Defining the Circular Economy for a Kenyan Perspective**

In order to apply the understanding of the circular economy developed in Chapter 2, it is necessary to emphasise the specific definition of the circular economy that is being used to analyse the concept in the Kenyan context. Doing so helps us to answer the third research question and identify where and how the circular economy can be understood in Kenya. In Chapter 2 the transient definitions and theories of the circular economy were established, demonstrating how they are often interpreted such that they are applicable to almost any context. This wide variety of perspectives of the circular economy has further increased the diversity of literatures that offer interpretations and frameworks for understanding the concept (Murray et al., 2017; Sauv e et al., 2016; Geissdoerfer et al., 2017). These definitions were detailed in Chapter 2; however, as there are so many interpretations of the circular economy, it is necessary to conclude on the definition that will be used for the rest of this thesis that has specific relevance to the Kenyan economy and can support the following discourse analysis. Chapter 2 explained how the instrumental type of the circular economy can be used to conceal business as usual agendas. Therefore, in refining a definition of the circular economy this study focuses on the normative, as opposed to descriptive elements of the concept, whilst making the concept more suited to the Kenyan context. This also helps avoid the all too common 'importation and consumption of rigid Western meanings' (Mavhunga, 2017, p. 1). Therefore, following on from this juncture, the ideal type of the circular economy will be defined using the working definition given at the end of Section 1.3 which emphasises that the circular economy must help achieve a balance and harmony between economy, environment and an equitable society.

This definition is largely based on technical elements from the seminal definition given by the Ellen MacArthur Foundation given in Section 1.1 (Ellen MacArthur

Foundation, 2015a; Bruel et al., 2019; Kirchherr et al., 2017). However, my working definition responds to critical and salient calls for the concept to give more weight and importance to social justice concerns to counter the circular economy discourse coalition (Hobson, 2016; Moreau et al., 2017). This is primarily done through the emphasis on fostering an equitable society. Here I regard an equitable society as one where the imbalance of power between the advantaged and the disadvantaged is corrected, as per the understanding of social equity laid out by Guy and McCandless (2012). Therefore this research, coming from the field of international development, places sidelined social justice concerns as a critical part of the definition because it has long been argued that inequality is the planet's main 'environmental' problem and therefore the main development problem (Brundtland Commission, 1987). To achieve this, this working definition slightly diverges from the common understanding of the circular economy in Global North proposed by the extant discourse coalition (Murray et al., 2017) by placing equal emphasis on the economy, environment and an equitable society. Placing equal emphasis on equity in this definition of the circular economy makes the concept more relevant to Kenya, where inequality has been a growing problem since independence in 1963 (Ogot and Ochieng', 1995) and yet where 'public debate in Kenya on the subject is almost non-existent' (SID, 2004, p. iii).

## **4.2 - How and Why Is the Circular Economy Important in Kenya?**

Outside of the predominant discourse coalition, on the fringes of circular economy debate, a few academics have begun to establish the importance of the circular economy in the Global South (Hobson and Lynch, 2016; Schröder et al., 2019a; Gower and Schröder, 2016; Gregson and Crang, 2015; Velis, 2017). Generally these arguments go beyond the waste management foci of most circular economy discourse and spread to more general environmental and development concerns. Faccer et al. (2014), have argued that sustainability concepts such as the green economy and circular economy are more crucial in the Global South, and in particular sub-Saharan

Africa, than in the Global North. This is primarily because often 'national green economic decision-making and policy-making remains largely in its infancy, and where trade-offs, including in terms of human development, are becoming an increasingly important consideration' (Faccer et al., 2014, p. 643). In essence, this point builds on the well established argument that sometimes less developed economies can leapfrog unsustainable technologies (Szabó et al., 2013; Doig and Adow, 2011).

The relevance of this argument from Faccer et al. can be seen through several recent policy choices in Kenya, such as the recent plastic bag ban that will be discussed in detail later in this chapter (Njuguna, 2018). Furthermore, there are several successful cases of green technology leapfrogging in Kenya based on renewable energy, such as advanced charcoal kilns, wind and solar power systems (Kituyi, 2004; Karjalainen and Heinonen, 2018; Vezzoli et al., 2010). The contemporary importance of green decision making has recently been highlighted in Kenya by the protests against the construction of Kenya's first coal-fired power station (Momanyi, 2017). These have been led in part by a desire to retain Kenya's world leading status for renewable energy generation, according to the leading regional newspaper (The East African, 2019). Whether Kenya is a world leader is debatable; but more certain is that renewable energy accounted for 72% of Kenya's final energy consumption compared to the world average of 17% in 2016 (IEA, 2019, p. 151).

From this background it is arguable that Kenya has a greater opportunity to design their economy for sustainability than many countries in the Global North where significant fossil-fuel based infrastructure is entrenched (Jones, 2013). Combining this opportunity with the increasing urgency to mitigate the impacts of climate change, the environmental concerns of the Global North can 'give the South real political advantage in global politics' (Baker, 2006, p. 162). Generally, the greater opportunities for green trade-offs in the Global South are agreed upon (Faccer et al., 2014; Szabó et al., 2013; Doig and Adow, 2011). Although notably this argument conflicts with the earlier mentioned and more established doctrine of 'converge and contract' (Meyer, 1995). Nevertheless, the salient argument is that countries in the Global South need to also achieve the goals of absolute sustainability if the world is to avoid catastrophic climate change (Roberts, 2008; Lederer, 2014; Baker, 2006; Boyd and Juhola, 2009).

Advocates of the circular economy suggest that this new concept is the best way to achieve strong sustainability (Ellen MacArthur Foundation, 2015a; Geng and Doberstein, 2008; Perey et al., 2018; Loiseau et al., 2016). One of the main arguments from participants of the circular economy discourse coalition is that the concept is compatible with economic growth and that, if applied as a national strategy, it would lead to significant wealth creation. For example, the Waste and Resources Action Programme's advocacy report claimed that an expansion of the circular economy could create three million extra jobs across the European Union member states by 2030 (Mitchell and James, 2015). Furthermore, in a report commissioned by the Ellen MacArthur Foundation, America's most influential business consulting firm (McDonald, 2013) McKinsey claim that a subset of the European Union manufacturing sector could realise net materials cost savings worth up to US\$630 billion per annum by 2025 (Ellen MacArthur Foundation, 2013a, p. 66). Alongside these economic goals, potential environmental benefits are claimed such as that if India followed a circular economy model it could lead to a reduction in greenhouse gas emissions by 44% by 2050 (Ellen MacArthur Foundation, 2016a).

If similar aspirational targets were proposed for the circular economy in Kenya, they would clearly resonate with the Government of Kenya's *Vision 2030* development plan. *Vision 2030* optimistically targets GDP growth of 10% per annum (GoK, 2007), despite such growth not being attained since the 1970s (World Bank, 2020b). This seems particularly unrealistic considering the cursory way that *Vision 2030* addresses Kenya's widespread unemployment (Muiya, 2014) and issues such as rising carbon emissions (Crippa et al., 2019). However, as typical of this optimistic advocacy literature, these reports contain little evidence to back up these appealing numbers. When questioned Sven Herrmann, a research analyst at the Ellen MacArthur Foundation explained that these claims were only 'assumptions - not statistics'.<sup>2</sup> This suggests that this grey literature is likely to be tactful hyperbole embodying the instrumental type of the circular economy. A concern that has been raised by some of the more sceptical interviewees from this research, such as staff from the major international development organisation

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<sup>2</sup> Interview with S. Herrmann on 6 September 2017 online.

Tearfund.<sup>3</sup> Therefore, being able to identify and avoid the optimistic rhetoric of the instrumental type of the circular economy that is becoming ‘increasingly powerful’ (Hobson, 2013, p. 1094), is vital to counteract greenwashing in the Global South (Hamann and Kapelus, 2004; Buseth, 2017; Bracking, 2015; Brockington and Ponte, 2015).

Chapter 2 established that some practitioners from the Global North are using the concept to sustain what is essentially business as usual (Hobson, 2016, p. 93). Furthermore, that the majority of circular economy literature is participating in this discourse coalition and amplifying the outlook of the concept’s most prominent advocates, such as the Ellen MacArthur Foundation. This has resulted in little critical debate over the normative versus descriptive values of the concept (Korhonen et al., 2018a, 2018b). This rhetorical evolution has many comparisons with the recent vogue of ‘Africa Rising’ (Okorie, 2018), that has similarly been subject to ‘uncritical discipleship, fed by corporate missionaries’ (Mavhunga, 2017, p. 2). This is despite the platitude often being used by neoliberals to reimagine ‘Africa as a consumer of Western manufacturing excess’ (Nyabola, 2018, p. 112).

These critiques help to highlight how umbrella concepts can be instrumentally adopted and promoted by corporations to disguise business as usual. Incorporating a Kenyan perspective to the conceptual development of the circular economy is crucial to prevent another unsuitable economic model from the Global North from being foisted upon Kenya; as was previously seen in the structural adjustment era of the 1980s where Kenya was a ‘major victim’ of neoliberalism (Nyabola, 2018, p. 63; Gibbon, 1992; Rono, 2002; Glennie, 2008). To date the circular economy discourse coalition has generally repeated the geographical zoning and directionality of technology from the Global North onto the Global South (Mavhunga, 2017) and in doing so may be perpetuating the ‘pedagogy of colonisation’ (Nyabola, 2018, p. xxi).

Beyond these significant questions surround the ‘power/knowledge’ nexus (Foucault, 1998, p. 63) of the concept, there are likely to be significant more tangible impacts too. The impact of circular economy policy changes in the European Union

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<sup>3</sup> Interview with R. Gower on 31 October 2017 online.

(McDowall et al., 2017) should not be underestimated. In 2018 it was noted that new European Union (EU) policy subsumed and had greater impact in Kenya than even Kenyan laws (Nyabola, 2018, p. 207). These impacts can also be physically seen. For example, when environmental legislation banned leaded-petrol in the EU, the negative externalities (costs that are suffered by a third party as a consequence of an economic transaction) from the EU's surplus leaded-petrol were simply passed on as the fuel appeared at reduced prices in African markets (McDonough and Braungart, 2009, p. 13). Therefore, a key reason for analysing the circular economy in Kenya is the potential knock-on impacts that the instrumental type of the concept might have in 'exporting unsustainability' (Nar, 2014; Adams, 2008, p. 359; McDonough and Braungart, 2009, p. 13).

This critique of the circular economy also stands to develop the concept by outlining key facets that have been overlooked to date, particularly equity. This research, approaching the circular economy from a basis in international development, is naturally inclined to analyse the dominant conceptualisation's potential for poverty reduction. When looking at the ideal type of the circular economy there are some aspects of the concept that are synergistic with the mainstream focus of development policy on poverty reduction in sub-Saharan Africa. For example, the potential for significant job creation. Although there is also a need to emphasise social justice considerations that have been overlooked by extant debates (Moreau et al., 2017). However, as analysed in Chapter 2, poverty reduction is far removed from current debates in the Global North and there is little literature to draw upon in this regard. The few notable examples include: Hobson and Lynch (2016), Velis (2017), Gregson and Crang (2015) and several works by Schröder (2018a, 2018b, 2019a; Gower and Schröder, 2016).

Even this small literature hints that the circular economy may be a new sustainability buzzword enabling corporate instrumentalism in the Global South (Hobson, 2016). As described in Section 1.2, extant renditions of the circular economy have been cited for exemplifying 'existing forms of environmental governance under advanced neoliberalism' (ibid., p. 93). Neoliberal policies have been blamed for decades of economic malaise in Kenya since the 1980s, as well as substantial environmental damage and social inequality (Njeru, 2013; Ogot and Ochieng', 1995;

Glennie, 2008). Many theorists, such as Escobar (1995) and Banerjee (2003), have argued for decades that such capitalist development models have sustained inequality and that the Global South has paid a high economic, social, environment and cultural price in aiming to 'catch up' with unsustainable Western ideals of development (Kanji et al., 1991; Pepper, 1998). Therefore, it is worth analysing whether the instrumental type of the circular economy may promote neoliberal mechanisms of change. This leads us to question whether the instrumental type of the circular economy is rebranding concepts of green growth and subsequently promoting neoliberalism?

To date some circular economy practice in the Global North has used some neoliberal mechanisms such as private sector self-regulation and green tax incentives (Flynn and Hacking, 2019; Hobson, 2016). Cases of these mechanisms being used under the terminology of the circular economy are not yet prevalent in Kenya. However, European Union funding has recently been directed towards circular economy programmes in Kenya. In this case it specifically targeted funding towards e-waste recycling centres in Kenya in collaboration with a spin-off of a UK company (EWIT, 2017a, 2017b). This is of particular interest as it opens up questions about the way that 'green conditionality' of funding from development banks for renewable energy infrastructure has previously reflected priorities from the Global North onto the Global South (Baker, 2006, p. 162; Death, 2016).

In 2012 more than US\$100 billion in funding was committed with a green conditionality (Mazzucato, 2015, p. 138). These neoliberal mechanisms are exemplified in Kenya by the recent wind energy project at Lake Turkana. The project has been built and is part-owned by Danish wind-giant Vestas, who receive a feed-in tariff from the Kenyan government as directed by the World Bank (Cormack and Kurewa, 2018). The role the World Bank played in promoting the role of a MNC and in privatising energy infrastructure in Kenya, that has traditionally been state-owned (Osiol et al., 2017), demonstrates how such neoliberal funding mechanisms are being used in Kenya. Therefore, it is important for this thesis to analyse the potential of the circular economy to promote similar neoliberal mechanisms in Kenya. This will primarily be done through the Sanergy case study in Sections 5.3 and 6.5. This critique will help spur the development of the concept to address these challenges, or alternatively it will help

rally against an advanced neoliberal agenda (Glennie, 2008; Harrison, 2005; Hobson, 2016; Bond and Dor, 2003).

A Kenyan outlook on the circular economy can also serve to enhance the global understanding of the concept by challenging the discourse coalition and demonstrating the current lack of value attributed to quiet sustainability contributions, which I argue are vital to realising the ideal type of the circular economy. As described in Section 2.5, quiet sustainability helps us to envisage circular economy practices in Kenya through the ways that many 'carve out livelihoods that very often have positive environmental benefits... [such as] multifunctional agricultural practices [or] the recycling of urban waste' (Leach and Scoones, 2015, p. 129). Although such viewpoints can be cursorily dismissed as simply environmentalism through poverty, 'everyday environmentally oriented practices, rooted in the cultures of sharing, guardianship, repairing and responsibility, should not be dismissed lightly' (ibid.). Furthermore, in striving to follow Mavhunga's example by 'taking African knowledge seriously as epistemology on its own terms' (Mavhunga, 2017, p. x), the concept of quiet sustainability highlights many pertinent aspects of Kenya's economy.

Overall, these examples help to answer the third research question by demonstrating how aspects of the circular economy can be understood in Kenya. There are several elements of ideal type of the circular economy that are relevant and potentially beneficial to Kenya, especially if social justice considerations are given equal weighting. The core of these arguments include the potential for the Kenyan economy to leapfrog to a sustainable economic model and an optimistic argument for wealth creation. Conversely, there are also potentially harmful impacts that the instrumental type of the circular economy might have on the Kenyan economy. Therefore, we can look to the ideas of quiet sustainability to analyse how the circular economy concept can be developed to be more inclusive of the Kenyan economy and place greater emphasis on equity.

From this understanding of how and why the circular economy is important in Kenya, it enables us to analyse the concept in this specific context in more detail. To continue this analysis it is useful to look into how the concept reached Kenya. This contextualises the analysis historically and also identifies the implicit articulations of the circular economy where the terminology is nascent.

### **4.3 - To What Extent Has the Circular Economy Reached Kenya?**

In order to answer the question of whether elements of the circular economy are evident in Kenya we must begin with the assertion outlined in Chapter 2, that the circular economy contains many dimensions that are synonymous with sustainable development. From this viewpoint, elements of the circular economy have been implicitly prevalent in the Kenyan economy and covered in academic discourse for decades, although under various different sustainability guises. For example, in 1981, Riddell proposed the concept of 'eco-development' that would lead to economic equity, social harmony and environmental balance in African economies (Riddell, 1981). Taking this viewpoint also helps us in developing an answer to research question three and how the circular economy can be understood within the local context.

Concepts such as eco-development gained traction in multilateral and regionally prominent agreements including the Lagos Plan of Action (OAU, 1982; Elias, 2018), as well as directly in Kenya (Campbell and Olson, 1991; Lado, 1992; Okech, 2009). This supported the arguments of influential African scholars, such as Lual Deng who held senior posts within international bodies such as the World Bank, the IMF and the African Development Bank. Deng insisted for decades that environmental protection is 'a matter that concerns the very survival of Africa as a continent... [and that] issues of ecological balance are paramount in the African development agenda' (Deng, 1998, p. 87). Throughout the last three decades there has been voluminous sustainability discourse concerning Kenyan environmental issues, largely from the fields of ecology and international development (Anderson and Grove, 1989; Hughes, 2009; Campbell and Olson, 1991; Lado, 1992; Okech, 2009). Much of this literature identifies aspects of the ideal type of the circular economy being played out under an alternative terminology. This section delves into the details of these sustainability dimensions, forging links to an explicit circular economy. With this outlook of the circular economy, we can first explore if and how the terminology of the circular economy has truly reached Kenya.

Chapter 2 expounded how the circular economy as a concept slowly developed from the Global North in the 1970s eventually becoming a mainstream concept in 2011 from when it has become ever more prevalent in academia and policy by forming a discourse coalition (Stahel and Reday-Mulvey, 1981; Nissen, 2015; Geissdoerfer et al., 2017). During this time the circular economy had largely been ignored in the Global South, apart from the notable Chinese exception. China has been actively pursuing a slightly altered ideation of the circular economy as long as many countries in the Global North (Yuan et al., 2006; McDowall et al., 2017; Ghisellini et al., 2016). In 2016 the Western form of the circular economy was actively exported by advocates, such as the Ellen MacArthur Foundation, to countries like India (Ellen MacArthur Foundation, 2016a; Yaduvanshi et al., 2016) and Brazil (de Oliveira et al., 2018), and its prominence through this discourse coalition has continued to grow internationally.

The Global South is such a vast and varied construction (Dados, 2012; Odeh, 2010) so it is interesting to note that the nations from this grouping that have engaged with circular economy discourse in a considerable manner all belong to the smaller, but economically powerful, subset of BRICS nations (Brazil, Russia, India, China and South Africa). This emphasises that, even in the Global South, Kenya is far from a typical nation for the circular economy to become established within and highlights that sweeping generalisations must be avoided when considering this research. Instead this study aims to provide a contemporary understanding and a more informed reflection on a shifting perspective of the circular economy from a Kenyan outlook. Considering the trend of how the circular economy has emerged from some of the largest economies in the Global South, then it is unsurprising that South Africa and Nigeria have been the most prominent in what little African circular economy debate there has been to date.

From searches of Scopus and JSTOR in 2019, of all sub-Saharan nations, South African academia has taken the most interest in the circular economy, producing more than twice as much literature compared to the next most prolific, Nigeria, followed by Kenya. This literature is undoubtedly a product of South Africa's comparably more substantial university system, but also stems from South Africa's pioneering green economy rhetoric (Nhamo, 2013). South Africa have been cited as leading the continental drive to adopt the green economy, if only theoretically, as this drive has not resulted in a significant reduction of environmental impacts (Musyoki, 2012; Death,

2014). South Africa embodies this apparent paradox by claiming ‘international recognition for its leadership, yet not even coming close to fulfilling any of the criteria of a standard definition of the green economy’ (Death, 2014, p. 2). Nevertheless, Kenya has been following South Africa’s footsteps, subsequently publishing its *Green Economy Strategy and Implementation Plan* (GoK, 2016a). From this instance we can see an environmental discourse coalition influencing the adoption of these concepts from the Global North in African countries.

In a similar manner to the spread of green economy rhetoric, circular economy debate can be seen slowly promulgating from South Africa to the rest of the continent (Mativenga, et al., 2017; Godfrey and Oelofse, 2017), whilst the extent of circular economy practice is less clear. This is exemplified by the African Circular Economy Network that has emerged from South Africa (ACEN, 2020). This network is predominately an online forum but also hosts events espousing the benefits of the circular economy. Although the network has a relatively small membership, standing at 597 members in June 2019 (LinkedIn, 2019), it was the largest grouping of circular economy advocates with an African interest found during this research. On the 24<sup>th</sup> October 2017 members of the network from South Africa travelled to West Africa to present to the Nigerian Ministry of Environment and other stakeholders at the network’s first event outside South Africa. The event ‘demystified’ the circular economy using local Nigerian content and context (SAWI, 2017). Considering that the African Circular Economy Network promote the Ellen MacArthur Foundation’s Circular Economy Learning Hub as their primary resource, this again shows the prominence of the Global North’s discourse coalition regarding circular economy knowledge on the African continent (ACEN, 2020).

At a higher level than this network there exists the African Circular Economy Alliance which was conceived at the 2016 World Economic Forum in Kigali by Rwanda, Nigeria and South Africa along with UN Environment and the World Economic Forum. The Alliance held its first annual meeting at the Africa Green Growth Summit in November 2018 in which Niger, Senegal, Malawi and the Democratic Republic of the Congo joined the Alliance (Pace Circular, 2019). However, beyond the announcement of the Alliance, at the end of 2019 there was still a notable absence of significant further activity in the public domain. Nonetheless, these networks are typical of the few

structured instances of how circular economy debate is slowly expanding throughout the African continent.

There are also several more erratic occurrences of the circular economy explicitly appearing in African contexts. These generally comprise of companies using the concept expediently and trying to brand themselves with this latest sustainability vogue. For example, Bamburi Cement, a subsidiary of the multinational corporation LafargeHolcim, have explicitly linked their tagline 'building better cities' to the circular economy in their online advertising in Kenya (Lafarge, 2018). In analysing this case, the foundational role that the discourse coalition from the Global North have had in promoting such connections is also evident. For example, in a recent publication the LafargeHolcim Foundation for Sustainable Construction explicitly reference the Ellen MacArthur Foundation in promoting ideas of 'pure-type raw-material cycles' (Heisel, 2020, p. 157). Therefore, we can further answer the second research question through this example of where the circular economy can be explicitly found in Kenya. From this example we can see that circular economy practice has begun to reach fragments of Kenya's industrial sectors where there are significant international influences.

It is worth noting that the circular economy can be observed as a phenomenon, rather than a concept that can only exist through explicit institutions (Blomsma and Brennan, 2017). Organisations, such as the Ellen MacArthur Foundation, have had a considerable role in expanding the reach and influence of the concept by participating in the creation of a discourse coalition. Yet, as this thesis has begun to demonstrate, many of the normative values of the ideal type of the circular economy are evident in countries that have not been explicitly targeted by such advocates. These forms are generally seen as part of a growing global response to sustainability challenges. So, whilst looking at explicit actions of the state and other prominent actors is a useful way to map the development of circular economy discourse in Kenya, it is also important to give due attention to the myriad of more subtle actions and practises that are arguably more tangible than conceptual discourse.

There are many other places where the circular economy can be identified in Kenya. Circular economy praxis, as well as accompanying discourse, can be first formally seen to have reached Kenya through the 2014 SEED Africa Symposium, an organisation founded by the United Nations (SEED, 2014). Speakers at the symposium

emphasised that the circular economy was becoming more important in international development agendas. They also elaborated in claiming the concept could be used to catalyse the growth of social and green entrepreneurship in Kenya. One aspect of the symposium that is particularly illuminating is how the annual SEED Awards have consistently promoted the development of technologies that address sustainability challenges since 2010, but in 2014 began using the terminology of the circular economy to describe their conceptual framework in Kenya.

There have been 25 SEED Awards for Kenyan companies since 2009 (SEED, 2014) for companies such as EcoPost that emulate parts of the circular economy mantra. EcoPost's primary business is in upcycling post-consumer plastic waste into fence posts. Yet they continue to do this without using the terminology of the circular economy to date themselves (EcoPost, 2019). This example shows how circular economy terminology has begun to emerge in Kenya. Moreover, it begins to establish the role that multinational institutions, such as the United Nations (UN), have had to date in bringing circular economy terminology into the Kenyan sustainability landscape.

From 2014 circular economy discourse slowly and sporadically emerged from UN-affiliated organisations in Kenya and began to gain traction in Kenya's government. The first official Kenyan government document to explicitly include the term 'circular economy' was in 2016 from the Kenyan Ministry of Environment and Natural Resources, who published *A Circular Economy Solid Waste Management Approach For Urban Areas In Kenya* (Soezer, 2016). This strategy document subsequently led to several politicians and some business leaders using the terminology of the circular economy in public statements (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019; Wakiaga, 2018). Before analysing this document and official statements later in this chapter, it is worth looking at the roots of the circular economy vogue in Kenya.

In the UK there are a plethora of circular economy institutions and academics specialising in the concept, many of whom form part of the circular economy discourse coalition. However, in Kenya there are no such formal entry points to begin mapping the concept from. There were only a few interviewees found during field research in Kenya (2016 - 2018) who were conversant with the circular economy prior to interview. However, once the concept had been defined, the vast majority of interviewees were

able to point towards local examples that fit within the circular economy, indicating that related activities exist in Kenya without being called such. Nevertheless, those few individuals that had been previously aware of circular economy discourse help to explain how the concept is gaining traction in Kenya.

Milcah Asamba is a Development Studies PhD student at the Jomo Kenyatta University of Agriculture and Technology. Her research is investigating how the circular economy model might be applied to waste reduction and the subsequent impacts on resource consumption levels in Kenya.<sup>4</sup> Asamba had become interested in the circular economy after attending the *Sustainable Lifestyles, Livelihoods and the Circular Economy* conference at the University of Sussex in the UK (University of Sussex, 2017). Similar international influences were also found in other Kenyan circular economy advocates, demonstrating how the concept is spreading to Kenya's intellectual elite outside of the UN's direct influence. Wekesa Zablun learnt about the concept through his role as a product designer from the Nairobi Chapter of the American international development organisation OpenIDEO. This later led to him becoming a regional organiser at the aforementioned African Circular Economy Network.<sup>5</sup> These two examples demonstrate the common theme found throughout the research period that whilst circular economy discourse is growing in Kenya, the concept almost exclusively appeals to an educated elite of Kenyans with international connections. Considering this, can it be said that the circular economy has truly reached Kenya?

When looking at circular economy praxis, the experiences of a self-proclaimed Kenyan expert on the circular economy, Eric Guantai, suggest not. Guantai is the founder of the company Recykla International that had worked on the E-waste Implementation Toolkit project funded by the European Commission's Horizon 2020 Research and Innovation Programme that completed in Kenya in 2017 (EWIT, 2017). On the completion of this project Guantai had become the vice-secretary of the National Steering E-waste Committee in Kenya (EACO, 2018). Yet despite these successes, Guantai has been unable to find further consultancy work in the Kenyan

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<sup>4</sup> Interview with M. Asamba on 19 January 2018 in Nairobi, Kenya.

<sup>5</sup> Interview with W. Zablun on 13 December 2018 in Nairobi, Kenya.

circular economy space due to the few circular economy projects in the country.<sup>6</sup> Whilst Guantai's inability to monetise his circular economy consultancy skills may be due to myriad factors, such as the small size of his one-man company, his case exemplifies the general findings of this field research. These are that the terminology of the circular economy is only found sporadically in Kenya and generally has strong international connections. It is also worth noting that despite Guantai's professed expertise concerning the circular economy in Kenya, his company was not seen to provide significant further learning than that presented here and so was not chosen to be one of the main case studies of this research.

In a similar sense, turning to academic debate, the circular economy is far from established in Kenya. The few examples that could be found at the start of this research in 2015 were typically fleeting vignettes, such as the way Allwood (2014) briefly described a Kenyan scrap metal hawker who demonstrated reuse through production of cooking stoves formed from scrap metal. More recently, there have been a few sporadic analyses of the circular economy in Kenya. The most notable have been the evaluation of Kenya's plastic bag ban by Horvath et al. (2018), and Asamba's (2019) contribution to the pioneering volume by Schröder et al. (2019a) that focuses on the circular economy in the Global South. These few examples demonstrate a slowly growing interest in circular economy academic debates in Kenya and simultaneously indicate the minimal influence that Kenyan discourse has had over the conceptual development of the circular economy to date.

Overall, we can conclude that in 2019 the terminology of the circular economy had only just begun to arrive in Kenya. That said there are notable aspects of the circular economy's conceptual framework that are evident under other sustainability concepts. In general the concept has been promoted through international influences that have formally brought the terminology into relevant niche discussions. Although the concept is only known by a select few in Kenya, it has very briefly been included in the policies of the Kenyan government. We can now analyse some of these government strategies

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<sup>6</sup> Interview with E. Guantai on 21 September 2017 in Nairobi, Kenya.

to see how the circular economy discourse coalition is influencing development plans in Kenya.

#### **4.4 - The Influence of Circular Economy Discourse in Kenya**

This chapter has shown that the circular economy is far from a mainstream concept in Kenya to date; yet the terminology has nonetheless begun to be used in government policies. In order to answer how and why this has happened it is helpful to use discourse analysis to understand circular economy implementation in Kenya within the wider political framework. Again we must do so with an understanding that we should look for forms of the circular economy even if implicitly, rather than simply identifying explicit use of the terminology. To facilitate this it is helpful to draw upon the conceptual framework developed earlier and summarised in Table 2 from Chapter 2. The following discourse analysis will primarily draw upon three key documents: the national *Green Economy Strategy and Implementation Plan* (GESIP, GoK, 2016a), *Vision 2030* (GoK, 2007) and *A Circular Economy Solid Waste Management Approach For Urban Areas In Kenya* (Soezer, 2016). This analysis will also be supplemented with pertinent data from field research to see if the values of the ideal type of the circular economy are being incorporated into the Kenyan Government's overall strategy. Doing so enables us form part of an answer to the second research question by developing an understanding of where the circular economy can be found in Kenya. This section also questions whether such incorporation is leading to strong sustainability in practice, or if it might be more akin to weak sustainability seen in instrumental articulations of the circular economy. Overall, this section will help us to see how Kenya's institutional context explains aspects of how circular economy ideas are being used and understood within the country.

Initially the use of the circular economy in the Kenyan political context can be traced through the terminology of its predecessors, such as the green economy and sustainable development that are more commonly used in Kenya. *Vision 2030* is the Government of Kenya's aspirational development programme published in 2007 that

defines Kenya's 'long-term national planning strategy... [and] states the main goals of the Economic, Social and Political pillars that underpin Vision 2030' (GoK, 2007, p. 1). *Vision 2030* claims to have 'been developed through an all-inclusive and participatory stakeholder consultative process, involving Kenyans from all parts of the country' (GoK, 2007, p. 2). *Vision 2030* is an overarching document that is often broad and generic in its aspirations; however, it does at times go into detail. For example, it highlights some key projects due to be implemented by 2012, such as 215 rural electrification projects estimated to cost 1,483 million KES (\$15 million USD) (GoK, 2007, p. 18). Since its publication *Vision 2030* has been continually referenced countless times throughout Kenyan political discourse and has remained a focal point for all matters concerning Kenya's development. What is of particular interest to this study is that the document explicitly references how the vision was 'inspired by the principle of sustainable development' (GoK, 2007, p. 127). Yet, at its publication in 2007, the green economy was absent from this strategy. Nonetheless, *Vision 2030* was pivotal in forming a basis for Kenya's more radical environmental policies that later went on to include the green economy (Symonds, 2014). Following its publication most of the ambitions of *Vision 2030* have been transformed into more detailed policy or strategy documents. For example, the recent national *Green Economy Strategy and Implementation Plan* (GESIP, GoK, 2016a) and the *National Climate Change Response Strategy* (GoK, 2010). These more detailed national plans build from *Vision 2030* but importantly adapt the vision to be inclusive of contemporary trends in environmental discourse. For example, GESIP explicitly cites *Vision 2030* as 'the long-term national economic blue print' (GoK, 2016a, p. 5), yet *Vision 2030* is entirely absent of the term 'green' let alone the green economy.

A similar pattern can also be seen in emerging Kenyan circular economy discourse. It is worth noting that both GESIP and *Vision 2030*, as well as almost all other similar Kenyan literature, are wholly exclusive of circular economy terminology, despite being normatively aligned with the ideal type of the concept. Nonetheless, one strategy recently published by the Kenyan Government has begun to formally integrate the language of the circular economy, helping us to explicitly identify the concept. In 2016 the Ministry of Environment and Natural Resources, published *A Circular Economy Solid Waste Management Approach For Urban Areas In Kenya* (Soezer, 2016).

Considering that this document is the sole government publication that makes explicit references to the circular economy identified during the research it is necessary to give some detail on its background.

This strategy document was a collaboration between the Ministry and the United Nations Development Programme's (UNDP) Low Emission Capacity-Building programme that is primarily funded by donors from the Global North. It is also worth highlighting that the primary author was Dr. Alexandra Soezer in her role as a UNDP Climate Change Technical Advisor, based in New York. The development of the strategy subsequently contains location bias and makes several references to the USA which are less relatable than data that could be obtained from more similar economies. For example, the 'circular economy model described in the NAMA [Nationally Appropriate Mitigation Action] proposes a separation of 90 per cent of all collected waste for recycling and would give Kenya one of the highest recycling rates globally. (For comparison, Italy has a recycling rate of 36 per cent and the USA one of 34.5 per cent)' (Soezer, 2016, p. 48). Similarly, throughout this strategy document, and somewhat unsurprisingly, the United Nations and the World Bank feature prominently. For example, 42% of the references used are from either the United Nations or the World Bank, whereas just 16% of the reference documents come from the Government of Kenya (Soezer, 2016). In this way it shows how the United Nations, as part of a discourse coalition, are having a prominent role in promoting the circular economy in Kenya.

At this point it is helpful to analyse some of this discourse to see how international development and environmental ideas developed in the Global North are being employed in the Kenyan context. *Vision 2030* explicitly includes the term 'sustainable development' seven times in varying contexts over 180 pages as the strategy puts forward what is suggested to be an all-encompassing vision for Kenya's future. Interestingly though, the *Green Economy Strategy and Implementation Plan (GESIP)* places far greater importance on the concept of sustainable development with the term appearing 25 times over 56 pages - this is 11 times as frequent per page than *Vision 2030*. In a small way this hints to the influence of the United Nations Environment Programme (UNEP) who helped to develop GESIP and who regularly champion the concept of sustainable development.

The importance of 'sustainable development' is also seen in the circular economy strategy by Soezer (2016), although such emphasis is not as extreme as compared to GESIP. Throughout all three of these documents there is a consistent understanding of mainstream sustainable development which is 'firmly anchored within the existing economic paradigms of the industrialised North' (Adams, 2008, p. 124). In this way, business is ascribed a critical role in enabling the country to achieve the aims of each strategy. In this regard the only substantial difference between the three documents is that Soezer claims that the transition to a circular economy can be financed through 'corporate sustainability schemes... and impact investing' (2016, p. 74). As Soezer's strategy is the most recent of this selection of discourse it suggests that the role of business is gaining ever more influence through the adoption of the circular economy in Kenya. This strongly echoes the pattern seen in the Global North where corporates are increasingly seen as a mechanism to deliver absolute sustainability (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017; Park et al., 2010). This is despite the worrying evidence of corporate instrumentalism and greenwashing (Hobson, 2016; Leach and Scoones, 2015, p. 131; Buseth, 2017; Heikkurinen, 2013; Hamann and Kapelus, 2004), which will be discussed in more detail in Chapter 7.

Further discourse analysis also reveals some notable differences in how the circular economy is emerging within Kenya's institutional context. Using Elkington's (2013) triple bottom line as a framework provides a useful way to compare the priorities of each strategy. Initially, from *Vision 2030* which was published in 2007, there is a strong focus primarily on economic considerations, shortly followed by social concerns. Yet despite some references to the environment, it is clear that the environment is very much on the periphery of *Vision 2030*. Such a dominant focus on the economy is also seen in GESIP in 2016, although there is now a notable distinction between the two strategies. Although GESIP is understandably more inclusive of environmental aspects (as a 'green' strategy), in doing so it is clear that social considerations have been relegated as the least important of GESIP's triple bottom line. This trend is then reinforced by Soezer, also in 2016, where the environment is the primary concern, closely matched by economic considerations, yet social concerns are severely curtailed and hardly feature. This echoes the way that both the green economy and the circular economy have notably avoided social dimensions in the Global North (Scoones et al.,

2015, p. 17; D'Amato et al., 2017; Kirchherr, 2017; Sauvé et al., 2016; Murray et al., 2017; Geissdoerfer et al., 2017, p. 766).

From this pattern we can get a sense of how the policies that ostensibly have emerged from Kenya's *Vision 2030* have been altered to follow trends in discourse by following concepts that emerged in the Global North. Thus from this example we can begin to see how discourse coalitions (Hajer, 1993, p. 45), around the green economy through GESIP (GoK, 2016a), and the circular economy through Soezer (2016), have framed these predominately political problems and might be leading to 'the (re)production of dominance and inequality' (van Dijk, 1993, p. 28) by the Global North onto the Global South.

Furthermore, the ways that social issues are addressed within this discourse is deserving of particular attention. The way in which *Vision 2030* addresses social issues is well demonstrated by the significant focus on Kenya's informal economy. It frames the critical role these workers can play as part of realising the vision, discussing the informal economy no less than 48 times. This level of detail would appear to be adequate when considering that in 2018 the informal sector accounted for 83.6% of total employment in Kenya (KNBS, 2019). However, this focus is substantially diminished in GESIP and Soezer.

GESIP gives only a singular mention to the informal economy in the sense that there is a need to 're-orient education and training' towards the skills needed for a green economy (GESIP, 2016, p. 6). Furthermore, although GESIP attempts to be a 'panacea to the uneven capitalist development of Kenya' importantly it removes inequalities from the discussion (Symons, 2014, p. 276). Most concerning from GESIP is that it hints towards the deliberate capture of benefits by elites by entrenching them into positions of power over any redistribution (Osano, 2011; Symons, 2014; Maina et al., 2013).

Whilst Soezer does acknowledge Kenya's informal economy slightly more than GESIP, this circular economy strategy does so only in suggesting that the informal economy is part of the problem, being responsible for disposing of vast amounts of human waste in a 'highly unsanitary' manner, rather than part of the solution (Soezer, 2016, p. 27). Furthermore, in discussing a recycling centre that would be funded through the programme backed by donors from the Global North, the Kenyan circular

economy strategy outlined the necessity to ensure there is 'no informal sector participation in its organization or management functions' (Soezer, 2016, p. 60). Such exclusion of the informal sector is a stark contrast to other bottom-up sustainable development initiatives, such as the way that Sanergy have catalysed informal sector *mkokoteni* labourers to create a solution to unsanitary human waste that will be discussed in Chapter 7.

So here we can see that concepts from the Global North (the green economy and the circular economy) when applied through Kenyan strategies have failed to adequately adapt to a context that is distinct to the Global North where these two concepts originated. This helps us to in part answer the fourth research question by developing one aspect of how a Kenyan interpretation of the circular economy compares to the archetypal circular economy of the Global North. The role of the informal sector also highlights that the discourse coalitions surrounding these concepts have proved to be too rigid to be well suited to the Kenyan context in which the concepts are being applied.

This pattern also manifests through an emphasis on technocentric modes of development. *Vision 2030* makes a few references to the use of technology to achieve the aims of the strategy. It also does so in reference to 'indigenous technology... [that] remains unmapped' (GoK, 2007, p. 21) and in this way supports the idea that such activities might already be making significant contributions akin to quiet sustainability through appropriate technology (Altamirano and van Beers, 2018). This minor interest in technology in *Vision 2030* is then rapidly expanded in GESIP and Soezer to the point whereby the use of new technology becomes a critical factor. Indeed in GESIP (GoK, 2016a) technology is mentioned on nearly every page. This again echoes the dominant technocentric discourse of the green economy (Scoones et al., 2015, p. 17; Leach, 2015, p. 37) and the circular economy (Mugge & Bakker, 2018; Hobson, 2016). So we can once more see that the Kenyan vision for future development has been altered to fit within the predominant views from the Global North.

In some ways it appears that Soezer is aware of this atypical context in which to apply circular economy theory. The strategy specifically sets out to describe a circular economy approach that is 'nationally appropriate' (Soezer, 2016, p. 43). In this sense, Soezer suggests an approach that is slightly different to how the circular economy is

normally understood in the Global North. However, in doing so Soezer uses the recycling rates of the USA and Italy as comparators, indicating the dominant influence of the Global North throughout this application. In searching for how the circular economy has been adapted to be 'nationally appropriate' (Ibid.), the main contrast is simply that Soezer's strategy is substantially less ambitious than typically expected of something that sits within the realms of the circular economy.

This strategy for Kenya primarily looks to recycle technical materials and compost organic materials to reduce the fractions of solid waste destined for landfill. Whilst this would support the ideal type of the circular economy, it is hardly the revolutionary paradigm shift that some European academics believe the concept to be (Prieto-Sandoval et al., 2018; Sgroi et al., 2018). This suggests how the use of the circular economy is more related to updating the terminology of environmental discourse in Kenya rather than towards radical changes in policy. This contributes to answering research question four and how a Kenyan interpretation of the circular economy differs to one from the Global North. In particular, Soezer's strategy highlights a divergence from idealistic and unrealistic circular economy discourse to the small changes that are planned in this circular economy strategy which are significantly more realistic and practical, but also much less ambitious.

Nevertheless, this 2016 circular economy document (Soezer, 2016) opened the door for the concept to enter the vocabulary of various government officials. Since 2016 there have been several statements from officials as high ranking as both Cabinet Secretaries for the Ministry of Environment and Forestry over the last few years. Both of these ministers have explicitly referenced the development of the circular economy in Kenya (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019). These statements, often made within or directed at bodies of the United Nations, emphasise that the circular economy spread to the government through international organisations working in Kenya who have promoted the concept to Kenya's educated elite. Whilst these statements may signal an increased interest in the circular economy from the Kenyan government, they were all essentially offhand remarks using the buzzword rather than meaningful statements of intent.

For example, Dr. Ibrahim Mohamed, the Principal Secretary who represented the Cabinet Secretary for the Ministry of Environment and Forestry, claimed that the draft

Sustainable Waste Management Bill 2019 was 'guided by the circular economy' and was a 'radical departure' from current practices (Ministry of Environment and Forestry, 2019). Yet the bill remains vague and only suggests step-changes such as the implementation of a 'polluter pays principle' without prescribing how this principle will be put into practice such that it can be measured and enforced (GoK, 2019, p. 18). So although we can see the Kenyan Government begin to formally engage with the terminology of the circular economy, the formal actions from this usage lie within the normal boundaries of the green growth development paradigm that is more prevalent in Kenyan policy than the concept of the circular economy (Kaudia et al., 2012). This was also confirmed during an interview in 2017 with PhD researcher Cecilia Gregersen, who was investigating renewable electrification in Kenya.<sup>7</sup> Gregersen confirmed that throughout her research in Kenya she had not come across any use of the circular economy concept, yet had seen almost all of her research participants engaging with some forms of 'green' development. Overall, from this example from Dr. Ibrahim Mohamed that formal, government-led circular economy praxis, that can be identified explicitly in Kenya, is not revolutionary. This leads us to investigate the more radical Kenyan sustainability policies to see if ideal type of the circular economy is being enacted but masked by other 'green' language that is predominant in Kenya.

Kenya's most controversial environmental policy of the last decade was the ban on plastic bags that was successfully implemented in 2017, ten years after it was first attempted (Behuria, 2019; Macharia et al., 2018). In the Global North outright bans have generally been determined to be too radical to be politically viable (Clapp and Swanston, 2009). Yet Kenya has realised this politically challenging environmental policy for waste management (Njuguna, 2018). A ban on plastic bags has been cited as one of the solutions of the circular economy (ten Brink et al., 2018; Horvath et al., 2018), including a specific reference to the Kenyan ban (Preston et al., 2019, p. 19). The wide range of circular economy policy measures advocated to date extends from outright bans to extended producer responsibility and using economic incentives, which are the most common market-based method in the Global North, to manage the

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<sup>7</sup> Interview with C. Gregersen on 26 September 2017 in Nairobi, Kenya.

polluting impacts of plastic bags (Martinho et al., 2017; Knoblauch et al., 2018). Kenya has now joined 64 other countries by implementing a ban on plastic bags to support their waste management strategies. The majority of these bans are within the Global South, versus the 31 countries that have enacted plastic bag taxes that are largely located in the Global North. This Kenyan ban enables us to see an example where perhaps a country in the Global South is pursuing policies that are distinctly more radical to more conservative, market-based policies that are typically considered in the Global North.

To investigate this we must first delve into the history of the Kenyan plastic bag ban. The ban was originally proposed by the United Nations Environment Programme (UNEP) in a 2005 report (UNEP, 2005), after campaigning by Wangari Maathai (Maathai, 2006; Clapp and Swanston, 2009). This echoes the pattern seen in many countries from the Global South where UNEP acted as the foremost instigator of plastic bag policies (Knoblauch et al., 2018). In 2007 the Kenyan government introduced legislation to ban thin bags and tax thicker ones (BBC, 2007). However, the ban failed due to a 'lack of consistent follow up on the agreed implementation plan' (Oyake-Ombis, 2017). Subsequently, the 2007 effort was dismissed as a 'purely cosmetic makeover' for the middle class (Wrong, 2009, p. 281), a sentiment that seems prescient and apt to describe some of the business as usual interests that will be seen in following cases articulating an instrumental type of the circular economy.

Kenya's *Vision 2030* then proposed a flagship environmental project for 2012 that was called 'The Plastic Bags Initiative' which suggested the tightening of 'regulations in order to limit production and usage of environmentally-detrimental plastic bags' (GoK, 2007, p. 19). There was little further detail on these plans beyond repetitions of the term 'regulations' (GoK, 2007, p. 128) in reference to plastic bags and a singular explicit reference to the use of 'market-oriented instruments to regulate the use of plastic bags' (GoK, 2007, p. 129) to achieve this 2012 goal. This goal morphed into an attempted ban on plastic bags in 2011, but it also failed for similar reasons as the 2007 ban (Goitom, 2017; Oyake-Ombis, 2017; Reuters, 2017). So although we can see there was some alignment between *Vision 2030* and subsequent policies enacted, this also demonstrates that there was ongoing debate around whether outright bans or market incentives for polluters to reduce the negative environmental externalities created by

single-use plastic bags would be most effective. Nonetheless, the failure of the legislation introduced in 2007 and 2011 (Oyake-Ombis, 2017) led to the government rethinking their strategy and introducing the more comprehensive plastic bag ban of 2017 that proved to be highly effective (Watts, 2018).

Interestingly, when considering GESIP (GoK, 2016a) this plan only mentions plastics once. This reference is to the objective to develop and 'implement legislation on extended producer responsibility for sustainable management of emerging waste streams including e-waste and plastics' (GoK, 2016a, p. 26). Considering the significant role that the management of waste is given in this plan, it is surprising that there is no further references to the management of plastic wastes and yet the plastic bag ban was gazetted just 6 months after this plan was published (The Star, 2017). To some extent this demonstrates how strategies that follow models from the Global North (such as the green economy in the case of GESIP) can be divorced from realistic implementation in Kenya as well as longer-term plans such as *Vision 2030*. The ban itself is just a single sentence added to the Environmental Management and Co-ordination Act which bans 'the use, manufacture and importation of all plastic bags for commercial and household packaging' (Wakhungu, 2017b) and so gives us little detail to analyse its relation to GESIP. Therefore, we must take note of how environmental discourse can be disjointed to practice in Kenya when trying to determine what Kenya's overall approach to the circular economy looks like. From this perspective, this study therefore focuses on the experienced reality for Kenyan businesses to build a bottom-up understanding of what the circular economy looks like in Kenya. Indeed, when interrogating the implementation of the 2017 plastic bag ban it reveals again how powerful discourse coalitions are influencing sustainability praxis in Kenya.

Following this chequered history there was significant skepticism about the 2017 ban. For example, Dr. Leah Oyake-Ombis, a prominent lecturer from the prestigious University of Nairobi and a Ford Foundation Fellow, believed the 2017 ban was 'not realistic... [as] the policy direction [was] not based on the local context or any extensive research regarding implications of the ban' (Oyake-Ombis, 2017). There were many negative impacts expected from the ban that were left largely unaddressed by policy makers. Many of these fell on Kenya's *kidogo* (small) economy, also known as the bottom of the pyramid market (Prahalad, 2006). For example, how a few millilitres of

cooking oil could no longer be packaged and sold in an extremely cheap polythene bag. Such small purchases became impossible after the ban without the availability of suitable and equally affordable alternative packaging materials. Further negative impacts were also cautioned in the lead up to the ban such as the prediction of significant closures of local manufacturers. These did indeed happen as these manufacturers failed to adapt to the legislation and many have since moved their Kenyan factories to neighbouring Uganda (The East African, 2017). Overall the ban was blamed for 100,000 job losses in the international media (Watts, 2018).

Despite these challenges the Kenyan Government has largely been congratulated for having succeeded in effecting the 'world's most drastic plastic bag ban' to date (Watts, 2018). The effectiveness of the Kenyan ban can be partially attributed to the draconian penalties threatened by the government. It was even cited as the 'world's toughest law against plastic pollution' (New York Times, 2019). The fear of a 4-year prison sentence and a US\$40,000 fine also enabled the plastic bag ban to dominate the Kenyan headlines for months, ensuring widespread awareness of the ban (Daily Nation, 2017; The Standard, 2017; The Star, 2017; Business Daily, 2017a). The success of this policy informs this Kenyan interpretation and suggests that future implementation of the circular economy in Kenya will differ to the forms established in the North, potentially by relying on an authoritarian approach. Essentially, this plastic bag ban demonstrates that when a regenerative material flow seems entirely unrealistic for a specific product, the Kenyan government are prepared to use outright bans. This could potentially have addressed the ideal type of the circular economy if it had resulted in the use of more circular products, such as traditional sisal bags made from natural materials. Therefore, in this sense, it is arguable that Kenya is indeed pursuing sustainability avenues that are beyond the current conception of the circular economy in the Global North.

In spite of these strong sustainability actions, there is a more holistic and cynical viewpoint that needs to be considered to understand why the Kenyan government enacted this policy - considering if the policy was more simply performative and designed for an eco-conscious international audience. Tourism plays a vital role in Kenya's economy where 'it dominates the service sector' and is 'its third largest source of foreign exchange', contributing 10% of GDP per annum (Mogollon, 2017, p. 3).

Therefore, Kenya's international reputation as an environmentally-friendly country and a leader in wildlife conservation practices is a priority for the government. Considering the way that previous attempts at a plastic bag ban had been dismissed as a 'purely cosmetic makeover' for the middle class (Wrong, 2009, p. 281), then it is worth asking if the 2017 ban was inspired by non-environmental motivations.

The national and international media were used as a vital element of the 2017 ban's implementation. The Cabinet Secretary for Environment and Natural Resources, Professor Judi Wakhungu, galvanised the international media to advertise the ban by enforcing the customs agents at Kenya's international airports to remove all plastic bags from luggage for the first month of the ban. This created a buzz of attention as the media picked up on the controversial story of agents rifling through passengers luggage searching for plastic bags. While these actions had minuscule environmental impacts, it brought a newly greened 'brand Kenya' to international headlines (Aglionby, 2017; The Economist, 2017; Reuters, 2017). This certainly goes against the idea of quiet sustainability, instead demonstrating loud sustainability. In this way it also raises questions as to whether the plastic bag ban amounted to a form of greenwashing (Miller, 2017) as the policy indicated such strong links to image management for brand Kenya. Furthermore, there is also a possibility that the power of discourses, such as the circular economy, had coaxed the Kenyan government into enacting such a policy in order to be seen to be as an ally of such an environmental discourse coalition.

Certainly trying to weigh up the environmental benefits of the ban against the social impacts of a potential 100,000 job losses in a country with 55% youth unemployment is a difficult political decision (Awiti and Scott, 2016), even if the policy was being championed by the United Nations (AFR, 2018; Clapp and Swanston, 2009; Knoblauch et al., 2018). Overall, the realities of this policy change did not bring about the circular economy ideals of creating jobs whilst protecting the environment. Therefore, in this instance, the environmental priorities were not given equal weighting to the social costs of the policy, making this policy incompatible with this thesis' working definition of the ideal type of the circular economy.

If the ban was to realise the holistic benefits of the ideal type of the circular economy, then it would have needed to more directly support local replacements for plastic bags. There were claims that the ban would lead to local manufacturing of

traditional baskets made from sustainable supplies of organic sisal; however, the sector has not seen growth since the ban (Mwaniki, 2018). These traditional sisal baskets of Wangari Maathai's childhood (Maathai, 2006) embody quiet sustainability by providing a sustainable alternatives to plastic bags. However, these did not replace plastic bags as to do so would have required a cultural shift of consumers bringing their own bags rather than relying on shops to provide disposable bags. Instead, as a consequence of the plastic bag ban, Kenya saw the proliferation of imported non-woven polypropylene bags that are made from recycled plastic, yet were not banned under the new legislation (DoneMark, 2019).

Whilst this is arguably a step-change away from the most environmentally damaging plastic bags that are made directly from crude oil (Khoo et al., 2010), it is hardly the green 'brand Kenya' that was promoted by the government. In this sense we can see this policy emulating aspects of the instrumental type of the circular economy. Nor is this drastically different to results of how plastic bags have been partially phased out through taxation in much of Europe (Xanthos and Walker, 2017). So although the ideas of the circular economy might be implemented in different ways in Kenya, fundamentally the outcomes of these sustainability policies are still not congruent with strong sustainability. In this case the implementation of a circular economy policy in Kenya was diametrically opposed to quiet sustainability and instead shared much with the instrumental type of the circular economy.

Overall, this exploration into recent environmental policies in Kenya enables us to begin answering the first research question and build a picture of the forms the circular economy is taking in Kenya. This answer is primarily that in some ways Kenyan policies are being influenced by discourse coalitions from the Global North in ways that are unable to sufficiently adapt to a context that is atypical to the Global North. Subsequently, key aspects of the Kenyan context are being overlooked, such as social justice and indigenous technology, with an emphasis instead being placed on the primacy of corporates. That said, these international influences that are promoting the circular economy have so far failed to revolutionise sustainability practice in Kenya and much that is explicitly aligned with the concept echoes business as usual practices. So while some government-led efforts are currently couched in the vocabulary of the circular economy, they nonetheless share much with the instrumental type of the

circular economy through its sustainability failings. Furthermore, the government-led articulation of the circular economy in Kenya is notably absent of social justice or attempts at poverty reduction.

## **4.5 - Conclusion: The Circular Economy Is Implicitly Identifiable in Kenya**

This chapter has outlined where and how the circular economy can be understood in Kenya to begin answering the research questions; principally the first question, by beginning to understand what forms the circular economy is taking in Kenya. This section began with the working definition of the circular economy that enables us to focus on the most pertinent elements of this umbrella concept and put an emphasis on social justice that is critical to the Kenyan context. Then the reasons as to how and why the ideal type of the circular economy, as espoused by the discourse coalition from the Global North, is relevant, and in some ways more pertinent to countries such as Kenya, were detailed. From these reasons there are several normative aspects of the ideal type of the circular economy that are potentially beneficial to Kenya.

The first of these reasons is that green economic decision-making is largely in its infancy in Kenya (Faccer et al., 2014; Momanyi, 2017). This means that Kenya has many opportunities to leapfrog to more sustainable systems rather than need to retrofit existing unsustainable systems (Szabó et al., 2013). Secondly, there is the optimistic argument proposed by circular economy advocates that the concept leads to wealth creation (e.g. Ellen MacArthur Foundation, 2016). However, this chapter has challenged this discourse coalition by noting how in practice the instrumental type of the circular economy has potential negative economic, environmental and social impacts on the Kenyan economy. There are also potential knock-on impacts of the circular economy's adoption in the Global North and as its discourse gains more power. In particular this may result in circular conditionality of financing as has been seen from recent green conditionality in Kenya (Mazzucato, 2015; EWIT, 2017a, 2017b; Death, 2016; Cormack and Kurewa, 2018; Osiol et al., 2017). Including critiques from countries

such as Kenya is vital to somewhat counter the power of the existing discourse coalition and avoid a new sustainability paradigm that could echo the harmful impacts seen by the earlier neoliberal discourse coalition (Harrison, 2005). Lastly, analysing the circular economy in a Kenyan context using the conceptual framework of quiet sustainability (Smith and Jehlička, 2013) helped to develop a conceptualisation of the circular economy that addresses an international development critique and the need for the circular economy to be more inclusive of social justice dimensions.

This background led us beginning to answer the third research question by revealing how aspects of the circular economy have been present within the Kenyan economy for decades, under various sustainability guises such as eco-development (Riddell, 1981). However, the way that the terminology of the circular economy spread to Kenya was in a similar way to how green economy terminology emerged. A variety of primary and secondary sources evidenced that the concept originated from the Global North, first spreading to sub-Saharan Africa through South Africa, and then to Kenya, predominately through the influence of the UN. Interviews confirmed that there are only a few instances of the circular economy appearing outside of UN or governmental bodies. While the concept is beginning to gain some traction, it is still far removed from mainstream sustainability discourse in Kenya and is only known by a select few. Nevertheless, the concept's terminology has become established in government circles through a UN supported government strategy document (Soezer, 2016) as well as several Kenyan officials beginning to use the vocabulary of the circular economy. Although some of Kenya's recent environmental policies, such as the plastic bag ban, are distinct from their equivalents in the Global North, the overall impacts have highlighted the shortcomings of the instrumental type of the circular economy.

Two main arguments arise from this chapter that challenge the existing literature. Firstly, that aspects of the ideal type of the circular economy exist in Kenya implicitly, whereas explicit use of the terminology is still emergent. In this way, this chapter confronts the majority of circular economy literature that is exclusive of swathes of the Global South. Instead I argue that the values of the circular economy are not exclusive to the world's most industrialised and developed economies, but are also relevant to the Kenyan context too.

The second argument is that recent government-led implementation has largely represented the instrumental type of the circular economy in Kenya, which has been diametrically opposed to quiet sustainability. This was seen through the ban of plastic bags that exemplified the way this circular economy policy was used as a green branding opportunity, articulating loud sustainability.

The discourse analysis presented in Section 4.4 further revealed that circular economy discourse is far from revolutionary in Kenya, yet it is also worryingly divergent from Kenya's own agenda as laid out in *Vision 2030* (GoK, 2007). In these ways the extant environmental discourse coalitions seem to be reducing Kenya's focus on social issues through means such as replacing an interest in indigenous technology with a technocentrism focused on high-tech from the Global North. Moreover, extant circular economy discourse further emphasises the primacy of businesses and corporates to the detriment of interests in realising social justice. This highlights questions around whether the concept has a neoliberal alignment that could be harmful in Kenya. Notably such challenges have recently been exemplified by the recent green conditionality of funding from multilateral development banks and international donors (Mazzucato, 2015; Baker, 2006, p. 162; EWIT, 2017a, 2017b; Death, 2016; Cormack and Kurewa, 2018; Osiol et al., 2017).

To answer these questions we will turn to the main case studies of this research. The next three chapters will examine the realities of the circular economy on the ground in Kenya, using more of this research's empirical evidence to analyse the paradigmatic potential of the circular economy in this context.

## **Chapter 5 - How Kenyan Businesses Link the Circular Economy to International Development**

This chapter situates the analysis of the circular economy in Kenya and this research's case studies by establishing how these key businesses link to the circular economy and subsequently to international development. This is done primarily by providing the necessary background information of the key companies studied so that we can begin interpreting the empirical evidence from each case and comparing them against one another. Each of these cases are an example of a business that is actively contributing to the circular economy in Kenya, albeit generally without using such terminology. This chapter sets out to establish an understanding of this research's key cases: their origins, their business models, their motivations, and most importantly to establish their relevance to the circular economy. Using a structured framework for analysis reveals the details of these companies and helps to situate this analysis of the circular economy within the Kenyan context that is atypical to most circular economy discourse from the Global North.

The following chapters will then draw upon this in-depth knowledge of these examples, combining with other data gathered from the rest of this research, covering 102 interviewees from a wide range of industry sectors in Kenya. This enables this research to give an overview of the circular economy in Kenya whilst also going into sufficient depth to understand the complexities of this concept's nascent evolution in Kenya. Data from these other interviews will also help to interpret the data from the main examples. However, it is not necessary to give as much background to this wide range of sources as their contributions to this research are generally simpler and require a less detailed understanding to infer the pertinent points. To quickly summarise, these additional interviewees comprised of: businesses that were initially investigated for their suitability to become a main case study, Kenyan experts from fields related to the circular economy, government officials, environmental interest groups and other organisations with relevant expertise. In total these interviewees ranged from founders and directors to staff and volunteers, large government bodies

and multinational corporations to sole trader businesses, and covered a wide spread of industrial sectors. The three main cases were selected from this extensive range of informants as the most relevant and interesting organisations from which to analyse the circular economy in Kenya, tempered by considerations of accessibility and other research limitations discussed in Section 3.7.

A number of waste management companies in Kenya were sampled for this research, such as the Mazingira Safi Initiative detailed in Section 3.4. However, only one waste management company was selected to be a primary case study. This was purposefully done as the circular economy aims to be a holistic concept that is applicable beyond waste management considerations alone. Therefore, whilst there are a multitude of waste management companies in Nairobi, this research aims to show through the other examples that the circular economy can be equally applied to companies whose primary business is unrelated to waste management. Furthermore, these three examples are not meant to be representative of the circular economy in Kenya. They are more simply an attempt to follow the Nyabola's lead in describing 'systems, process, events or spaces in Africa in a way that speaks as close to the truth as possible about quotidian life on the continent' (Nyabola, 2018, p. xxiv). This enables each case to be analysed as an example in its specific context rather than an attempt to produce generalisable conclusions.

When considering the Kenyan businesses studied in this research, it is clear that they all are intrinsically connected with Kenya's poor. For some businesses the poor are their consumers, for others they are their suppliers. The critical point is that because of the scale of income inequality in Kenya any application of the concept must engage with this socio-economic dimension (Oxfam, 2019; SID, 2004). To date circular economy debates have largely overlooked social justice concerns (Kirchherr, 2017; Hobson, 2016; Hobson and Lynch, 2016; Geissdoerfer et al., 2017; Moreau et al., 2017). Therefore this chapter addresses debates surrounding social and environmental justice in an international development context. There is a voluminous literature detailing with the complexities of whether business models can lead to poverty reduction or not.

Wausi et al.'s study has recently emphasised the significance of the informal *jua kali* sector in Kenya that is increasing twice as fast as the formal sector, whilst also

highlighting the importance of SMEs in job creation (Wausi et al., 2013, p.21). This study also backs up Blowfield and Dolan's (2010) analysis that showed how complex it is to determine whether a business is acting as a development agent or not, even when explicitly connected to the international development community. Furthermore, both of these studies emphasised that, regardless of the intentions of businesses in Kenya, they have a fundamental impact on the poor and marginalised, be it positive or negative.

Social justice has been strongly and explicitly linked with environmental justice in Kenya for decades, in large part due to the efforts of Wangari Maathai's Green Belt Movement that further connected gender, development, environment and sustainable development in Kenya (Muthuki, 2006; Asiema and Situma, 1994; Njeru, 2006). However, from these studies it is unclear the role SMEs might play in making positive environmental as well as social contributions and if so, how they can do this. Therefore, this chapter will look at cases of Kenyan businesses that appear to address some environmental and social challenges and see if they are able to do so. This also enables us to see if such activities alter how they are connected to Kenya's low-income populations.

Beyond this main line of enquiry, the cases presented in this chapter also help to answer more specific questions too. The Stonehouse case study will highlight how Kenya's lower-middle income context can also support innovation and create forms of the green technological leapfrogging envisaged by international practitioners Doig and Adow (2011). The Bintis case study presents an opportunity to investigate how quiet sustainability (Smith and Jehlička, 2013) is practiced in Kenya but is also threatened by new Western conceptions. From the Sanergy case we will see how they address the often critiqued short-termism of international development practice (Chandy and Kharas, 2011; Severino, 2010) by following a circular economy business model in selling a service rather than a product. Sanergy also enable an investigation into whether public-private partnerships can be a suitable tool for implementing the circular economy as suggested by Laubscher and Marinelli (2014). This provides opportunity to address the critics of private-public partnerships who suggest they are a tool of neoliberal development that can subordinate sustainability (Miraftab, 2004; Moure-Eraso, 2008, p. 1041). From this diverse set of literature, this chapter helps to situate

this analysis of the circular economy in Kenya within international development discourse.

Overall, this chapter will provide an analytical overview of the key examples of this research, giving an in-depth explanation as to how each company is addressing the circular economy in Kenya. This analysis will reveal the ways that each company is contributing to the economic dimensions of the circular economy as well as the social and environmental aspects of the ideal type of the concept. In doing so, the empirical evidence of each case study will back up the argument of Chapter 4 that the circular economy is implicitly identifiable in Kenya. From this explanation we will begin to build an interpretation of the circular economy that is specific to Kenya. Furthermore, this chapter will explain how and why this consideration of the circular economy in Kenya is innately connected to over 17 million citizens living below the international poverty line (World Bank, 2018). As will be seen, this context is a critical reason as to why businesses that have ambitions to make a positive environmental impact typically also exhibit similar desires to make a positive social contribution. In doing so this chapter will explain how and why the circular economy in Kenya is strongly linked to international development.

## **5.1 - Connecting International Development and the Circular Economy**

In Chapter 2 the few and far between links between the circular economy and the field of international development, that are evident in current discourse, were outlined. The examples given in Chapter 4 began to evidence that there are a multitude of activities within Kenya that could be regarded within the sphere of the circular economy. This chapter will begin to analyse some of the key companies researched to see how their businesses are engaging with the circular economy and revealing their innate linkages to international development. First though it is helpful to establish the basis of the following argument that the field of international development is inextricably linked when considering the circular economy in Kenya.

Kenya is a developing country where over a third of citizens live below the international poverty line (World Bank, 2018). Subsequently, Kenya receives a substantial amount of foreign aid each year. For example, in the recent past aid from the United States to Kenya has totalled about US\$1 billion a year of the US\$5.6 billion the United States give on average to the entire African continent (Daily Nation, 2009). As established in Section 4.4, international influences have been fundamental to the spread of the circular economy to Kenya from the Global North. Therefore, inevitably the international influences of the concept interplay with international development practice when considering it in the Kenyan context. This interplay is exemplified by the recent adoption of the circular economy by the major global charity, Tearfund.

Although at the onset of this research there were relatively few cases where the circular economy was being explicitly used by international development organisations, Tearfund were beginning to do so. In 2017 Tearfund Scotland hosted the launch<sup>8</sup> of its report *Virtuous Circle: How the Circular Economy Can Create Jobs and Save Lives in Low and Middle-Income Countries* at the Scottish Parliament (Gower and Schröder, 2016). According to Charlie Bevan, the Advocacy and Campaigns Manager at Tearfund Scotland, there were multiple reasons why Tearfund had begun to describe their development programmes through the terminology of the circular economy. The primary reason was that as the Global North begins to tire of sustainable development as a key buzzword being able to talk about Tearfund's international development work in the new vogue of the circular economy was increasingly important to engage donors.<sup>9</sup> A secondary reason Bevan gave was that Tearfund's beneficiaries from the Global South needed to have a voice in the development of the increasingly powerful concept. This would help ensure issues, such as the exportation of unsustainability, that emerged as a consequence of the Global North's search for sustainable development (Adams, 2008, p. 359), do not persist. A classic example of the exportation of unsustainability is the 1999 European Union ban on leaded-petrol that caused the poisonous fuel to appear at reduced prices in African markets (McDonough and Braungart, 2009, p. 13). On the other hand, if some aspects of the circular

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<sup>8</sup> Interview with C. Bevan on 28 August 2017 online.

<sup>9</sup> Ibid.

economy are achieved in the Global North, such as internalising material loops within the region or nations themselves, then this would help mitigate these challenges (Nar, 2014).

Overall, considering the Western roots of the circular economy and the significant number of Kenyans living below the international poverty line, any contemplation of the circular economy in Kenya is innately connected to the poverty reduction focus of international development (Gore, 2010). We can now begin to look in-depth at the three main case studies which will further explore how some of the cases typify the confluence of these often distinct realms.

## **5.2 - Overview and Structure of the Key Case Studies**

At this point it is helpful to give a detailed background to the three key case studies presented in this chapter. Each of these cases is analysed in regard to the core themes that were noted during the research. This structure enables a comparison across the cases to help build an analytical exploration of the similarities and differences in how circular economy ideas are articulated by these companies. The following table summarises how each company addresses these core themes in regard to the circular economy and sets a common structure against which each case is analysed.

In considering each cases' triple bottom line, the categories of social, environmental and economic have each been assigned a rating that gives an preliminary impression of the impact that each business is making when considered against one another. This rating is not intended to be used outside of this context but simply to enable references to be drawn between each case study presented in this thesis. This follows on from the scorecard approach that has been popularised in international development by organisations such as Oxfam (2020).

The rating of 'strong' has been given to a business that can demonstrate how they are making significant positive contributions in one of these aspects. For example, the way that Sanergy are providing sanitation services to Nairobi's urban poor has been categorised as a 'strong' contribution to their social impact. At the other end of this spectrum a rating of 'weak' has been given to businesses that were unable to

demonstrate significant contributions when considering the sum of all their activities. For example, Sanergy have been awarded a rating of 'weak' for their economic model because, although they are generating some revenue, their business requires significant charitable funding which implies their activities are subsidised to a significant degree. The last categorisation of 'moderate' is used when the sum of a business' activities lie in-between the ratings of 'strong' and 'weak'. For example, whilst Bintis have established a for-profit model for the company, the business is nonetheless struggling to grow, as readily admitted by the founders,<sup>10</sup> therefore their economic model was deemed to be less sound than Stonehouse who were able to evidence strong economic growth. That said, when compared to Sanergy who receive charitable contributions, Bintis' economic model is arguably more profitable and therefore they have been awarded the rating of 'moderate' for the purposes of comparisons between the cases of this research.

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<sup>10</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

**Table 4: How Circular Economy (CE) Themes Are Addressed by the Companies**

<b>Theme</b>	<b>Sanergy</b>	<b>Bintis</b>	<b>Stonehouse</b>
Social impacts	Strong Providing sanitation services in urban slums	Weak Attempting to support smallholder farmers through fair trade	Strong Building education infrastructure
Environmental impacts	Moderate Reducing pollution from inadequate sanitation Carbon intensive system	Moderate Attempting sustainable production e.g. through packaging choices and partners in their supply chain	Strong Use of renewable energy technology
Economic model	Weak Social enterprise with charitable funding	Moderate For-profit business	Strong For-profit business
Geographic scale	Highly localised	National	National
Enterprise size	Medium	Small	Small
Sector	Waste management	Fast moving consumer goods	Digital infrastructure
Policy interactions	Heavily involved	None	None
High-tech or low-tech	High-tech through anaerobic digesters Low-tech through the Tippy Tap and <i>Mkokotenis</i>	Low-tech	High-tech
Loud or quiet sustainability	Quiet sustainability	Quiet sustainability	Quiet sustainability
Use of CE terminology	Yes - from 2019 onwards	No	No
Type of CE	Actually existing	Actually existing	Actually existing

Now, with this structure we can begin to go into the detail of each case study. This structure has been applied when analysing each of the case studies conducted for this research, although the following sections of this chapter will delve into some pertinent details of each case in more detail than others where relevant. After each of the three main case studies has been presented the most revealing similarities and differences will be concluded in Section 5.6, referring back to this table as well as the information provided in the body of this chapter.

### **5.3 - Sanergy: A Business Where International Development Meets the Circular Economy**

Sanergy is a social enterprise based in Nairobi that aims to provide a business solution for the sanitation challenges of the urban poor. Sanergy provide a container-based sanitation service through their Fresh Life Toilets - essentially a permanent version of a portaloo. They sell the housing for their outhouse as well as the toilet but more importantly provide a long-term waste disposal service. The company claim to have developed a full value chain approach to address the challenge of sanitation in urban slums through their solution. They process the waste collected from their network of toilets to create saleable products such as compost and an insect-based animal feed. Their first Fresh Life Toilet was installed in the Mukuru Kwa Njenga slum of Nairobi in 2011. To begin with it is helpful to understand the scale of Sanergy's operations which is fundamental to how their business model is able to articulate forms of the circular economy.

#### **Enterprise Size and Geographic Scale**

Sanergy's operations have reached notable a size, an aspect critical to their long-term business strategy. As of 2019 they claim to have just over 250 employees, implying that the company is a large-sized enterprise, albeit just within the Kenyan, European Union and UK threshold for a large company of 250 employees or more (Bacon and Hoque, 2005; Mwangi, 2016). However, Sanergy's turnover of

US\$3,133,114 in 2016 (Guidestar, 2016) is well below the €50 million EUR per annum threshold to be considered a large-size company in the European Union (European Union, 2008). Similarly it is below the equivalent 800 million KES (US\$8 million) threshold, that is often used, but is not formally defined, in Kenya (Adeyeye, 2016). Therefore, when considering Sanergy's employment and financial figures together it is clearer that for the purposes of this study Sanergy should be considered a medium-size company. To date the company's operations are highly localised working in only a few urban slums within Nairobi.

### **How Sanergy Address the Circular Economy**

Sanergy's work in waste management easily links to the circular economy as the company claim to be creating a new business model from waste. Essentially Sanergy are working to eliminate waste by closing the loops in the sanitation value chain from urban slums. Sanergy's contributions to the circular economy have been highlighted by the international development charity Tearfund. This was in regard to how Sanergy's container-based sanitation service 'processes the waste into high-quality agricultural inputs and renewable energy' (Gower and Schröder, 2016, p. 16). Sanergy's full value chain approach to waste management attempts to turn the costs of disposing of human waste in an environmentally friendly manner into profitable products such as compost. This business model encapsulates the essence of the circular economy that eliminating waste can create economic value.

Sanergy's ability to turn waste into saleable products is critical to their business model, primarily because they aim to serve low-income consumers and make a social impact in doing so. All of Sanergy's team that were interviewed emphasised that the biggest explanatory factor for the poor sanitation infrastructure in Nairobi's slums is simply the paltry public budget allocated to these public services. In 2016 Nairobi County had a budget of US\$3 per person per year for sewerage services (Patel, 2016). At this time comparable African cities such as Dakar, Senegal were spending US\$57 per person per year to maintain their traditional sewerage system. Traditional sewerage describes a network of underground pipes that carry sewage from buildings to treatment facilities or disposal points. This is a stark contrast to Kenya's commitment to raise sanitation spending to US\$12 per person per year by 2030 (ibid.).

According to Sanergy's communications officer, Sheila Kibuthu, their model currently supplies sanitation services at a cost of US\$24 per person per year.<sup>11</sup> Kibuthu claimed that through scaling their container-based solution to the estimated eight million Kenyans that live in slums (Tinsley and Agapitova, 2018) where poor sanitation is ubiquitous, they will be able to reduce their costs to Kenya's US\$12 per person per year commitment. In order to achieve this they need to offset more of their costs through their sales of products made from the waste collected such as their composts and animal feeds.<sup>12</sup>

The lack of adequate infrastructure, especially for sewage, in urban slums leads to well known health and environmental hazards (Baker, 2006, p. 124). The impacts of these hazards leads to lost productivity that has been calculated to cost the Kenyan economy 27 billion KES (US\$270 million) annually (Water and Sanitation Program, 2012). Sanergy's founders' believe that the costs of this negative externality will be internalised by the government in the near future. When this happens Sanergy hope to provide a suitable public-private partnership option such that they can provide an affordable sanitation solution for Kenya's slums. The development of this public-private partnership proposition is of particular interest as it enabled this research to investigate this neoliberal mechanism (Miraftab, 2004) for implementing the dominant conception of the circular economy (Laubscher and Marinelli, 2014) that was earlier summarised in Table 2. Overall, Sanergy's model aims to demonstrate that there is economic value to be found in solving this social and environmental problem for Kenya's urban poor.

In 2017, according to the staff interviewed on the subject, they collectively agreed from their managerial positions that the majority of Sanergy's 250 staff were unaware of the circular economy concept.<sup>13</sup> Indeed one of the three co-founders, David Auerbach, did not yet see the concept as being pivotal to their business model, despite its close linkages and his own personal familiarity with the concept.<sup>14</sup> However, other international organisations and media, such as Tearfund and Reuters, have explicitly

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<sup>11</sup> Interview with S. Kibuthu on 21 July 2017 in Nairobi, Kenya.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

linked Sanergy to the circular economy since 2016, often within an international development context (Gower and Schröder, 2016; Toilet Board Coalition, 2016; Reuters, 2019b). Typically these reports featured Sanergy as an example of a business that is addressing sanitation challenges in low-income communities by following the principles of the circular economy and ‘harnessing the value that can be generated from organic waste’ (Gower and Schröder, 2016, p. 16). Auerbach noted that for his team at Sanergy, there were only a handful of people, such as himself, who regularly interacted with the media, researchers and international donors or impact investors who were interested in concepts such as the circular economy. Therefore, the vast majority of their team did not need to be conversant in terminologies that were more broadly understood through more popular terms such as sustainability.<sup>15</sup> Nevertheless, over the research period it became clear that the terminology of the circular economy became increasingly attractive for Sanergy and in 2019 Sanergy began explicitly using the terminology of the circular economy in their public literature (Sanergy, 2019a).

### **Social Impacts**

Beyond the economic benefits of Sanergy’s business model that fit within the circular economy, there is clear social connection from the social enterprise. Fundamentally Sanergy is an international development organisation. The company was founded as a social enterprise by three students who received an award from their American university, the Massachusetts Institute of Technology. David Auerbach, Lindsay Stradley, and Ani Vallabhaneni went on to found the company, striving to create a solution to the sanitation crisis in Kenya’s urban slums. Sanergy is now a predominately Kenyan company with 95% local staff<sup>16</sup> of which 60% live in the communities Sanergy serve (Sanergy 2019c). This confluence of international development being articulated through a Kenyan company was a significant factor in choosing to do more in-depth research with Sanergy. In this way the company provides a critical instance case where the international development sector explicitly meets a circular economy business model.

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<sup>15</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

<sup>16</sup> Ibid.

Furthermore, Sanergy's mission statement states that the company prides itself on upcycling waste flows to build 'healthy, prosperous communities by making safe sanitation, accessible and affordable for everyone' (Guidestar, 2016). In these ways Sanergy's approach diverges from for-profit waste management and is actively pursuing a social agenda in trying to improve the lives of Kenya's urban poor. From this background where the company is inextricably linked to international development, Sanergy provides a critical instance case for this research, evidencing and highlighting the under-reported links between the circular economy and the field of international development.

Knowing the background to how Sanergy was founded helps us to understand why their business model and interest in sanitation are different to others in their industrial sector, such as Veolia. Veolia are a self-proclaimed global leader with 160 years of experience in waste management including municipal sanitation. They can readily be seen engaging with the branding opportunities available through the vogue of the circular economy, for example by partnering with the Ellen MacArthur Foundation (Veolia, 2019a; Veolia, 2019b). Recently Veolia were seen branding themselves as a circular economy company whilst cynically laying claim to Sanergy's social impact.

In 2019 Veolia's Senior Executive Vice President, Laurent Auguste, implied at the World Bank's opening plenary session of Water Week that Veolia had been developing a 'disruptive sanitation business model for people on low incomes that is based on circular economy principles and will create value' (Veolia, 2019c). Incredulously Auguste failed to mention Sanergy despite his lengthy description of their operations and that Veolia have only done a small amount of consultancy work with Sanergy through their membership of the Toilet Board Coalition that links Veolia to their work. From this example we can see that Veolia are articulating the instrumental type of the circular economy through 'loud sustainability' as Veolia continue with their business as usual practices. Of course it is hard to prove that Veolia are engaging with new forms of greenwashing through the instrumental type of the circular economy. Yet the example given here encapsulates the essence of loud sustainability as Veolia are rhetorically using the circular economy. This example also echoes the complaints of other critics of Veolia. Veolia have previously been accused of embodying the excesses of capitalism, particularly for their activities in the Global South (Baars, 2016). So although Sanergy

occupy the same industrial sector of waste management as Veolia, the way the two companies are addressing the circular economy is vastly different.

Overall, it is clear that Sanergy are creating significant positive social impacts by providing a sanitation solution for some of Nairobi's urban poor. To enable a comparison with the other cases considered in this research Sanergy has been rated as providing a strong social impact.

### **Environmental Impacts**

In order for Sanergy to address the ideal type of the circular economy it is necessary for them to make a positive environmental contribution as well as addressing social and economic dimensions. Sanergy's container-based sanitation service provides an alternative to the more common pit latrines and Nairobi's 'flying toilet' (Lusambili, 2011), both of which often cause several harmful environmental impacts. These inadequate sanitation systems result in large areas of land and watercourses becoming contaminated with faeces decimating local flora and fauna. Furthermore, pit latrines are a well known source of greenhouse gas emissions (Reid et al., 2014). Sanergy does not claim to be a carbon neutral company; however, they do believe their solution to be a step-change from the relatively higher greenhouse gas emissions of pit latrines.<sup>17</sup> Therefore, on the basis of these claims it appears that Sanergy are also promoting more carbon-friendly systems as per the requirements of the ideal circular economy. The extent of this contribution is complex though, and will be investigated in more detail in Section 6.4 to see whether Sanergy's business model is overall reducing carbon emissions in Kenya.

They are also reducing waste in other areas beyond sanitation through their promotion of bricolage entrepreneurship. Alongside their toilets, Sanergy also provide a handwashing station. In schools they also train teachers on how to construct a 'Tippy Tap' - a handwashing station made from upcycled waste materials that has often been promoted through international development activities (Zhang et al., 2013). There are many varieties of the Tippy Tap, largely depending on the availability of local materials

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<sup>17</sup> Interview with S. Kibuthu on 21 July 2017 in Nairobi, Kenya.

and aesthetics, but essentially it is a jug that pours a few millilitres of water for the user to wash their hands with whilst controlling the water flow with a foot lever. Most commonly these taps are made with large water bottles that have been discarded, string and sticks. Typically they will cost less than US\$1 to construct. Tippy Taps have been cited for improving hygiene, but also saving water compared to conventional faucets, further promoting their environmental impact (Zhang et al., 2013). So by promoting the use of Tippy Taps Sanergy are promoting health outcomes for their users whilst also improving their environmental impact. In conclusion, Sanergy are clearly making some positive environmental contributions; however, they are also doing so in a potentially carbon intensive manner. Therefore, Sanergy have been rated as making moderate environmental impacts for the purposes of this study's comparisons.

Overall, by addressing economic, social, environmental aspects, as well as the elimination of waste mantra, of the circular economy, this suggests that from the outset Sanergy's business is pursuing the ideal type of the circular economy described in Chapter 2. This balanced approach that addresses their triple bottom line (Elkington, 2013), was significant in choosing this company for the case study. From initial interviews with other waste management companies at the outset of this research, such as TakaTaka Solutions, East African Compliant Recycling and the Mazingira Safi Initiative, it was clear that these companies all failed to provide such a balanced approach that addressed the ideal type of the circular economy. For example, the Mazingira Safi Initiative had an explicit focus on waste-to-energy, yet waste-to-energy systems have been shown to be in conflict with the aims of the dominant circular economy conception (Muznik, 2017). Therefore, from these waste management companies initially interviewed, Sanergy was chosen as the most suitable company for further in-depth research.

Furthermore, it is clear that Sanergy's business model is wholly dependent on providing a service to the inhabitants of Kenya's slums and stems from the founders' respective backgrounds studying international development in the USA. In these ways Sanergy's circular economy business model is inextricably linked to Kenya's urban poor and the exponential growth of cities. Sanergy's case also highlights how, in this instance, the conceptualisation of the circular economy from the Global North needs to be updated with a pro-poor approach to account for this low-tech and fundamentally

social business model. In summary, Sanergy's unique role in straddling two disparate worlds of the circular economy and international development provides a critical instance case for this research to investigate this phenomenon in Kenya.

### **Sanergy's Circular Economy Service Model**

An often cited aspect of the circular economy is its promotion of selling services rather than products (Tukker, 2015). These business models can range from hiring and leasing, asset management, full service systems, collaborative consumption to even just designing products for longer life, supporting them with guarantees and trusted repair services. Such models directly address a major critique of international development practice, short-termism (Chandy and Kharas, 2011; Severino, 2010). By analysing Sanergy's business model we can then see how these typically disparate fields meet and align in a Kenyan context.

Sanergy have created a private sector solution for sanitation at the household scale. In doing so, they have pivoted from traditional private sanitation solutions, such as septic tanks or pit latrines, to create their service solution where collecting the waste is as commercially viable. Sanergy's business model can only be used as a service. Without Sanergy's regular connections each Fresh Life Toilet would not function due to overfilling. Therefore, Sanergy have been able to integrate a lifelong service model into their business, particularly as at present no other company offers a rival waste collection service for Sanergy's proprietary toilets.<sup>18</sup>

One reason why Sanergy opted for this model when designing their system was that the founders believed it was necessary to create a long-term service, as one-off construction projects too often fail.<sup>19</sup> Here Auerbach hinted towards the renowned failures of at least 50,000 water supply points that have been installed in African communities by charities that failed to integrate long-term maintenance plans into their initiatives (Skinner, 2009). This is notably different to previous private sanitation options in Kenya that have either been reliant on large-scale public services (sewerage) or privately owned septic tank systems and pit latrines. Septic tanks and pit latrines are

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<sup>18</sup> Interview with S. Kibuthu on 21 July 2017 in Nairobi, Kenya.

<sup>19</sup> Interview with D. Auerbach on 21 September 2016, New York, USA.

often individual one-off purchases that do not include lifelong service models. Although they do need regular maintenance, this is rarely provided by the same company (Collignon and Vézina, 2000).

Furthermore, noting the prevalence of microfinance in international development in the last few decades (Littlefield et al., 2003), Sanergy's solution was designed to enable low-income consumers to access affordable sanitation without requiring significant capital outlays to build alternatives, such as pit latrines. Indeed towards the end of this research period that Sanergy's business model was cited, in the language of the circular economy (Garmulewicz et al., 2018), as 'disrupting' the traditional short-term sales approach of the linear economy and offering a new service approach to sanitation (IFC, 2019).

In a similar way, Sanergy's business model addresses critiques of short-termism in international development practice (Chandy and Kharas, 2011) by using a circular economy service model that inherently aims to be long lasting. Of course, this is all said with the caveat of taking Sanergy's activities at face value. The complexities behind several of these aspects will be investigated in more depth in the following chapters. This chapter aims to first establish how Kenyan companies, such as Sanergy, are contributing towards the ideal type of the circular economy, particularly doing so through linkages to international development.

Further to this service model, other elements of the circular economy are also evident within Sanergy's business model. A core tenet of the concept is feedback loops for materials, visualised through the butterfly diagram given in Chapter 2 (Ellen MacArthur Foundation, 2016c). Ideally the circular economy envisions a businesses being able to use and continually cycle a material through various stages, eliminating all waste through these processes. In Sanergy's case these feedback loops are created by taking toilet waste and putting it to a productive use by turning it into agricultural products. This strategy has also been described as the power of cascaded use, in the sense that by transforming materials across product categories this offsets the need for virgin material inputs (Ellen MacArthur Foundation, 2013b, p. 34). For Sanergy this strategy is seen whereby the toilet waste they collect is transformed into an fertiliser. In doing so they offset the need to use other materials such as wood chips, or materials

found in synthetic fertilisers that are typically by-products of the petroleum industry, such as ammonium nitrate or potassium sulfate.

Initially, Sanergy began their operations by developing an organic fertiliser made from the toilet waste they collected. Their product, Evergrow Organic Fertiliser 'is technically a compost because it has fully decomposed before application to the soil' (Toilet Board Coalition, 2016, p. 12). Auerbach considers Evergrow to be a superior product as theirs is unlike other 'organic fertilisers, which decompose while on the soil, leaching nitrogen from plants and generating heat that can burn seeds and root systems' (ibid.). However, when interviewed on the subject Auerbach revealed that Sanergy still have significant challenges convincing Kenyan farmers of the benefits of their fertiliser/compost, which the company claims can increase yields by 30% compared to chemical fertilisers.<sup>20</sup> Sanergy's claims go further to profess that their Evergrow product is helping alleviate Kenya's food insecurity by returning nutrients to the soil<sup>21</sup> and reversing soil depletion (Sanergy, 2016c). Here we can see Sanergy's international development approach come to the fore as they try to align their economic activities with development goals. In this way, Sanergy's production of Evergrow Organic Fertiliser, addresses social, environmental and economic aspects of the ideal type of the circular economy, clearly establishing their connections to the concept.

Sanergy's second product innovation was to develop KuzaPro - an insect-based animal feed. This product is created by farming colonies of black soldier flies that feast on a mixture of 50% human waste and 50% food waste, both of which Sanergy collect. The black soldier fly larvae are then harvested and turned into an animal feed. Again Sanergy's team emphasised the economic incentives that underly this product beyond simply trying to eliminate waste.<sup>22</sup> Kibuthu claimed that KuzaPro is competitive with Kenya's other main animal feed product - small fish known locally as Omena or the Lake Victoria sardine, which is restricted to seasonal availability and is suffering from overfishing (Kayanda et al., 2009). Furthermore, Kibuthu went on to claim other benefits of KuzaPro, such as reducing the growth period for a chicken, another

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<sup>20</sup> Interview with D. Auerbach on 7 September 2017 in Nairobi, Kenya.

<sup>21</sup> Interview with S. Kibuthu on 29 August 2017 in Nairobi, Kenya.

<sup>22</sup> Ibid.

incentive for farmers to switch to their feedstock. Although the benefits of this feedstock have yet to be independently verified, the use of black soldier flies to treat faecal matter has become a popular approach. It has received some academic attention from international development researchers as a solution to the health problems associated with poor sanitation and inadequate human waste management in developing countries (Banks et al., 2014) as well as for being a circular economy solution (Meneguz et al., 2018). So here again we can see the overlap in Sanergy's activities between international development and the circular economy.

The feedback loops of Sanergy's business model enable it to easily be seen through a circular economy lens, despite being located outside the typical geographies of the concept. However, there are also other aspects of Sanergy's social enterprise that provide context with which to analyse the potentially neoliberal mechanisms of the dominant conception of the circular economy. Now that we have more of an understanding of the products that Sanergy sell, we can begin to analyse the economic aspects of their business model.

### **Economic Model**

Public-private partnerships have been suggested as a practical tool to implement the circular economy (Laubscher and Marinelli, 2014), whilst also being cited as a 'Trojan horse of neoliberal development' (Miraftab, 2004). Sanergy have recently been using public-private partnerships to help install their Fresh Life Toilets at scale in schools. They see these partnerships as crucial to their future development. This is because their eventual ambition is that local government will contract them to provide sanitation services to throughout Kenya's slums via a public-private partnership.<sup>23</sup> Fundamentally, Sanergy are attempting to provide sanitation, which has traditionally been a public service in many countries (Barlow, 2001), through a private enterprise model. In this way Sanergy are encouraging a form of neoliberal outsourcing of public services to the private sector, a model that has been questioned in the international development sector (UN, 2018b). From this understanding of Sanergy's business

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<sup>23</sup> Interview with D. Auerbach on 25 September 2017 in Nairobi, Kenya.

model and future expansion plans it is therefore necessary to interrogate the social and environmental impacts of their business model to see whether this neoliberal approach could be supportive of the ideal type of the circular economy.

Sanergy claim to be acting as a social enterprise, although technically such a legal form of company does not exist under Kenyan law. However, they are a registered nonprofit in the USA which legally requires them to seek social and environmental outcomes over economic incentives. Their marketing team claim that their social mission can readily be seen through their expanding client list where customers in Nairobi are being targeted where the most social impact would be felt, rather than customers who provide the most profit. For example, Sanergy have been installing their Fresh Life Toilets in schools. This was only possible following a pilot schools programme that was funded by USAID. According to Sanergy's communications officer, this pilot project demonstrated a significant social return on investment and encouraged Sanergy to invest in scaling the programme up.<sup>24</sup>

Whilst it is always hard to judge how charitable an organisation may or may not be, it is clear from reviewing Sanergy's own impact reporting (Sanergy, 2019b, 2019b) and interviews with several members of Sanergy's team, as well as the evidence of external reviews (World Bank, 2019b; O'Keefe, 2015; Walske and Tyson, 2016; Esper et al., 2013), that the organisation is primarily focused on trying to make a social impact. These concerns are then followed by environmental considerations and lastly their economic needs to sustain these activities. In this sense we can see the influence of Sanergy's grounding in the international development sector is helping them to articulate aspects of the ideal type of the circular economy that was defined in Section 1.3. This is particularly so because they are prioritising the social impacts above their economic needs, bringing a balance to their overall impacts.

It is worth highlighting the financial implications of Sanergy's status as a social enterprise and how fundamental this status is to their business model. The charitable funds raised from the nonprofit arm of the organisation based in the USA have allowed the company to continue their rapid growth.<sup>25</sup> From Sanergy's available accounts it was

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<sup>24</sup> Interview with S. Kibuthu on 17 August 2017 in Nairobi, Kenya.

<sup>25</sup> Interview with D. Auerbach on 21 September in New York, USA.

clear that in 2017 the company's operations in Kenya were being subsidised by donor funding from the USA. Auerbach readily concurs that their charitable status in the USA is a vital component to their business model that enables them to access soft loans from impact investors.<sup>26</sup> Indeed, they are already recipients of grants of this nature from a consortium of investors including the Acumen Fund, SpringHill Equity Partners, and Eleos. Moreover, Sanergy proudly list 25 prizes and charitable donors on their website, demonstrating how important their charitable status has been to growing their business (Sanergy, 2019c). Sanergy is unique in the main cases chosen as it is the only business that receives charitable funds. These donor funds play a significant role in why and how Sanergy are able to have such a strong social focus. It is also because of these charitable funds that Sanergy's economic model has been rated as weak for the purposes of this study's comparisons as the company's activities are essentially being subsidised by charitable funds. Indeed this is how the company were able to start their schools' programme that they believe makes a significant social impact.

Sanergy's Fresh Life Toilets have been designed to be as cost-effective as possible, yet it still costs US\$360 to install a Fresh Life Toilet and there is a mandatory US\$70 maintenance fee per year, critical to their service model. This is a lower upfront cost compared to a pit latrine which normally costs US\$500 to install. However, a pit latrine may cost as little as US\$32 to empty by hand each year (exhauster services are more expensive at US\$125 per year but they are significantly cleaner and faster). As a Fresh Life Toilet is more expensive to maintain than the ubiquitous pit latrine, it seems unlikely that schools would readily install Fresh Life Toilets without added incentives. Therefore, Sanergy have spent a lot of time and effort to brand their Fresh Life Toilets in an attempt to make them an aspirational product that is comparable to running water toilets with sewerage.

A key part of this are Sanergy's strict rules regarding the cleanliness of their Fresh Life Toilets which are regularly enforced through their maintenance contracts.<sup>27</sup> This claim was validated by my unannounced spot checks. Sanergy have captured this brand value by advertising these less tangible benefits to schools. For example,

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<sup>26</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

<sup>27</sup> Interview with S. Kibuthu on 17 August 2017 in Nairobi, Kenya.

Sanergy's report that formed part of a World Bank paper claims a Fresh Life Toilet can increase student enrolment by 20% compared to a pit latrine, also reducing absenteeism and improving student's overall health (Tinsley and Agapitova, 2018). Furthermore, Sanergy also provide a free (loss-making) training service to schools that educates teachers and students about hygiene.<sup>28</sup> This add-on is beyond what Sanergy normally provide to their clients but enables them to have a greater social impact which is a key driver for their triple bottom line.

This approach is also seen with their typical franchisee clients, the Fresh Life Operators. For these clients Sanergy also provide a comprehensive package including: business training to build the capacity of the franchisee owners of the toilets, supporting Fresh Life Operators to acquire land rights in informal settlements, and interest-free loans. This goes beyond their foundational training that informs franchisees on the improved health outcomes from regular washing of the toilet and the importance of using sawdust in dry sanitation.

Overall, this introduction to Sanergy's operations shows how their business revolves around making a social and environmental impact. Of course it is debatable whether this impact bucks the trend of 'neoliberalism trying to subordinate the concept of sustainability expressed as the triple bottom line' (Moure-Eraso, 2008, p. 1041). However, from a review of Sanergy's activities, engaging with the company over a period of one year, I argue that, in at least this case, the confluence of international development and a circular economy business model is addressing at least one dimension of poverty in Nairobi's slums. Therefore, at this juncture I suggest that Sanergy's use of a neoliberal private-partnership mechanism has not compromised the social and environmental impacts of their work to date. Subsequently, Sanergy are demonstrating parts of the ideal type of the circular economy. Whether they are able to meet all of the holistic requirements of the ideal type without compromising any other aspect will be discussed in the following chapters, but for now, we can clearly see that Sanergy are contributing towards all three pillars of the ideal type.

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<sup>28</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

## 5.4 - Bintis: Moving Away from a High-Tech Articulation of the Circular Economy

To broaden this research it is necessary to introduce a company that is removed from the waste management sector that circular economy debate is often restricted to. This enables us to test the theory that the circular economy is a concept that can be followed by all manner of businesses (Murray et al., 2017). This Bintis case study also enables us to also clearly see how the lower-middle income context of Kenya impacts articulations of the circular economy from an organisation that does not have any explicit linkages to international development. To begin with it is helpful to see how Bintis are addressing the economic aspects of the circular economy and whether they are realising the opportunities for growth promoted by the discourse coalition.

### Economic Model

Bintis is a small company based in Nairobi that sells high-end honeys and nut butters. Bintis was founded with a belief they could fill a niche in Nairobi's burgeoning middle-class for healthier, tastier food. In doing so, the founders believed they could contribute to Kenya's economy beyond the traditional bottom line of solely creating economic value. Bintis' founders, Winnie Maganjo and Angela Chemweno, started the company with a desire to build a business that will create positive social and environmental outcomes throughout their profit-making activities.<sup>29</sup> They believed that by creating added-value products from Kenyan agricultural produce they would be able to directly support some of Kenya's low-income farmers. At the time of this research in 2017, Bintis had been steadily growing the company and seeing their turnover rise slowly. At this time Bintis range of products included four different types of nut butters and three different honeys and were selling roughly 400 jars of their produce per month.<sup>30</sup> However, perhaps in part due to their social and environmental ambitions, the founder's believe the company was growing much slower than they had hoped and

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<sup>29</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

<sup>30</sup> Interview with W. Maganjo on 21 March 2017 in Nairobi, Kenya.

were struggling to scale their business. Subsequently, the company has been rated as having a moderate economic model for the purposes of this study's comparisons.

### **Enterprise Size and Geographic Scale**

Bintis was a very young company at the time of the research, being incorporated in June 2016. Bintis' business model is focused on supplying their products to supermarkets as their primary sales outlet, rather than running any stores of their own. By mid-2017 they had already demonstrated reasonable success and were selling their range of pantry goods through Nairobi's upper-market supermarkets such as Chandarana, Zucchini, HealthyU and online through Greenspoon.co.ke. They do also work with several smaller independent stores in Nairobi, as well as a few shops in other Kenyan cities. They also sell to one store in Kampala, Uganda - an inkling of their exporting ambitions. That said, Bintis operations are firmly situated in Nairobi and they rely on the distribution networks of their retail partners to ship their products outside of Nairobi. Therefore, for the purposes of this research they have been graded as having a national geographic scale as they are fundamentally a Kenya-centric company.

### **How Bintis Address the Circular Economy**

Bintis' founders are two young Kenyan women recently graduated from university. Through their experiences in building the company they've developed direct links to rural farmers and enable this study to explore the agricultural underpinnings of quiet sustainability (Smith and Jehlička, 2013) in relation to the circular economy. Bintis provide a platform for an investigation into the often overlooked biosphere, introduced in Section 2.3, as opposed to the technosphere of the circular economy (Giampietro, 2019; Geisendorf and Pietrulla, 2017; McDonough and Braungart, 2009, p. 104). From their experiences Bintis highlight the dichotomy of 'organic' agriculture against 'traditional' or *kienyeji* agriculture in Kenya.

Bintis' close relationship with their suppliers, who are largely low-income smallholders, provides a platform to interrogate the branding of sustainability. These terms will be shown to exemplify Mavhunga's warning against the 'importation and consumption of rigid Western meanings... [that are a] threat to a self-determined African path to the future' (Mavhunga, 2017, p. 1). This will show how the loud

sustainability of organic agriculture is undermining the quiet sustainability practice of 'traditional' *kienyeji* agriculture and results in lower prices for *kienyeji* farmers, who are often low-income smallholders. In this way using Bintis' experiences of trying to promote sustainable consumption enables this research to question how the language of the dominant conceptualisation of the circular economy may impact quiet sustainability in Kenya.

A core component of the circular economy is the idea that every business should be able to follow a circular economy model (Murray et al., 2017). Therefore this research set out to test this theory against suitable Kenyan business models. In this case Bintis enable this research to break out of the waste management sector that circular economy discourse is often restricted to by building onto this heterogeneous range of case studies. So although Bintis' core business is less clearly linked to the circular economy than Sanergy's waste management focus, studying Bintis' business model is equally relevant if the circular economy is to become a new sustainability paradigm in Kenya. Such an approach has previously been taken by members of the Ellen MacArthur Foundation's *Circular Economy 100* group (2019c), where consumer goods businesses such as Unilever (2019, 2020) have tried to establish themselves as circular economy leaders. In a small way, Bintis share some similarities with Unilever as both companies sell competing brands of nut butters and honeys. Therefore, seeing if Bintis are able to address the circular economy, and comparing the forms in which they are doing so against more established companies that explicitly claim to be taking a circular economy approach, helps to test the theory that the concept can be applied to all businesses.

### **Social Impacts**

Unlike Sanergy, Bintis are a for-profit company yet the company was founded with a desire to be an ethical business, which forms a core part of their brand.<sup>31</sup> To the founders, realising this primarily revolved around following a fair trade approach of paying above-market prices to low-income farmers in Kenya, whilst also trying to do so

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<sup>31</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

in an environmentally friendly manner. Their marketing materials are filled with messages such as Bintis 'go the extra mile to get ingredients that are extremely high in quality, responsibly grown and benefit the farmer directly' (Bintis, 2017).

Nevertheless, Bintis have struggled to demonstrate a tangible social impact from their operations. They claim that this has primarily been due to a lack of scale, in that through their small operations they're currently unable to provide large enough and long-term purchasing agreements that would significantly support Kenyan farmers. Instead, at their small scale they are forced to be more opportunistic in purchasing from their target low-income Kenyan farmers with favourable pricing when possible, and from other international suppliers if no local supply can be sourced at the required time. Considering this, it is evident that Bintis' social impact is significantly more questionable than Sanergy's and therefore has been rated as weak. Nonetheless, for the purposes of this research Bintis still provide a useful case for seeing how they are addressing the ideal type of the circular economy by using the triple bottom line as a frame of analysis.

### **Environmental Impacts**

Following the common structure applied to each of these cases, it is next worth considering how Bintis are addressing the environmental impact of their business. Alongside the founders' interests in creating a business with a social impact, they are also attempting to have a positive environmental impact too. The company is too young and small to have conducted any kind of carbon auditing but when interviewed the founder explained how environmental impacts were part of their supplier considerations.<sup>32</sup> For example, in choosing their main nut processing partner, Jungle Nuts, one factor that swayed Bintis towards choosing this supplier was because Jungle Nuts were using a renewable biomass energy system. Jungle Nuts were converting the excess waste from nut shells to become a biomass fuel source to power their factory. Bintis deemed this process to be more environmentally friendly compared to other processors that were simply disposing of these waste nut shells.

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<sup>32</sup> Interview with W. Maganjo on 21 March 2017 in Nairobi, Kenya.

Bintis' founders also believe they are creating an environmentally positive company by choosing sustainable packaging materials and by shortening their supply chain (trying to source all their inputs locally). By buying their ingredients from local Kenyan and East African farmers, Bintis believe they are reducing the carbon impact of their nut butters and honeys, and when possible also making a social impact by paying these farmers an above-market price. In these small ways Bintis are trying to articulate steps towards sustainable production. As will be seen in the following chapters, Bintis have had some successes as well as some notable failures in this strategy. So in terms of the environmental outcomes of these actions, their tangible results are small and difficult to measure. Therefore, at this stage of Bintis' small business it is hard to claim they are making a significant contribution to environmental sustainability through their activities. However, their business is at least trying to engage with some of the sustainability challenges of the circular economy and they have made some small tangible steps towards more sustainable business activities, therefore their environmental impacts have been rated as moderate. What is of particular interest is that Bintis business model is reliant on consumers willing to pay for a premium product that is seen as a more socially and environmentally responsible choice. This enables us to use this case study to question whether Bintis' business model is potentially demonstrating an alternative pathway for the circular economy by using power from below through green consumers. If so, we can also see if this leads towards the ideal type of the circular economy.

## **5.5 - Stonehouse: Circular Economy Solutions to International Development Challenges**

The last case study to be introduced in this chapter is Stonehouse, a for-profit company. Stonehouse helps to demonstrate how Kenyan companies without established links to international development are nonetheless directly addressing these challenges by creating circular economy solutions. Stonehouse was established in 2010 as a vehicle to sell the founders invention - 'affordable, turnkey, rapid build,

solar powered computer laboratories for rural Africa' (Stonehouse, 2017). Martin Muckle, the founder of Stonehouse, had identified a need in Kenya for IT classrooms in rural areas that lacked access to grid electricity. Thus, he designed the EBOKS, an 'energy efficient computer lab... contained inside a rapid build eco-friendly classroom' (Stonehouse, 2017).

### **Enterprise Size and Geographic Scale**

Stonehouse fits well within the definition of a small enterprise. Muckle is Stonehouse's only employee, as well as the founder and inventor of the EBOKS. Although, through Stonehouse, he regularly contracts up to 11 workers for each individual computer lab construction. Whilst comparable financial figures were not available to directly compare Stonehouse against Bintis, it was clear from what data was available that Stonehouse is in some senses a larger company with a significantly higher turnover, despite having fewer permanent employees than Bintis. As the EBOKS has been designed for rural areas, the company's operations have spread across the country. To date Stonehouse has built 24 EBOKS spread all over Kenya from their base in Nairobi. For this research Stonehouse has therefore been considered as having a national scale to their operations as they have yet to export the EBOKS, yet have reached several counties across Kenya.

### **How Stonehouse Address the Circular Economy**

Stonehouse's EBOKS is a product that embodies many circular economy design principles. The EBOKS was designed to use appropriate technology, such as specialist Aleutia T1 computers. These PCs use a large copper heatsink, rather than the more common fan system in most PCs, to provide a cooling mechanism. Importantly this prevents hazardous dust from entering the PC housing. Furthermore, these PCs are extremely low-energy, using 90% less energy than an equivalent desktop (Aleutia, 2019), making these PCs highly compatible with off-grid solar energy systems. Lastly, the EBOKS building was designed so that it could be 'locally manufactured using robust and eco-friendly technology' (Stonehouse, 2017).

In general, Muckle claims that the EBOKS was designed with a focus on maintenance and extending the life-span of the product. This was done primarily to

ensure that the EBOKS is 'impervious to the harsh conditions of heat and dust found in parts of Kenya. This means it can be placed anywhere and provide a long-lasting IT solution with no running costs' (Stonehouse, 2017). Whether the EBOKS can live up to Muckle's advertised claims is debatable, but what is particularly interesting for this study is the story behind why and how Muckle designed the EBOKS. From this background we will see that Muckle's focus on maintenance emulates the Ellen MacArthur Foundation's theory of the power of the inner circle, in the sense that it is more circular to maintain a product than it is to replace it (Ellen MacArthur Foundation, 2013b, p. 34). One of the reasons why Stonehouse was selected to be a main case study for this research was because the company is addressing the circular economy in a manner distinct from the direct approach taken by Sanergy and are in an entirely different industry to Bintis. This gives enough breadth between these three main case studies to see if some nuanced aspects of the circular economy can be seen across these in-depth case studies in Kenya.

### **Economic Model**

Stonehouse is a for-profit company without striving to be a social enterprise, despite the founder's clear motivations to create a social impact by enabling rural schools to start teaching using computers. According to Muckle he charges schools (and charities) a competitive price that allows for a 'small profit' with which he plans to grow the business and subsequently expand its social impact. Muckle is clearly motivated to see students benefitting from the EBOKS, even if it means it challenges the profitability of his business. This was evidenced by Stonehouse's large contract with Safaricom, which will be detailed in Chapter 7. In brief, Muckle's revenue per EBOKS was reduced by 36% (Safaricom, 2017) which he agreed to due to the size of the contract and an understanding it would enable thousands of students to benefit.<sup>33</sup>

The EBOKS is sold as a product with warranties where applicable. So in this way it contrasts Sanergy's service model that is more strongly linked to the circular economy. When interviewed, Stonehouse's founder stated that the EBOKS was not an explicit

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<sup>33</sup> Interview with M. Muckle on 6 April 2017 in Magadi, Kenya.

attempt to create a circular economy product. Instead Muckle declared that the vast majority of the 'circular' elements of the EBOKS were chosen because they were the optimum solution. Whilst he was restricted by what was available in the market, he believed he had designed a high-quality product that would be economical and solve the development challenge of bringing educational ICT resources to off-grid areas in rural Kenya.<sup>34</sup> Thus the story of how the design of the EBOKS originated hints towards circular economy design principles becoming part of a logical and rational framework, rather than a path actively chosen by a designer targeting sustainability. For example, the EBOKS purposefully avoids using a concrete foundation that would significantly increase the carbon footprint of the construction, and Muckle explicitly uses recycled steel in the supply chain. The environmental reasons for these design choices will shortly be explained in this section, but perhaps pivotally Muckle claims that these choices were largely the most economical when taking a long-term view on the construction. Therefore, the way that Stonehouse is addressing international development challenges indicates that in some cases the Kenyan context might be pushing businesses towards business models that support the ideal type of circular economy. When compared against the other main case studies Stonehouse's for-profit business model with a strong social interest provides a midway between Sanergy's social enterprise and Bintis' more directly for-profit company for this research. That said, Stonehouse have been able to demonstrate a strong economic model, particularly through securing a contract with Safaricom valued at 72 million KES (US\$720,000).<sup>35</sup>

### **Social Impacts**

The way that Stonehouse create social impacts through their business also provides a useful comparator to the two earlier introduced companies, Sanergy and Bintis. Whilst Stonehouse is a for-profit company, the nature of their product, the EBOKS, means that the company is inextricably linked towards solving the development challenge of enabling ICT education in rural Kenya. Of course it is always debatable as to the extent of where such activities become charitable, rather than for-

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<sup>34</sup> Interview with M. Muckle on 5 April 2017 in Magadi, Kenya.

<sup>35</sup> Interview with M. Muckle on 31 August 2017 in Nairobi, Kenya.

profit, and to what degree it is possible to assign these positive social impacts to the company rather than the schools they work with. However, the key point for this study is simply that when analysing Stonehouse's triple bottom line, the company clearly creates positive social impacts by supporting education in rural communities where access to electricity otherwise precludes digital learning.

That said, Stonehouse does also have a history prior to the EBOKS where the founder initially experimented with trying to sell low-energy computers to offices in Nairobi before developing the company's niche in combining these computers with solar energy. This history underlines the fact that the company has always been for-profit, rather than a social enterprise. This is something the founder emphasises as he does not believe that 'sustainable development' is truly achievable through any means other than for-profit business.<sup>36</sup> Nevertheless, when designing solar powered IT systems Muckle realised a niche of potential clients, schools in off-grid areas that wanted computer labs, and was motivated by the opportunity to create a business that had a positive social impact at the same time. Therefore, for the purposes of this research Stonehouse provides a useful comparator that sits between Bintis' small social impacts and the substantial social impacts generated by Sanergy. Overall, Stonehouse has been deemed to be contributing towards the social requirements of the ideal type of the circular economy in making a moderate social impact.

### **Environmental Impacts**

In regard to how Stonehouse address the environmental aspects of the circular economy, the EBOKS has less environmental impact than standard designs for computer classrooms for a number of reasons. Firstly, by using solar energy as the power source, the EBOKS has a much lower carbon footprint than an on-grid computer lab. Whilst Kenya's mix of grid electricity is impressively renewable at 85% (IOL, 2019), the EBOKS improves this by being powered by 100% renewable energy. Furthermore, diesel generators are a widely used as an off-grid energy source, often selected for similar challenges in Kenya. For example, during this field research at the Memusi

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<sup>36</sup> Interview with M. Muckle on 7 April 2017 in Magadi, Kenya.

School, near Magadi in rural Kenya, a diesel generator was being regularly used to power a laptop and projector. As the ideal circular economy is explicitly incompatible with the use of fossil fuels, then in this regard the EBOKS makes a positive contribution to this environmental aspect of the ideal type of the circular economy.

This case is also interesting for this research as Stonehouse's use of renewable energy contrasts with many recent green energy projects in Kenya that have been subsidised by the government. In this way they are demonstrating a case where the private sector is promoting renewable energy without incentives, such as the green conditionality noted in neoliberal funding mechanisms from the Global North in Section 4.2 (Baker, 2006, p. 162; Mazzucato, 2015; Death, 2016). This helps us to see how Stonehouse's business model might be able to articulate a form of the circular economy without requiring such funding mechanisms.

Another environmental contribution from Stonehouse stems from the choice of building materials for the EBOKS. These choices follow many green building design principles, again reducing the environmental impact of the product. For example, recycled steel is used to make the light gauge steel framework of the building. This also enables opportunities for reuse as the building can be disassembled and reassembled at another location or reconfigured into another building at end of life. This also increases the second-hand value of the computer lab should it need to be decommissioned. Furthermore, this design avoided using concrete foundations which would not be reusable but could only be downcycled into low-value aggregate. These aspects complement other parts of the design such as the natural ventilation system. This system uses the low weight and low thermal mass of materials to absorb a minimal amount of heat during the day and dissipate it without the need of mechanical ventilation.

The overall design of the EBOKS was made with a key principle to ensure it was a quality product that would maximise its useful lifespan, saving the purchasing school from large ongoing maintenance costs. These principles led to decisions such as using magnesium oxide boards to clad the steel framework. Cheaper alternatives are available such as plywood or MDF fibreboard, but unlike these, the magnesium oxide board is inert, stronger and does not absorb moisture. According to Muckle this

therefore justifies the upfront costs over its expected ten year lifecycle.<sup>37</sup> Overall, the various building materials used demonstrate a construction that supports a circular flow of materials to be primarily maintained, then reused and refurbished, and lastly recycled as a last resort - following the principles outlined by the Ellen MacArthur Foundation (2016c). In these ways the EBOKS' design minimises its environmental impact and therefore articulates another aspect of the ideal type of the circular economy.

That said it is also worth noting the influences Muckle had in the design of the EBOKS. Muckle claims that he did not explicitly use renewable energy in order to address concerns about climate change. However, his environmentalist background surely played a significant role in such design choices.<sup>38</sup> Muckle holds a degree in Applied Environmental Geology and was a prospective Member of Parliament for the Green Party. Nevertheless, the EBOKS contrasts drastically with the ICT solutions found in the Global North that are almost exclusively reliant on grid electricity and high-energy computers. This contrast is partly due to Muckle's design; however, it is also due to the vastly different development context in Kenya where on-grid electricity is not as readily available. In this sense we can see that Stonehouse represent a case where less sustainable on-grid computer labs are in essence being leapfrogged by more sustainable alternatives. This is essentially the low-carbon Africa envisaged by the international development practitioners Doig and Adow (2011). Therefore, from this case study we can see how the lack of grid infrastructure, related to the lower-middle income context in Kenya, has spurred innovation that is compatible with aspects of the circular economy. Furthermore, it also connects the circular economy to theories such as green leapfrogging that are being promoted by the international development community. In these ways Stonehouse provide a useful comparator to Sanergy where several similar themes regarding the development and use of appropriate technology have also been noted (Altamirano and van Beers, 2018).

As a small company Stonehouse have not done a thorough analysis of their environmental impact and so cannot prove that the company is carbon neutral. However, the founder strongly believes that the company is making a positive

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<sup>37</sup> Interview with M. Muckle on 8 April 2017 in Magadi, Kenya.

<sup>38</sup> Interview with M. Muckle on 5 April 2017 in Magadi, Kenya.

environmental impact, particularly through their promotion of solar energy. Thus although a precise calculation is not available, it is nonetheless clear that Stonehouse are addressing several aspects of the environmental criteria of their triple bottom line. Therefore, Stonehouse has been rated as having a strong environmental impact which makes the company a useful case study to see if they are able to realise the ideal type of the circular economy in Kenya.

## **5.6 - Conclusions from the Key Case Studies**

Now that we have some background information on each of the three key case studies it is helpful to analyse the similarities and differences of each against some of the core themes that emerge from this set of companies. The following comparison follows the structure of Table 4 given at the start of the chapter in Section 5.2. In general, the selection of case studies was made because each helps us to answer the first research question by showing what forms the circular economy is taking in Kenya. The more complex and unique aspects will be discussed in detail in the following chapters, but for now this section will begin by analysing the more straightforward themes that cut across these case studies.

To begin we can use Elkington's (2013) triple bottom line to see the varying degrees to which each case study is addressing these aspects of sustainability. Firstly, each case is in some way trying to make a positive social impact, all of them ostensibly attempting to improve the lives of poor Kenyans. All of these cases are similarly trying to do this primarily through their business model as opposed to providing free charitable services, although Sanergy are distinct in following a social enterprise model and having some charitably funded activities. Yet when analysing the outcomes of each organisations' social impacts it is clear that Bintis' weak social impact contrasts against Sanergy's and Stonehouse's strong social impacts. This aspect highlights how some business models are innately more able to provide positive social impacts due to the nature of their work. This means that judging how closely a business model is able to realise the ideals of the circular economy is an innately challenging task as it is not possible to compare like for like.

Secondly, each of the three businesses are all similarly attempting to make some positive environmental impacts through their activities. This criteria is similarly complex to contrast one another against. Whilst each company can make some claims towards environmental sustainability, none of them claim to be carbon neutral and there is too little data available to comprehensively state that one business is more environmentally friendly than another. Therefore, for the purposes of this comparison it sufficient to note that Sanergy and Bintis are making moderate attempts to address their environmental impacts, whereas Stonehouse's attempts were rated as strong, although it is worth noting this was primarily due to the EBOKS' use of renewable energy.

What was of particular interest is that all of these cases demonstrated some synergy in how positive environmental ambitions went hand in hand with similar ambitions for social justice. This theme of giving social justice concerns a more equal weighting with environmental impact is one that differs strongly to the ideas most commonly put forward by the circular economy discourse coalition. This theme was particularly emphasised due to the Kenyan context where social inequality is extreme. That said, it is also worth noting that this research began from an outlook that the social dimensions of the circular economy had been overlooked in extant debates. Therefore, the choice of these cases was inherently influenced by this perspective. Subsequently the generalisability and limitations of this study should be noted, as detailed in Section 3.7. That said, much of the other supporting empirical evidence from other sources not detailed in this chapter also support the following argument. The salient point is that all of these examples link and directly engage with Kenya's poor. The prevalence of poverty, where over a third of Kenyan's live below the poverty line (World Bank, 2018), is a context that fundamentally contrasts with the Global North. Therefore, when considering the circular economy in Kenya the concept must be altered to have a greater emphasis on social justice.

Thirdly, in looking at the economic impacts of the businesses, they have all been able to demonstrate how they are creating economic value through their business models to some degree. However, from a brief analysis of the financial information that was made available during the research period, none of these businesses are highly profitable and they do not seem likely to produce the ideals of growth without limits in the near future, as envisaged by the circular economy discourse coalition (Lacy et al.,

2014). The range from these cases showed that whilst Sanergy's social enterprise model might be creating significant social and environmental impacts, in doing so they are leveraging charitable funding which calls into question the economic viability of their business model. That said, from an overall analysis against Elkington's (2013) triple bottom line, all of the cases are potentially addressing all three of these sustainability dimensions and therefore each of them are articulating an actually existing form of the circular economy.

From this basis it is then interesting to look at a wider range of criteria to see if there are other significant similarities between the cases which can help to explain how they are all contributing to the circular economy in Kenya. In regard to each company's geographic scale only Sanergy is highly localised, focussing their services on a few slum communities in Nairobi. Both Bintis and Stonehouse sell their products nationally, although they are both based in Nairobi. In analysing the importance of localisation for each company this reveals that all three companies are at some point reliant on international supply chains. Overall, when combining this with an understanding of each company's operations, these cases indicate that localisation is not an important factor that is enabling these businesses to articulate the ideals of the circular economy in Kenya.

In the case study selection it was not possible to get an even spread over the size of the companies, and subsequently these cases all fall within the SME category - although Sanergy are notably close to being considered as a large company. From this initial analysis of each company's business model it was noted that Sanergy's scale appeared to significantly enable their service model - which is linked to the ideal type of the circular economy. These differences will be explored in greater detail in Chapter 6; however, at this point it is worth noting that from this initial comparison these case studies prompt discussion surrounding the role of SMEs and social enterprises in articulating forms of the circular economy.

The majority of circular economy discourse has focused at a macro-level, often concentrating on MNCs (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017; Park et al., 2010). However, the ways these SMEs are contributing to forms of the circular economy in Kenya demonstrates that smaller companies can be important and relevant to the concept too. For example, Sanergy's case demonstrated that as an

SME following a circular economy business model they are addressing the often critiqued short-termism of international development practice (Chandy and Kharas, 2011; Severino, 2010). Furthermore, Sanergy's public-private partnership business model demonstrated that, at least in this case, this aspect of such a neoliberal mechanism could be supportive of the ideal type of the circular economy by providing substantial social and environmental benefits. This therefore begins to build on Wausi et al.'s (2013) as well as Blowfield and Dolan's (2013) studies by evidencing how Sanergy's social enterprise approach enables them to act as a development agent. It also counters the critiques of private-public partnerships that suggest they can subordinate sustainability (Miraftab, 2004; Moure-Eraso, 2008, p. 1041).

Moving to the next theme, each business comes from a distinct industrial sector. This was specifically intended through the case selection strategy as it shows, in a small way, the potential applicability of the circular economy to a wide range of sectors. Continuing with the thematic structure, Sanergy are distinct amongst this group for their lobbying efforts in trying to influence Kenyan policy, an aspect that is strongly linked to their scale and will be explored in Chapter 6.

Sanergy are also distinct in that the company uses a mix of both high-tech and low-tech to achieve their social and environmental impact aims. In producing their KuzaPro insect-based animal feed and their Evergrow Organic Fertiliser, as well as the methods they are looking to use to generate biogas from the waste they collect, Sanergy are using the latest modern bioconversion and anaerobic digestion technologies respectively. Conversely, by using *Mkokotenis* to collect the input wastes, they are using a distinctly low-tech pushcart that is a form of frugal innovation - this will be detailed later in Section 7.4. Furthermore, by using the Tippy Tap Sanergy are promoting bricolage entrepreneurship. Yet all of these uses of technology are similarly contributing towards forms of the circular economy. This contrast is similarly seen through Bintis' use of low-tech that differs from Stonehouse's explicitly high-tech invention (the EBOKS) that combines several modern technologies. In seeing the differing ways that each company uses technology to address aspects of the circular economy these studies enable us to question the technocentrism of the circular economy discourse coalition (Mugge & Bakker, 2018) that is generally ignorant of the important contributions that low-tech activities can have towards absolute sustainability.

This brings us to the last point of these thematic comparisons which considers how each company is describing their approach to the circular economy and how this relates to quiet sustainability. Of these companies only Sanergy have explicitly used the terminology of the circular economy to describe their activities publicly (outside of interviews that were part of this research), and even so this was as in 2019, three years after my initial interview with Sanergy's CEO.<sup>39</sup> This helps us to answer research question two in evidencing that the circular economy can be found in Kenya implicitly under various sustainability guises.

Importantly, each company was noted to be articulating forms of quiet sustainability rather than loud sustainability. Furthermore, none were seen to be engaging with forms of greenwashing. Chapter 7 will go into more detail as to how each company is addressing quiet sustainability, but for now it is helpful to note that from the offset this is an important trend noted in all of these cases. In the following chapters I propose that these contributions to quiet sustainability form a critical part of how each company is contributing to the ideal type of the circular economy rather than the instrumental type.

In looking at the sum of each companies' impact none are able to reach the holistic aims of the ideal type, an aspect that will be considered in more depth in the subsequent chapters, yet they are all nonetheless articulating an actually existing type of the circular economy. In doing so the case of Stonehouse has particularly helped to demonstrate that, because of the specific development challenges in Kenya, this can push innovation towards the ideal type of the circular economy. This echoes some of the recent suggestions of green technological leapfrogging from international development practitioners (Doig and Adow, 2011). On the other hand the Bintis case study opened up a consideration of how *kienyeji* was being undermined by the Western conception of organic. This will be explored in greater detail in Chapter 7, but at this point helps us to establish how Bintis and their suppliers are making quiet sustainability contributions (Smith and Jehlička, 2013) towards a form of the circular economy. Thus, from analysing the outcomes of each companies' activities we can begin to formulate a picture of which aspects of each company are the most relevant in enabling activities

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<sup>39</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

closest to the ideal type of the circular economy and lead to absolute sustainability. Beyond these key themes, these cases have also helped to establish how and why this consideration of the circular economy is linked to international development - largely due to Kenya's lower-middle income context. The data presented in this chapter also enables deeper analysis of these companies in the following chapters which draw from the empirical evidence presented here.

Overall, these case studies each evidence, as suggested in Chapter 4, that the circular economy is implicitly identifiable in Kenya. In doing so, they have also established the argument that when considering how their businesses relate to the circular economy, the ways in which their businesses interact with low-income populations in Kenya is significant. For some cases this context inspired their business model and for others it highlights the quiet sustainability approach of how they resource their business. These cases also emphasise that to consider the circular economy in Kenya it is important to address the social dimensions of the circular economy that are often overlooked in discourse from the Global North.



## **Chapter 6 - How Important Is Scale to the Circular Economy?**

This chapter delves into one of the main themes that emerge from the case studies of this research - scale. As described in Chapter 2, the following sections will largely use scale in reference to the large size or growth of business operations. For example, the scale of multinational corporations, as well as in considering economies of scale. Furthermore, as introduced in Chapter 2, at times economies of scale are seen as useful to enabling the circular economy. Yet, there are also counterpoints to this suggesting that small-scale activities are more compatible with the ideals of absolute sustainability. This chapter will therefore present several case studies and analyse the challenges faced by Kenyan these businesses in relation to the circular economy to show how and why scale is a common and important factor. This helps us to develop an answer to research question one by exploring the forms of the circular economy that are most achievable in Kenya.

To understand how scale relates to the circular economy we must first outline the varied viewpoints on this contested dimension of the dominant conceptualisation of the circular economy. This enables us to position the subsequent Kenyan cases within this debate by presenting examples of local manufacturing that are being realised through both small and large-scale initiatives. This leads us onto see how scale can be a fundamental enabler to quiet sustainability in the informal sector through the case of Akala sandal artisans. This demonstrates how indigenous technology systems, that strongly contrast the dominant technocentric conceptualisation of the circular economy (Mugge & Bakker, 2018), can be supportive of the comprehensive aims of the ideal type. This is further evidenced by the example of Coca-Cola's glass bottle recycling system in Kenya, that is dependent on extreme scale. We then turn to the Sanergy case study to see that this ideal is not realistically achievable in a medium-size organisation that lacks the capacity to address the holistic goals of the ideal type. This also raises a notable point that whilst the social and environmental focus of a social enterprise pushes Sanergy towards the actually existing type, it does not mean that

without appropriate legislation they will prioritise some challenges of the ideal type of the circular economy. The analysis of these cases, using scale as a theme, also helps us to build an answer to research question four, seeing how the reality of the circular economy in Kenya differs from that envisaged by the discourse coalition surrounding the concept. In doing so this chapter concludes that the dominant conception of the circular economy is unrealistically idealistic.

So to begin, we can expound on how scale is a theme that causes division within the circular economy community. To do so we build upon the understanding of scale, and economies of scale in particular, developed in Chapter 2. This highlighted that extant sustainability discourse has noted the potential for economies of scale to both enable more sustainable systems whilst simultaneously encourage unsustainable production and consumption, which is in conflict with the degrowth approach to sustainability. In linking this general sustainability discourse to the circular economy there are similar arguments on both sides.

On one side there are arguments from academics, such as the influential circular economy theorist Walter Stahel, who claims that the ideal form of the concept requires the 'replacement of large-scale capital-intensive companies by smaller, labour-intensive, locally integrated work units' (Stahel, 2013, p. 2). Stahel suggests this is primarily required in order to promote product-life extension by substituting service activities at a local level. In doing so this dismantles the linear model where globally scaled manufacturing enables fast-replacement and disposal. Subsequently, in Stahel's conception of the circular economy 'economies of scale are limited in geographic and volume terms' (ibid., p. 5). Considering how following such a model would support local manufacturing, something that has been given significant focus in Kenya's *Vision 2030* development programme (GoK, 2007, p. 10), then this aspect of the circular economy is particularly interesting to explore. In this way it would enable us to also explore the connections to international development where the development of local manufacturing abilities are often promoted by academics and practitioners (Russo and Banda, 2015; ICAI, 2017).

On the other hand, it is more common to see circular economy advocates connect the concept directly to multinational corporations (MNCs), suggesting that MNCs are able to build the circular economy through their existing large scale operations.

Symbolically the key role of MNCs can be seen through the Ellen MacArthur Foundation's *Circular Economy 100* group, which suggests that circular economy practice is dominated by MNCs (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). These corporations epitomise economies of scale through their international operations, in direct contrast to Stahel's ideal. Yet, the way that MNCs have articulated forms of the circular economy has at times been cited positively by advocates of the concept. Park et al. (2010) have demonstrated how MNCs can create value by adopting a sustainable supply chain management approach.

When analysing how MNCs might contribute towards the ideal type of the circular economy they possess several advantages in certain aspects. For example, one of the fundamental ideas behind the circular economy concept is 'closing loops'. Closing loops essentially means increasing the proportion of materials captured before disposal to 100% and then recirculating these materials to create a cradle to cradle lifecycle for products. This means that waste becomes a feedstock (Mulrow and Santos, 2017; McDonough and Braungart, 2009). In order to close loops it is often necessary for a company to own an entire process so that they can control how materials circulate. So clearly in this regard many MNCs have a superior ability to vertically integrate and to control entire material flows. This provides an apposite point in this chapter's Coca-Cola case study which demonstrates the importance of scale in enabling circular economy models through vertical integration in a supply chain.

Nevertheless, there appears to be an internal contradiction within the Ellen MacArthur Foundation as their Head of Innovation, Ken Webster, has explicitly written that the circular economy is largely incompatible with economies of scale that encourage the linear economy's 'take, make, waste' paradigm. Webster's position focuses around the idea that because 'economies of scale suit larger production and consumption flows this reinforces the need to market products fiercely to maintain enough consumption' (Webster, 2013, p. 551). Therefore, this chapter will interrogate the way scale impacts various circular economy business models in Kenya. This will contribute to conceptual debate by seeing if and how in practice scale might support the ideal type of the circular economy.

Before beginning the in-depth analysis of the cases used in this chapter it is helpful to briefly outline the structure of each new case that is presented in this chapter.

Together with these newly introduced cases this chapter also calls heavily upon the Sanergy case study presented in the previous chapter. Sanergy have not been included in the below table to avoid repetition and because the following table can be directly compared with Table 4 that was given in Section 5.2. By using the same structure for the analysis, this reveals some of the similarities and differences of the main three case studies of the research with the most prominent subcases that this chapter draws from. This chapter also briefly draws on some smaller cases too. Due to the need for clarity and brevity these smaller cases are not presented in this table although a similarly structured analysis was applied during the research period. To summarise, the most prominent cases of this chapter are presented in the following table and will be used throughout the chapter before being summarised in the concluding section at the end of the chapter.

**Table 5: How Themes Are Addressed in Three Significant Cases of This Chapter**

<b>Theme</b>	<b>Coca-Cola Kenya</b>	<b>Coca-Cola UK</b>	<b>Akala sandal artisans</b>
Social impacts	Moderate High-employment (albeit low-wage)	Weak None identified in this context	Moderate High-employment (albeit low-wage)
Environmental impacts	Moderate Reduced carbon impact from glass reuse	Weak Reduced plastic waste through improved recycling practices	Moderate Reduced carbon impact from waste tyre reuse
Economic model	Strong For-profit business	Strong For-profit business	Strong For-profit business
Geographic scale	National	National	National
Enterprise Size	Large	Large	Small, but significant interorganisational scale
Sector	Fast moving consumer goods	Fast moving consumer goods	Fast moving consumer goods
Policy interactions	Heavily involved Lobbying against plastic bottle bans	Heavily involved Lobbying for enhanced recycling as a solution rather than systemic change	None
High-tech or low-tech	Low-tech through glass bottle reuse	High-tech through improved plastic recycling processes	Low-tech
Loud or quiet sustainability	Quiet sustainability	Loud sustainability	Quiet sustainability
Use of CE terminology	No	Yes	No
Type of CE	Actually existing	Instrumental	Actually existing (although close to the ideal type)

## 6.1 - How Does Scale in Local Markets Support the Circular Economy?

This section will analyse a few pertinent examples from this research that demonstrate how and why various forms of scale can be crucial to enabling local manufacturing. Shortly the smaller subcases of: AB3D, Gearbox, and the Taifa Laptop, will be presented. As these are some of this research's smaller cases the full structured analysis of each company is not explored in depth in this chapter for the sake of brevity. Instead only the most pertinent and revealing aspects of these examples are examined here to support this chapter's argument. These subcases, which are supported by the main case studies of this research, help us to develop a sense of whether Kenyan businesses are moving towards the ideal type of the circular economy, and if so, how. It also enables us to further develop an answer to research question one by exploring how certain forms of the circular economy can be articulated in Kenya.

Firstly, it is necessary to emphasise the importance of localised manufacturing capabilities to the circular economy. In order for the ideal type of the circular economy to be realised then the economy needs to move away from the linear system of take-make-waste to a closed loop system. This will primarily be achieved through repair and remanufacturing, with recycling as a less preferable option, to extend the value and lifespan of products and materials. This system is visually illustrated by the Butterfly Diagram that was earlier seen in Section 2.1 (Ellen MacArthur Foundation, 2016c).

Under current economic systems local repair and remanufacture facilities are often too distant to realistically facilitate repair or even recycling or due to the centralised nature of mass production. Most notably this has led to informal recycling activities of electronic products in several African economies, including Kenya, that have resulted in public health disasters and extensive environmental pollution (Robinson, 2009; Heacock et al., 2016; Oteng-Ababio, 2010; Otieno and Omwenga, 2015). Subsequently, circular economy advocates have supported the idea of redistributed manufacturing, a localisation of production from large scale mass manufacturing plants to smaller-scale localised units that would provide greater opportunities for local repair and remanufacturing (Prendeville et al., 2016).

This can be envisaged within the circular economy as closing localised production-consumption loops (Thorpe, 2012; Geissdoerfer et al., 2017). This means that materials can endlessly cycle from the consumer back to the parts manufacturer, then to the product manufacturer, then to the service provider and back to the consumer. This can also be understood as the power of the inner circle, described in Section 2.1 (Ellen MacArthur Foundation, 2013b, p. 34). Whilst such a system might seem idealistic, there has been significant interest suggesting that 3D printing systems could fulfil this ideal (Prendeville et al., 2016).

Many organisations in Kenya are leveraging the opportunities available from waste materials in Kenya to spur local manufacturing. AB3D, a company in Nairobi, has developed a locally made 3D printer using parts salvaged from waste computers (AB3D, 2019). 3D printing has often been linked to the circular economy as it can enable more circular material flows, primarily by upcycling waste plastic into 3D printing filament (Despeisse et al., 2017; Zhong and Pearce, 2018). AB3D's work embodies the ethos of the circular economy by upcycling (the process of transforming waste materials into new materials or products of better quality and environmental value, which is in this case a form of bricolage entrepreneurship) electronic waste into functional 3D printers; however, they do not use the terminology of the circular economy.

According to AB3D's founder, Roy Ombatti, the reason for this is that the term is relatively unknown in Kenya. Furthermore, they had not set out to create a circular economy company, but instead their use of waste materials was inspired by bricolage entrepreneurship (Baker and Nelson, 2005). AB3D was simply limited by the resources that were locally available and affordable, and so innovated to create their product.<sup>40</sup> From this base AB3D were able to develop a basic 3D printer by following the principles of frugal innovation so as to reduce the complexity and the cost of making their 3D printer (Bhatti, 2012). Yet, AB3D has created a process that is creating a regenerative flow, using waste materials to create products that themselves also support upcycling of waste plastic. AB3D are a small company with only five staff, but

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<sup>40</sup> Interview with R. Ombatti on 15 May 2016 in Nairobi, Kenya.

their upcycled printers have gained international recognition from interested organisations, such as the UK-based Tech for Trade, who are supporting AB3D with funding and mentoring.<sup>41</sup> So although AB3D are only articulating specific aspects of the circular economy at a small scale, they are demonstrating how a localisation of manufacturing is possible through bricolage entrepreneurship and frugal innovation. In analysing the triple bottom line of AB3D for the purposes of this research, AB3D were classified as making moderate social impacts. This is because they have a commitment to open-sourcing all of their designs to support their wider community to become independent makers. As AB3D's reuse model upcycles waste they have similarly been classified as making a moderate environmental impact. Despite being a for-profit company AB3D have been regarded as having a weak economic model as at the time of interview the company was struggling to find buyers for their 3D printers.

That said, one of AB3D's printers have been bought by a nearby company, Gearbox - one of Nairobi's first FabLabs (a fabrication laboratory, which is a small-scale workshop offering personal digital fabrication (Troxler and Wolf, 2010)). Gearbox are trying to develop a more decentralised mode of manufacturing in Kenya as a part of the 'maker's movement'. They are doing so to support Nairobi's informal sector with local manufacturing and product design (Norbrook, 2018). Gearbox are trying to use AB3D's printers to showcase what is possible to achieve locally whilst also using the printers to enable rapid prototyping. In doing so, they are demonstrating interorganisational cooperation that is in a small way helping increase the scale and impact of AB3D's work.

In analysing the triple bottom line of Gearbox, the company similarly has been classified as making a moderate social impact. This is because the company was set up to provide the next generation of Kenyan entrepreneurs training and the tools to design and build hardware solutions to local problems. The company is not making any explicit environmental impacts and so has been graded as weak in this regard. Although Gearbox is a for-profit company, the company has also received grants from charities such as the Lemelson Foundation to support Gearbox's capacity building

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<sup>41</sup> Interview with W. Hoyle and M. Menke on 4 May 2016 online.

mission.<sup>42</sup> For this reason, although Gearbox has been rapidly growing recently, their economic model has been ranked as moderate when compared to the other cases of this research.

Gearbox, through their team of just over 40 staff, are at the forefront of developing digital manufacturing in Kenya and have enabled the first manufacturing of printed circuit boards in Kenya using 3D printers. This dramatically reduces the wasted materials, time and travel for Kenyan engineers who had otherwise needed to go to China to iterate their circuit board designs.<sup>43</sup> Importantly this enables greater opportunity for local repair and repurposing in Kenya. So although neither of these companies are purposefully targeting a circular economy model, they are both addressing a fundamental issue at the heart of the ideal type of the circular economy, the ability for local repair and repurposing by improving local manufacturing capabilities.

Of course, in analysing the outcomes of this high-tech collaboration, that has so far only benefitted a few thousand people,<sup>44</sup> these impacts are only happening at a very small scale. In this way these actions are only the very first few steps towards realising some of the ideals of the circular economy. Nonetheless, through their collaboration Gearbox and AB3D are essentially beginning to build interorganisational scale, albeit to a limited degree. Interorganisational scale is the idea that actions of multiple organisations can be combined to create large-scale phenomena. In this sense this describes a synergy of multiple organisations that co-create opportunities. In this subcase, the confluence of AB3D and Gearbox have resulted in new opportunities for local manufacturing in Kenya that might not have been possible without one another's work. This aspect of interorganisational scale is highly relevant to Kenya's informal economy and will shortly be explained in this section through the subcase of the Akala sandal. First though, it is helpful to see how a similar drive for local manufacturing is working at a considerably larger scale than what AB3D or Gearbox have achieved so far.

Kenya's *Vision 2030* development programme, introduced in Section 4.4, highlights

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<sup>42</sup> Interview with P. Birkelo 30 August 2016 in Nairobi, Kenya.

<sup>43</sup> Ibid.

<sup>44</sup> Interview with R. Ombatti on 15 May 2016 in Nairobi, Kenya.

manufacturing as one of the six 'key growth drivers' to achieve this economic vision (GoK, 2007, p. 10). In this way it can be linked to the circular economy and seen in practice through related government initiatives, such as the deviant case of government investment in the Taifa Laptop programme. Initially spearheaded by the Jomo Kenyatta University of Agriculture and Technology (JKUAT) in 2014, the Taifa Laptop has brought the local manufacture of computers one step closer to Kenya as the laptop is now being assembled and produced (but not manufactured) in Kenya. This later led to scaling up the programme to include the assembly of the Taifa Elimu Tablet as a part of the Government's flagship, and extremely well funded, £425 million Digischools programme that aimed to distribute laptops and tablets to more than 23,000 schools countrywide (Igunza, 2016). This provided a deviant subcase for this research as local manufacturing capabilities (albeit limited to the assembly stage) were actively promoted and heavily subsidised by the government to such an extreme degree. This significant government funding undoubtedly enabled the assembly of these of highly technical products in Kenya to reach significant scale in a short space of time which provides an important point to understand this within the Kenyan context.

This development of local manufacturing abilities is admirable in the majority of perspectives on international development for many reasons, particularly growing the local economy (Russo and Banda, 2015; ICAI, 2017). However, it is the development of local repair services that is of most interesting from a circular economy viewpoint. Public funding for circular economy initiatives is a common strategy in the Global North. Although it is worth noting that such public funds are envisaged to only be required during a transitional phase to support businesses move towards a circular economy model (Aranda-Usón et al., 2019). In this sense, the Government of Kenya's support for the Taifa Laptop scheme echoes circular economy support seen in the Global North. In 2018, according to JKUAT's Business and Marketing Development Manager, Stephen Omondi, the Taifa Laptop scheme had reduced the costs of purchasing similar laptops in Kenya by approximately 10%. Importantly local repair was also immediately available whereas previously JKUAT had often been forced to wait six months to wait for spare parts to come from China.

Although the scheme is relatively young to be repurposing significant amounts of

equipment, they have already repaired hundreds of their computers.<sup>45</sup> This means that the Taifa Laptop scheme has opened up new possibilities for local repair as they can be locally returned and reassembled by the original assembler. This is essentially delivering a service close to being remanufactured by the original equipment manufacturer - the 'highest-quality repair and maintenance service' that forms part of the ideal type of the circular economy (Lüdeke-Freund et al., 2019). In making this development possible, the way that government support funded significant scale was a pivotal factor.<sup>46</sup>

In analysing the triple bottom line of this case study of JKUAT it is worth noting that the institution is a public university; however, it also hosts a for-profit subsidiary under which the Taifa Laptop programme was held.<sup>47</sup> When considering the Taifa Laptop in of itself, compared to the other cases of this research, the Taifa Laptop had made only a weak social impact to date. By enabling new, higher-quality repair activities the initiative was regarded as making a moderate environmental impact. Lastly, considering the vast government investment required to realise the Taifa Laptop, the economic model was rated as weak.

Initially JKUAT were able to invest in their Taifa Laptop knowing they had a captive market of approximately 11,000 students per year. These students would be obliged to buy one of JKUAT's Taifa Laptops in order to commence their studies, albeit with many reluctant customers (see Kipkorir, 2016). Nevertheless, this considerable scale was a critical step that enabled JKUAT to develop the Taifa Laptop. From this basis they then engaged with the government's Digischools programme to expand their range of products to include tablets in order to capture an extremely large tender, worth an estimated £425 million (Igunza, 2016). In this deviant case, it is clear to see how the phenomenon of large-scale government support has created these high-tech local manufacturing capabilities by heavily subsidising JKUAT's programme.

From this subcase we can see that JKUAT have been able to articulate aspects of the circular economy by enabling new opportunities for local manufacturing of high-tech

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<sup>45</sup> Interview with S. Omondi on 29 January 2018 in Nairobi, Kenya.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

products. When compared to the subcase presented earlier of Gearbox and AB3D, the way that JKUAT were able to scale their impacts through significant government support is notable. However, such support is unrealistic for all of Kenya's industries. Instead, initiatives that are inclusive of Kenya's significantly larger informal sector are more realistic. Indeed, the Kenyan industry of laptop and tablet repair is still dominated by Kenya's informal *jua kali* sector, despite this large-scale programme at JKUAT. However, these informal repair activities typify informal recycling activities that are happening at significant scale by smallholders that have been criticised by circular economy advocates (Reike et al., 2018; Hannon et al., 2016; UNIDO, 2019a).

To introduce the ways that the circular economy has largely dismissed low-tech recycling activities from the Global South, e-waste (electronic waste) is one of the most pertinent examples. The negative impacts of e-waste in sub-Saharan Africa have been well documented (see Robinson, 2009; Heacock et al., 2016). The most notable impacts typically stem from attempts at recycling in the informal sector to recover value via acid leaching and burning that result in public health disasters and extensive environmental pollution (Lucier and Gareau, 2019). The e-waste dump site in Ghana, Agbogbloshie has been cited, by an internationally-focused environmental charity, as one of the world's ten worst toxic threats (Blacksmith Institute, 2013).

The cause of these hazards can be traced back to dumping of e-waste by the Global North in the Global South where there was inadequate recycling infrastructure to safely manage these wastes. Since the international treaty of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 these flows of e-waste have significantly reduced (Lepawsky, 2015). Although several countries, such as Ghana, still have major challenges with excessive amounts of e-waste that is recycled informally (Oteng-Ababio, 2010). In this case 'the rural poor, in their struggle to survive, are sometimes driven to doing environmental damage' (Conroy and Litvinoff, 2013, p. xiii) whilst also suffering serious personal health consequences (Heacock et al., 2016).

The fact that these recycling practices are both socially and environmentally harmful means that the dominant conception of the circular economy from the Global North has been purposefully distanced from these kinds of low-tech recycling. According to Richard Gower, a senior associate focused on economics and policy at Tearfund, this

has been done to establish the circular economy as a new and innovative concept with paradigmatic potential.<sup>48</sup> This is despite the economic benefits of informal sector recycling in the Global South and ‘that it can be highly counterproductive to establish new formal waste recycling systems without taking into account informal systems that already exist’ (Wilson et al., 2006, p. 797).

The scale at which the urban poor are involved in such resource recovery activities is comparable with the employees of the formal recycling industry worldwide, each at around 20 million people (Velis, 2015). Similarly recycling rates, counting actually recovered materials (not just collected with the intention to recycle), for some low-income country cities can be in the region of 20–30% by weight of municipal solid waste (Velis, 2015). This is comparable with many high-income countries, such as the UK where just 17% of municipal solid waste is recycled (World Bank, 2012). Considering these impressive recycling rates and the sheer scale of these activities in the Global South there is a clear need for these low-tech recycling methods to be considered and incorporated if the circular economy is to have global potential.

This is particularly true if the concept is to avoid the exportation of unsustainability (Nar, 2014; Adams, 2008, p. 359) as seen in the 1980s when millions of tonnes of harmful e-waste dumped in Africa (The Independent, 2006). This is something that Tearfund have begun advocating for, believing that taking a micro-enterprise approach to the circular economy is more valuable in a development context<sup>49</sup> than the MNC focused approach that is dominant in the Global North (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). This approach echoes Conroy and Litvinoff’s assertion that creating sustainable livelihoods for the poor creates ‘safeguards against pillage and degradation by commercial interests and the rich... The poor are not the problem; they are the solution’ (2013, p. 3). This is an important point considering that, from the analysis of extant Kenyan circular economy discourse presented in Chapter 4, informal workers are being explicitly excluded. For example, in discussing a recycling centre that would be funded through the programme, backed by donors from the Global North, the Kenyan circular economy strategy outlined the necessity to ensure there is

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<sup>48</sup> Interview with R. Gower on 31 October 2017 online.

<sup>49</sup> Ibid.

'no informal sector participation in its organization or management functions' (Soezer, 2016, p. 60). To analyse the influence of this questionable exclusion of the informal sector we can turn from e-waste towards Kenya's *jua kali* sector where we can see a pertinent example of recycling and repurposing activities happening at scale that demonstrates aspects of Conroy and Litvinoff's maxim. In doing so, quiet sustainability provides a useful conceptual framework from which to analyse circular economy practice in Kenya.

## **6.2 - *Jua Kali* and the Akala Sandal Industry**

*Jua kali* in Kenya is a term that has been used liberally to describe the country's informal sector for decades. Historically *jua kali* has primarily referred to small-scale artisans, such as those making tools or textiles (King, 1996). The term has also been used to define Kenya's social stratification placing those working in the *jua kali* sector as members of the class of working poor (Kilbride, 2000). In recent years the term, which is literally translated as 'hot sun' has also become used to describe the mindset of by any means necessary (Orwa, 2007). In this way it often relates to repair activities by innovative but often inadequate and transient methods that degrade the overall value and quality of a product (Ngure, 2013). From a circular economy viewpoint, the repair aspects of *jua kali* could be transliterated as bricolage entrepreneurship - creating something from waste (Baker and Nelson, 2005).

From the *jua kali* sector comes the subcase of Kenya's ubiquitous Akala sandal worn by millions of Kenyans. This deviant case study looks at the Akala industry in Kenya as a whole, analysing the way thousands of informal sector artisans across the country are collectively contributing towards a form of the circular economy.

### **Economic Model**

The Akala sandal is a traditional type of footwear that has been made in East Africa for generations. The design of these sandals comes from their leather predecessors (Somjee, 1993). As stronger materials became readily available from waste car tyres, this design was modified and now Akala sandals are now almost exclusively made from

waste car tyres. The Akala sandal industry demonstrates an extreme as the sandal is one of the most common items of footwear in Kenya with millions in use today. Another aspect that makes this a deviant case is how thousands of artisans are working in concert to create a form of interorganisational scale and are significantly reducing car tyre waste in Kenya (Kathomi, 2013). In this way the Akala sandal industry represents a strong for-profit business model. Whilst the artisans are arguably on low incomes, the strength and size of the industry as a whole is considerable and is evidenced by the resilience of the industry in Kenya over the last 50 years (Okello, 2016).

According to Silas Etiang, who had previously worked as an Akala artisan, the sandals are renowned for their durability. This aspect is inherited from the waste tyre's chemical composition, but comes at the cost of minimal comfort in the design. Key to the Akala's success in the Kenyan market is the extremely low cost of the shoes at just 200 KES (US\$2) for a pair.<sup>50</sup> This is the main reason why they are predominately worn by low-income populations. This has been compounded by the low barriers to entry for artisans as the shoes can be produced almost anywhere in the country as waste tyres can be sourced from automobile garages in most towns (Kathomi, 2013).

### **Social Impacts**

Due to the nature of the Akala sandal, the business model of the industry is based around extreme income inequality. On the one hand it requires sufficient wealth for there to be waste car tyres spread throughout the country. On the other hand, it also requires a sufficiently large population that is in need of extremely affordable footwear. The industry is also made viable because of the lack for formal jobs that results in many informal sector workers learning how to manufacture Akala sandals in order to create their own employment opportunities. The industry is low-tech and highly manual compared to equivalent manufacturing processes in more high-tech factories. Subsequently, the Akala industry is labour intensive and essentially follows a high-employment business model. So although the income generation potential for an Akala artisan is low, it is significant in an economy where youth unemployment stands at 55% (Awiti and Scott, 2016). In this way, by providing jobs, albeit at a low income, the Akala

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<sup>50</sup> Interview with S. Etiang on 8 November 2016 in Magadi, Kenya.

sandal industry has been rated as making a moderate social impact in Kenya.

### **Enterprise Size and Geographic Scale**

Nonetheless, the Akala sandal still helps to highlight several important aspects of how the ideal type might be realised. The ubiquity of the sandal also makes the sandal more attractive for consumers as there are currently thousands of Akala artisans in Kenya, meaning that repair of the sandals is also easily available.<sup>51</sup> The fact that Akala sandals are ubiquitous in Kenya supports their continuing proliferation as consumers find it easy to have sandals repaired and similarly there are many artisans who train apprentices who then continue to expand the wide-spread industry that covers the entire nation. In this way many artisans, who are largely self-employed and often run a small enterprise, are creating a synergy that leads to a form of interorganisational scale for the Akala sandal industry. When compared against the high-tech contributions from the earlier subcases of AB3D, Gearbox and the Taifa Laptop it is clear that the Akala sandal industry is able to operate at a vastly greater scale, largely due to the low barriers to entry that are possible for a low-tech product.

### **How the Akala Sandal Industry Addresses the Circular Economy**

The Akala sandal directly articulates a key idea of the circular economy, that of reuse. Akala sandals are predominately made of our waste tyres and as such the industry showcases a form of bricolage entrepreneurship. In doing so the Akala artisans are optimising a resource and enabling rubber materials to circulate at a higher utility than the other available alternatives for worn tyres such as waste-to-energy. Subsequently the Akala sandal embodies quiet sustainability as it is an upcycled product with several environmentally positive contributions. Yet hardly any of the artisans or retailers of the Akala sandal emphasise this overlooked aspect of the product. Indeed, the reasons why the Akala sandal is popular is not because of its environmental benefits, but much more simply their durability, repairability, availability and most importantly their low price. These aspects have kept the Akala sandal

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<sup>51</sup> Interview with S. Etiang on 8 November 2016 in Magadi, Kenya.

competitive with stiff competition from the local Bata factory in Limuru, just outside Nairobi which produces 30 million pairs of shoes annually (Biko, 2018).

Bata claim to be the world's largest shoemaker by volume and their Kenyan factory manufactures 40% of their global production (Bata, 2018a). These immense economies of scale have subsequently reduced the costs of Bata shoes in Kenya such that the company is competitive on price with the Akala sandal industry. At the time Bata's lowest cost comparable sandal was retailing at 240 KES (US\$2.40), just 20% more than an Akala sandal (Bata, 2018b). The fact that Akala sandals have remained competitive underlines the cost efficiencies available from using waste tyres as their primary material.

A few companies have tried to develop the Akala design into a more upmarket product, yet none have reached significant scale when compared to the *jua kali* sector. For example Maasai Treads, a small company with 14 employees, who 'recycle old leather jackets for their leather recycled range' of shoes as well as the more typical rubber Akala sandals that they sell globally (Maasai Treads, 2017). Although the scale of Maasai Treads is minuscule compared to the thousands of *jua kali* artisans making Akala sandals, the higher quality and upmarket products of Maasai Treads are more easily associated with the circular economy thanks to their upcycled branding (Maasai Treads, 2017). Nevertheless, the impact of the Akala industry is now being seen globally as companies in other countries including India, the USA and Sweden have all started manufacturing similar shoes based on the waste tyre design (Wysocky, 2014).

### **Environmental Impacts**

Upcycling waste tyres into Akala sandals is a significantly more circular option compared to the other common strategies for managing this waste resource in Kenya. Another common use for waste tyres in Kenya is to use them as a fuel source by burning them (Kathomi, 2013). This process is known as energy recovery or waste-to-energy which has been shown to be in conflict with the aims of the dominant circular economy conception (Muznik, 2017). In this way waste-to-energy is archetypal weak sustainability by assuming that incineration of natural resources (reducing their total stock) is acceptable as it increases the supply of human capital by virtue of being economically profitable (Pelenc and Deduerwaerdere, 2015). Compared a waste-to-

energy approach the material reuse approach of the Akala sandal industry helps to reduce the carbon impact of waste tyres by giving the industry a moderate environmental impact.

Interestingly though large-sized companies in Kenya often burn waste tyres with some claiming the action is part of a circular economy. This can be seen in Bamburi Cement's public relations statements, explicitly linking their energy recovery system to the circular economy, claiming it to be a 'sustainable solution' whilst ignoring the associated carbon emissions of burning tyres (Lafarge, 2018; Lafarge, 2019). This articulation of the instrumental type of the circular economy by this multinational corporation is subverting the Akala sandal industry in a small way. By reducing the supply of waste tyres Bamburi Cement are slightly increasing the cost of waste tyres in Kenya, detracting from the successes of this *jua kali* industry that has immense interorganisational scale.

In summary, the subcase of the Akala sandal industry backs up Conroy and Litvinoff's assertion that 'the poor are not the problem; they are the solution' (2013, p. xiii) as well as Gower's suggestion that a micro-enterprise approach to the circular economy is more valuable in Tearfund's development context<sup>52</sup> than the MNC focused approach that is dominant in the Global North (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). From this subcase we can see that the Akala sandal typifies the concept of quiet sustainability, as the vast majority of artisans and users are not linking the beneficial environmental outcomes of their practices with sustainability goals. In general this deviant case shows that interorganisational scale can be achieved by a multitude of informal sector artisans producing a locally known product in tandem. However, despite notable economic, environmental and social contributions, in its current form the industry is fundamentally reliant on extreme inequality as both the consumers and artisans participate in the industry because of a lack of other economic options. Therefore, in this way the Akala sandal industry does not quite perfectly fit the ideal type of the circular economy, yet it is still contributing to a near ideal type of the circular economy by articulating quiet sustainability.

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<sup>52</sup> Interview with R. Gower on 31 October 2017 online.

Overall, from the example of Akala sandals we can learn several aspects of how an actually existing circular economy in Kenya differs to how the concept is portrayed in the Global North. Firstly, the millions of Akala sandals in use in Kenya exemplifies the immense scale of bricolage entrepreneurship in Kenya. The sheer volume of these activities emphasises how important it is that these activities be included to develop the concept of the circular economy to make the ideal type of the circular economy more realistic in Kenya.

Secondly, the Akala sandal shows that, at times, less technologically intensive production systems, such as informal *jua kali* artisans, can be equally successful as industrial systems, such as Bata's. This can be because low-tech systems can at times respond to local conditions and requirements more specifically. The fact that the Akala sandal remains competitive against Bata's similarly low-price shoes shows that consumers understand the Akala sandal's greater durability, repairability and availability.<sup>53</sup> This means that in some cases, to create a product that is good for the environment, good for low-income workers, and develops the local economy, it is not always necessary to use high-tech, industrialised solutions through large corporations. This strongly contrasts the solutions that are often proposed under the guise of the circular economy (Mugge & Bakker, 2018; Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). Furthermore, if the quiet sustainability contributions of these artisans were included within the framework of the circular economy, it could be possible to support their business model. This could be done by accounting for the social and environmental positive externalities created and appropriately remunerating the artisans. In this way circular economy model would help to address issues of social inequity.

Overall the subcases presented in this chapter so far help us to form an answer to the first research question and understand what forms of the circular economy are most achievable in Kenya. In general, these subcases have shown that low-tech business models, such as the Akala sandal industry, can make important sustainability contributions that articulate much of the ideal type of the circular economy. Thanks to

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<sup>53</sup> Interview with S. Etiang on 8 November 2016 in Magadi, Kenya.

the lower barriers to entry, scale is much more easily achievable for low-tech products. Notably it does not require the significant government support to achieve scale as was exemplified by the Taifa Laptop subcase. Whilst bricolage entrepreneurship and frugal innovation might be able to make steps towards forms of the circular economy in Kenya, as seen by the subcases of AB3D and Gearbox, these approaches are likely to only create small impacts. That said, whilst the Akala sandal industry was close to the ideal type of the circular economy, as it is a business model that is inextricably linked to inequality, it is worth asking if all of the holistic aspects of the ideal type can be achieved by one of the cases of this research.

### **6.3 - Are the Holistic Aspects of the Ideal Type of the Circular Economy Achievable Within a Single Company?**

To see if this holistic model is possible within a single company we can turn to a medium-sized company from the key case studies that has several distinct advantages in articulating the ideal type of the circular economy. Sanergy provide a useful example to see whether a medium-size company might be able to address the comprehensive aspects of a circular economy approach. As Sanergy have been introduced in detail in Section 5.3, this chapter draws on the structured analysis presented earlier without repeating the same information here. Instead, only the pertinent aspects are discussed here which build upon the systematic analysis completed in Chapter 5. As discussed in Section 5.3, in some aspects such as staff numbers, Sanergy are on the cusp of being considered a large-sized enterprise. Certainly, parts of Sanergy's operations have reached considerable scale, directly employing over 250 people as well as their network of 3,500 Fresh Life Toilets, serving over 130,000 customers per day (Sanergy, 2019c). This level of scale implies a level of maturity within the business. Therefore, Sanergy provide an apt case study to analyse whether the scale of their operations has enabled them to address issues that challenge smaller companies such as Bintis and Stonehouse. This helps us to answer the fourth research question and see how the

reality of the circular economy in Kenya differs from that envisaged by the discourse coalition surrounding the concept.

Firstly, the scale of Sanergy's operations have enabled them to find uses for the significant volumes of waste they collect on a daily basis. This scale is fundamental as it enables them to vertically integrate their supply chain such that they can create upcycled products such as Evergrow Organic Fertiliser and KuzaPro, as detailed in Chapter 4. They have also begun investigating future options for generating biogas.<sup>54</sup> Without significant economies of scale these activities would simply be uneconomic and Sanergy would not be able to control the quality and quantity of these input materials sufficiently to create these products.

Secondly, part of Sanergy's strategy as an international social enterprise means that their social and environmental credentials are pivotal to their business model. Whilst Sanergy is registered as a typical for-profit company in Kenya (the only suitable legal form available) they also run a charitable arm in the USA that regularly fundraises to subsidise their Kenyan operations. This means that Sanergy regularly undergoes external scrutiny from social impact investors, beyond that of a purely for-profit company. This scrutiny encourages Sanergy to review their operations and ensure they are providing value to their beneficiaries and are doing so in a responsible manner. Whilst this arguably makes Sanergy vastly different to the majority of companies in Kenya, it provides a particularly illuminating case. It gives opportunity to analyse whether Sanergy, with these added incentives to analyse their social and environmental impact, as well as having the advantages of scale, have been able to address the holistic requirements of the ideal type of the circular economy.

In order to analyse whether Sanergy have the capacity for this comprehensive approach it is first necessary to give some information on how and why Sanergy evaluate their own business in considerable detail. Sanergy have participated in several case studies done by external parties, both academic-led and business-led. According to one of Sanergy's co-founders, David Auerbach, there are several reasons for their active participation including: media exposure, staff recruitment, independent evidence

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<sup>54</sup> Interview with D. Auerbach on 25 September 2017 in Nairobi, Kenya.

gathering and analysis, and lastly as part of their strategy for 'giving back' to the social enterprise community at large.<sup>55</sup> One of the most significant reasons though is that participating in studies with major international development institutions, such as the World Bank (World Bank, 2019b), enables Sanergy to gain traction with higher value donors and social investors. This is also one of the reasons why Sanergy have a commitment to their online blog where they have posted over 275 articles since 2010 (Sanergy, 2019d), that they leverage to gain access to funding opportunities. Notably some of Sanergy's other research partners have claimed that Sanergy have realised 'the circular economy for sanitation' (Moya et al., 2019, p. 12). Although it is worth noting that Moya et al. failed to interrogate what the circular economy means in their short case study. Nevertheless, this academic backing, that suggests Sanergy are leading their sector towards the circular economy, significantly supports their social enterprise.

There is also another key reason why Sanergy are investing heavily in their monitoring and evaluation work. Their 'exit strategy' or perhaps better phrased as their route to profitability (at which point they will no longer be dependent on charitable donations), requires considerably greater scale, well beyond the 1,000 franchisees they have to date. The required scale is so vast, as readily explained by Auerbach, that the government will almost certainly need to start purchasing their services through public works contracts.<sup>56</sup> Therefore, Sanergy need considerable evidence of both the public good of their business, but also their efficiency and comparative low costs versus competing solutions such as traditional sewerage. In the shorter term, they also need this evidence base to pitch to investors.

Sanergy need to grow a considerable amount to reach the necessary scale to interest even county-level administrators. For example, from Sanergy's statistics, over four million tonnes of human waste are removed from slums in Nairobi each year by a variety of methods (Gates Foundation, 2019). Yet, in 2017 Sanergy collected a mere 5,000 tones of human waste. This shows Sanergy's market share to be less than 0.13%, and this is a major reason that Sanergy continually try to position themselves as

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<sup>55</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

<sup>56</sup> Ibid.

a company that already have considerable scale (Sanergy, 2019c). If Sanergy are to get the Kenyan government to contract their services at a large scale, they must first prove that their solution is viable at scale. Hence, the considerable effort Sanergy put into various studies that help them to independently verify their impact.

For all of their efforts in evaluating their impact, in 2017 Sanergy had not yet invested in analysing the carbon impact of their activities. On interview Auerbach revealed that the carbon impact of Sanergy's activities was not a primary interest for the company and that the company did not know the size of their carbon impact.<sup>57</sup> This is despite having worked with major international charities such as Tearfund, who have a considerable focus on climate change (Tearfund, 2017). In 2016 Tearfund published *Virtuous Circle: How the Circular Economy Can Create Jobs and Save Lives in Low and Middle-Income Countries*, which featured Sanergy's work in Kenya as an example of a circular economy business model (Gower and Schröder, 2016). It is worth emphasising that, as described in Section 2.8, the ideal type of the circular economy is based on renewable energy to achieve a zero-carbon society (Ellen MacArthur Foundation, 2019b).

Despite Sanergy's unawareness of their carbon impact, in 2017 they were trialling a system to produce biogas from their collected waste, somewhat in an attempt to offset their carbon emissions associated with their fossil fuelled collection vehicles. Auerbach thought there was potential that Sanergy could even become carbon neutral if they can bring their ideas for the production of biogas to fruition.<sup>58</sup>

Sanitation only has a relatively small impact of just 1% of global methane emissions (Reid et al., 2014), so although there is relatively little academic literature available on container-based sanitation, there is enough data to give a reasonable indication of Sanergy's carbon impact. There is a comparable study looking at the carbon footprint of sanitation systems in Zambia and India (Laramée et al., 2017). This shows that sewerage (an underground networks of pipes that carry sewage from buildings to treatment facilities or disposal points) in urban areas has less than a third of the carbon impact in the long-run compared to non-sewer systems. However, it is worth noting a

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<sup>57</sup> Interview with D. Auerbach on 25 September 2017 in Nairobi, Kenya.

<sup>58</sup> Ibid.

significant caveat to this, that this remains true only if over 50% of the population can use a single sewage system (ibid.). Sanergy's system is comparable to the non-sewer systems analysed by Laramée et al. and so is likely to create significantly more carbon emissions than a traditional sewerage system.

Although Auerbach was aware of some aspects of Sanergy's carbon emissions, his focus was on those created by their fossil-fuelled collection vehicles. It has been shown that even non-sewer sanitation systems that maximise opportunities for energy recovery through composting or biodigestion, can enable them to become net energy producers over their service life, but these systems still have a considerable carbon footprint and are less environmentally friendly than traditional sewerage systems (Galvin, 2013; Laramée et al., 2017). Therefore Auerbach's indication that Sanergy might become carbon neutral by producing biogas was certainly overly optimistic.<sup>59</sup> From this analysis it is clear that Sanergy's model is inherently carbon intensive compared to traditional sewerage and therefore in this regard is incompatible with the ideal type of the circular economy.

Overall, despite Sanergy's business model being closely aligned to many aspects of the circular economy, as detailed in Section 5.3, their operations are far from being carbon-neutral. Instead, they have a significantly larger carbon footprint than what could be considered an industry average of traditional sewerage. This means that Sanergy have failed to cover the comprehensive scope of the ideal type of the circular economy by failing to decarbonise their business model. This is in spite of their advantages of medium-size scale, the charitable support they receive, as well as the significant attempts they make to monitor their impact through both internal and external evaluation. From this case it suggests that even an impact-minded businesses needs greater scale than just over 250 employees in order to address all of the impacts of their business model. In summary this means that Sanergy are articulating an actually existing form of the circular economy which does not have significant potential to combat climate change.

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<sup>59</sup> Interview with D. Auerbach on 25 September 2017 in Nairobi, Kenya.

This case raises an important point that SMEs, such as Sanergy, are more likely to represent the actually existing type of the circular economy than the ideal type. This is largely because SMEs do not have the scale to fully account for the holistic dimensions of the ideal type of the circular economy. This helps us to answer the fourth research question as it suggests that the reality of the circular economy in Kenya differs from the unrealistic ideals envisaged by the discourse coalition from the Global North. In brief, this case suggests that the ideal type of the circular economy is unrealistic for many businesses.

## **6.4 - Are MNCs Overlooking Low-Tech Circular Systems?**

This chapter has shown through a few examples how scale can be a pivotal factor in enabling sustainable business models that speak to the circular economy. Therefore it is helpful to analyse Coca-Cola's business model in Kenya to see whether using scale one of the world's largest companies is leading towards sustainability. Going to the extremes of scale, Coca-Cola provide a deviant case to examine how fundamental scale is to their sustainability initiatives. Here we will see the significant differences in how Coca-Cola address the circular economy in Kenya versus how they do so in Western markets, and evaluate if they are living up to their own explicit linkages to the circular economy (Coca-Cola, 2018a). This helps us in expanding the answer to the fourth research question by providing a direct comparison of how a local interpretation of the circular economy in Kenya compares to the archetypal circular economy of the Global North. This highlights the important ways that low-tech and quiet sustainability can bring businesses closer to the ideals of the circular economy.

This section will present the subcase of the glass bottle reuse system currently in place in Kenya, and briefly compare this against the plastic bottle recycling systems that are more common in the Global North. By briefly drawing on relevant information from Coca-Cola's operations in countries in the Global North, this subcase will also illuminate whether the circular economy is promoting the concept of 'tunnelling through' - using technology and policy to maximise growth while minimising environmental harm (Munasinge, 1999), and essentially enabling the Kenyan economy to leapfrog

environmentally harmful business models. In doing so this section will analyse some of the most relevant policies in the UK and Kenya to understand the policy context and its influence on Coca-Cola's approach in each country. This will help us build more complete answers to the research questions, in particular question four, by contrasting how each of Coca-Cola's differing business models in the Global North and Global South address the circular economy in different ways. In order to do so, it is important to note that there is no extant legislation in Kenya that prescribes how plastic bottle wastes should be managed (Reuters, 2019c). Whilst there have been suggestions for policies, which will be discussed shortly, there is a policy vacuum in regard to plastic bottle wastes in Kenya when compared to other countries such as the UK (BBC, 2019).

### **Coca-Cola's Economic Model, Enterprise Size and Geographic Scale**

As one of the world's largest MNCs, operating in every country bar Cuba and North Korea, Coca-Cola's strong for-profit business model is well known (BBC, 2012). In each of the national markets Coca-Cola operates in, there are however slightly different models. These will be explained in further detail shortly; however, this analysis will primarily focus on how Coca-Cola's retail models result in differing packaging choices (specifically glass bottles and plastic bottles) in different markets. This helps us to see how Coca-Cola are addressing the circular economy through their for-profit operations.

### **How Coca-Cola Address the Circular Economy**

Coca-Cola have publicly stated that they are striving to create a 'circular economy that benefits society and works for our business' (Coca-Cola, 2018a). A key emphasis of this pledge, and their membership of the Ellen MacArthur Foundation's *Circular Economy 100* group (Ellen MacArthur Foundation, 2019c, 2019e), is to reduce the amount of plastic created from their business. They primarily intend to do this by increasing the share of their supply chain and packaging that is recycled. However, and perhaps most interestingly, they also claim to take on the responsibility for collecting a bottle or can for every one they sell by 2030. Recently, Coca-Cola claimed to be collecting 59% of their packaging waste (Coca-Cola, 2018a).

In 2016 Coca-Cola made 110 billion plastic bottles, 23% of global production, demonstrating the extreme scale the multinational corporation is working at. However,

globally less than 50% of these bottles are collected for recycling and only 7% remanufactured into new bottles (Lucas, 2017). Furthermore, to imply that the situation is similar in all of Coca-Cola's global markets would be misleading. What is not mentioned in Coca-Cola's public relations statements is what proportion of these collected materials are in which countries, nor being explicit about which materials are collected. By exploring the details of this example we will see the all important nuance that reveals an inherently circular system that is in use in Kenya. This system has generally been replaced by less sustainable alternatives in the Global North.

Firstly, the way Coca-Cola's statistics, such as collecting 59% of their packaging waste (Coca-Cola, 2018a), are presented show an optimistic picture. However, this doesn't account for the fact that in these metrics collecting a single glass bottle 15 times offsets the need to collect 15 different plastic bottles. In this sense, we will see that the circular systems in use in Kenya and other countries in the Global South are being used to produce such favourable statistics and offset low waste collection rates in the Global North.

### **Environmental Impacts**

Replacing a disposable (plastic) bottle with one made from recycled glass reduces its environmental impact by half (Accorsi et al., 2015). Considering that this glass bottle can then be reused on average 15 times, this means that a refillable glass bottle has an environmental impact 30 times smaller than a disposable plastic bottle (Environmental Defence, 2011). This emphasises the importance of reuse over recycling - a core tenet of the circular economy. It has been reported that this is a fact well known within Coca-Cola.

In the 1970s Coca-Cola's own research showed that 'no other packaging system could match returnable glass bottles on energy efficiency and reducing waste and pollution' (Williams et al., 2019, p. 149). In spite of this, Coca-Cola's promotional materials primarily suggest that they are creating a circular economy by improving the way they are using plastic PET (polyethylene terephthalate) bottles that make up 45% of their packaging mix, whilst ignoring their important circular business model using glass bottles (Coca-Cola, 2019, p. 61). Coca-Cola claim that more of these bottles are being manufactured from recycled plastics, yet these bottles were only 6% of their

packaging mix in 2017, whereas their use of non-recycled PET actually increased over the last six years (Coca-Cola, 2018b). Reasons for Coca-Cola's use of loud sustainability, in advertising the efforts they are making toward using recycled PET in the UK, are easy to identify when analysing local legislation. In 2022 the UK will introduce legislation that will tax plastic packaging containing less than 30% recycled plastic (HMRC, 2020). Coca-Cola were consulted by the UK government in designing this tax, which helps to explain why Coca-Cola's efforts in the UK are specifically addressing this aspect of their environmental impact. Subsequently, Coca-Cola are leveraging their efforts in using more recycled plastic in their bottles to brand themselves as circular economy pioneers, despite the fact that such efforts have been significantly incentivised by new legislation. Nonetheless, what is particularly surprising is that despite a complete lack of attention given to the arguably more sustainable practices surrounding Coca-Cola's circular system of refillable glass bottles. In 2017 Coca-Cola's global packaging mix contained a larger proportion of refillable glass (8%) than of recycled plastic (6%) (Coca-Cola, 2018b). This is even more surprising when considering that Scotland is introducing a deposit return scheme for glass bottles (as well as other materials) in 2022 and that similar schemes are being proposed throughout the UK (BBC, 2019). Here we see a dichotomy from the technocentric nature of the circular economy that enables Coca-Cola to brand their high-tech recycled plastics as compatible with the circular economy through loud sustainability. This is in spite of their globally successful reusable glass bottle schemes and the fact that recycling plastics fits within the pollution control approach to sustainable development which is even further removed from ideal sustainability than weak sustainability (Baker, 2006, p. 30). Therefore, in this sense I argue that the small amounts of plastic waste which are now being recycled through Coca-Cola's improved recycling practices in the UK amount to a weak environmental impact when rated against the other case studies of this research.

On the other hand, Coca-Cola's glass bottle business model arguably fits within strong sustainability whilst also demonstrating quiet sustainability. In this sense I argue that the reduced carbon emissions associated with the Kenyan model of reusing glass bottles has a moderate environmental impact. Yet, despite this arguably greater impact, this system of glass reuse and recycling is considered low-tech as it has been in use in

varying forms since 1884 in Sweden (Toufique and Masoom, 2015). According to Martin Mwangi, a marketing analyst at Coca-Cola,<sup>60</sup> these strong sustainability systems have been overlooked as a circular economy solution by Coca-Cola because it has been done for such a long time and is low-tech. Therefore, it is hard to describe as 'innovative' - a regular buzzword of circular economy rhetoric (Mentink, 2014). Of course, the glass bottle system is rooted in commercial factors, particularly the challenges of reverse logistics for a widely dispersed product. This is the primary reason this model is generally found in the Global South where economic considerations make this system more profitable.<sup>61</sup> However, that should not detract from the reality that this model articulates many parts of the ideal type of the circular economy much better than Coca-Cola's well advertised plastic solution.

Coca-Cola's glass bottle system predominately occurs in the Global South where narrower profit margins and lower wage costs mean that it is more economical to use a deposit scheme and reverse logistics to reuse refillable glass bottles. This means that in Kenya Coca-Cola typically refill a single glass bottle in excess of the global industrial average of 15 times (Environmental Defence, 2011). From this understanding, Coca-Cola's distribution model is significantly more circular when using refillable glass bottles. In Kenya the majority of Coca-Cola's products are sold in refillable glass bottles, making up approximately 80% of sales by volume.<sup>62</sup> This helps us to form an answer to research question four, by seeing how the circular economy in Kenya can differ from the archetype from the Global North - it can be low-tech and articulate quiet sustainability. It also brings questions as to why this environmentally friendly business model is not replicated in Coca-Cola's other markets? Particularly when markets in the Global North tend to have more legislation mandating companies' responsibilities for the waste they produce? And what are the reasons behind why refillable glass bottles are so much more common in Kenya than the Global North, particularly when Coca-Cola have considerable scale in almost every market in the world?

In order for Coca-Cola to run a profitable business in Kenya they have retained their

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<sup>60</sup> Interview with M. Mwangi on 26 January 2018 in Nairobi, Kenya.

<sup>61</sup> Ibid.

<sup>62</sup> Ibid.

original business model where glass bottles are reused, that has largely disappeared in the Global North (Farmer, 2010). Since the invention of the aluminium can and plastic PET bottles, the Global North has seen reusable glass bottles rapidly disappear, replaced by these more convenient alternatives. This economic hierarchy has now become so well established that Professor Julian Allwood, a University of Cambridge engineer and an advocate of the circular economy, claims with little evidence that commercially viable reuse of glass bottles is impossible (Allwood, 2014). This economically motivated shift largely happened in the 1970s when large corporations were less concerned with how the public perceived their environmental actions. An iconic example of this was in 1971 when Friends of the Earth protested against the decision by the soft-drink company Schweppes to use non-returnable glass bottles by dumping 1,500 bottles outside their headquarters (Adams, 2008, p. 121). The protest failed to change the company's decision and subsequently Schweppes do not accept returns of glass bottles in the UK. Yet, in Kenya these glass bottles are still the most common packaging choice for Coca-Cola, primarily for economical reasons.

There are several factors that contribute to this which are worth detailing to explore how the situation is different in Kenya to markets in the Global North. Firstly, there are fewer plastic bottle and aluminium can manufacturers in Kenya making it relatively more expensive to manufacture this packaging.<sup>63</sup> Secondly, Kenya has a relatively low cost of labour which makes it cheaper to employ people to manage the collection system. This is also combined with the fact that Kenya's many low-income consumers are more price sensitive than consumers in the Global North. This makes the deposits on the bottles a much more significant proportion of the cost of the product. In Kenya the deposit per bottle of Coca-Cola can be as little as 10 KES (£0.08), yet this can be as much as 50% the cost of the product as a 200ml glass bottle of Coca-Cola sells for 20 KES (£0.16) (Muchiri, 2010). This emphasises the increased importance of these small values in the Kenyan market, versus other countries in the Global North where deposit refund systems are successful. For example in Sweden, where a bottle would typically cost 8.50 SEK (£0.72) and the deposit for the bottle would be only 0.60 SEK

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<sup>63</sup> Interview with M. Mwangi on 26 January 2018 in Nairobi, Kenya.

(£0.05) - only 7% of the product's cost (Tojo, 2011). This is a critical reason for why Coca-Cola's Kenyan business model has not needed to be mandated by legislation yet. However, the increase of plastic bottles in Kenya is beginning to bring this logic into question.

Another key component of this business model that was stressed by a Coca-Cola employee was the value from strengthening the business relationship by locking retailers in. Returnable glass bottles encourage repeat sales as their partner retailers pay deposits on the glass bottles as well as reusable crates to transport them in. Lastly, the scale that Coca-Cola have achieved in Kenya is also an important enabler to this reuse model.<sup>64</sup> The importance of scale is most plainly seen through the even more extreme Malawian example of Carlsberg Malawi who have a 97% market share of clear beer and 27% of total alcoholic beverages (Face of Malawi, 2010). This means that Carlsberg Malawi can control the supply chain, and have developed uniform bottle shapes for multiple products with durable glass making them easier to reuse. A similar situation is seen in Kenya where Coca-Cola are nearly as dominant in the soft drinks market.<sup>65</sup> All of this echoes the findings of Park et al. (2010) in demonstrating that the large-scale MNCs are able to work at can enable them to vertically integrate their supply chain and enact circular economy practices.

All of these factors combine to give Coca-Cola sufficient incentive to invest in suitable refillable glass bottles in Kenya, unlike as seen in the UK. What is most surprising is that this is a purely economical decision which has not been incentivised by Kenyan legislation. In Kenya Coca-Cola's bottles are made with slightly thicker glass that is more durable and likely to last more than 15 refills. This example demonstrates that a low-tech business model can be more compatible with the circular economy than high-tech recycling solutions that are normally described as circular economy solutions (e.g. Hedayati et al., 2019; Coca-Cola, 2018c). It is also worth noting the important role that the lower-middle income context of Kenya has in being fundamental to this quiet sustainability business model. This emphasises that models closer to the ideal type of the circular economy generally require a balance and harmony between economy,

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<sup>64</sup> Interview with M. Mwangi on 26 January 2018 in Nairobi, Kenya.

<sup>65</sup> Ibid.

environment and an equitable society.

### **Social Impacts**

There are other espoused benefits of this reuse system that go beyond benefiting Coca-Cola directly. Morris and Morawski (2011, p. 35) showed that refillable bottle deposit systems provide up to 38 times more direct jobs than comparable recycling systems. In this way, the glass bottle reuse system is a high-employment business model (albeit low-wage). Considered in the Kenyan context, where there are such high levels of unemployment, this model therefore makes a moderate social impact by providing more jobs than the alternative plastic recycling business model. Yet despite these social and environmental benefits, there are only a few countries in the Global North, primarily Nordic countries, that have large-scale reusable bottle systems (Muchiri, 2010). Nevertheless, the use of plastic bottles over glass has continued to slowly rise in Kenya over the past decade.

As plastic bottles have become more ubiquitous in Kenya, the environmental hazards of large volumes of these wastes have fostered public calls for an outright ban on plastic bottles in Kenya. The government has responded to these calls with an attempted ban on plastic bottles in 2018, yet this ban was blocked due to lobbying by the Kenya Association of Manufacturers, who represent large corporations such as Coca-Cola (Daily Nation, 2018). Subsequently Kenya is still without any legislation mandating waste management of plastic bottles (Reuters, 2019c). This is a stark contrast to the UK where businesses have been legally required to recover and recycle percentages of the waste they produce since the introduction of *The Producer Responsibility Obligations (Packaging Waste) Regulations 1997*.

The role of one of the world's largest MNCs should not be underestimated in how it can influence legislation. Coca-Cola are known to use their vast resources to lobby governments for favourable policies. For example, in 2018 a letter leaked showing how Coca-Cola, amongst other MNCs, were urging member states of the European Union to scrap a proposal to make plastic bottles more recyclable (Chapman, 2018). Subsequently, implementation of the proposal to mandate tethered caps on plastic bottles has been delayed until at least July 2024 (EU, 2019) and industry groups are continuing to lobby against the legislation on behalf of their corporate members

(Morton, 2019). Whilst there is less available data on Coca-Cola's lobbying efforts in Kenya their intensive lobbying of the UK government in opposition to the proposed sugar tax (Guardian, 2016) indicates the measures the MNC often take to protect their interests in each market.

The current Environment Cabinet Secretary Keriako Tobiko claims that a ban on plastic bottles is still likely (Onyango, 2019) as manufacturers have failed to provide suitable recycling solutions for plastic bottles. For example, in Kenya, according to Coca-Cola's own research, only 20% of plastic bottles are recycled, a low figure when compared to Germany - 98% or the UK - 59% where these governments in the Global North have more rigorously promoted plastic bottle recycling initiatives (Coca-Cola, 2019; Rousso and Shah, 2017). Despite these low recycling rates in Kenya it seems likely that large corporations, such as Coca-Cola, will continue to use their vast scale and significant influence to prevent policies that would increase their costs, such as the proposed ban on plastic bottles. Indeed, the plastic bottle ban has already been delayed, almost immediately after it was proposed, in response to pressure from industry representatives (Business Daily, 2018). Yet, considering the somewhat erratic environmental policy context in Kenya - such as the failures of Kenya's plastic bag ban in 2007 and 2011 to be followed up by dramatic success in 2017 as discussed in Chapter 4 - it seems that the Kenyan legislative environment is more malleable and less predictable than its equivalent in the UK. This helps to explain why Coca-Cola are taking different approaches in these two markets, especially as there are no specific incoming taxes on plastic bottles in Kenya. This policy context also helps to explain why virgin plastic bottles are becoming an increasing share of Coca-Cola's packaging mix in Kenya, whereas the converse is happening in markets in the Global North.

This dichotomy is even more exaggerated when looking at how Coca-Cola are approaching environmental issues in other markets. In Scotland, Coca-Cola actively advocated for a plastic bottle return scheme as a circular economy solution (Coca-Cola, 2017; BBC, 2017). Yet in the USA, Coca-Cola used refillable glass bottles for the past 80 years, until the last factory that was refilling glass bottles was closed in 2012 in Winona, Minnesota (HuffPost, 2012). Closing this factory undermines Coca-Cola's advertised circular economy approach (Coca-Cola, 2018a, 2018c) as it has been shown that glass bottles have an overall lower environmental impact, even if they are

only used once (Accorsi et al., 2015). From these examples we can see that Coca-Cola are at best engaging with loud sustainability and, more cynically, they might be using the terminology of the circular economy to greenwash their activities.

Regardless of the company's international marketing activities, it seems that in Kenya Coca-Cola will 'continue to slowly replace their refillable glass model with single-use plastic bottles'<sup>66</sup> as seen in the Global North. This trend has been seen over the last decade with the increasing preference for plastic bottles by Kenya's growing middle class who typically prefer the convenience of the slightly more expensive single-use plastic bottle.<sup>67</sup> In this sense it seems that Coca-Cola will move away from a glass reuse system that is compatible with the ideal type of the circular economy, towards a model based around plastic recycling that shares more with the instrumental type.

This echoes the findings of Gregson and Crang (2015, p. 31) who note how global environmental justice accounts often depict recycling in lower income countries as 'dirty' and 'dangerous' which are removed from the circular economy. Instead the dominant conception of the circular economy articulates 'high-tech' and 'clean' recycling practices in European contexts. The case presented above helps develop the answer to research question four by demonstrating how a Kenyan interpretation of the circular economy contrasts with the archetypal circular economy of the Global North. It seems that Coca-Cola are following this pattern by promulgating their 'high-tech' plastic recycling systems in the Global North as part of the circular economy brand. Whereas Coca-Cola's low-tech glass reuse systems (which are arguably more circular) are dismissed because they rely on low-wage workers. In this sense, this reuse system does not fit with the technocentric conception of the circular economy that suggests new technologies will solve environmental challenges. Instead, this reuse system indicates that quiet sustainability contributions are under-valued under the existing economic paradigm. In this way this subcase challenges whether MNCs are suitable circular economy proponents. In this instance Coca-Cola have used the circular economy instrumentally whilst using their considerable scale to frustrate policies that would negatively impact their economic bottom line, in spite of the potential

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<sup>66</sup> Interview with M. Mwangi on 26 January 2018 in Nairobi, Kenya.

<sup>67</sup> Ibid.

environmental benefits. Therefore, this suggests that the ideals of corporations being the 'benign elites' envisaged by the circular economy discourse coalition (Scoones et al., 2015, p. 17; Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017) are unrealistic and can instead undermine attempts towards absolute sustainability.

Overall, this deviant case implies that Kenya will be unable to leapfrog these uncircular practices followed by markets in the Global North. This ideation of leapfrogging environmental harm has been described in sustainable development literature as 'tunnelling through' (Munasinge, 1999). However, it seems that this strategy is not being realised by Coca-Cola in Kenya. Instead tunnelling through seems unrealistically idealistic in this instance where a corporation's economic interest in Kenya will see the proliferation of single-use plastic bottles over a refillable glass bottle system.<sup>68</sup> There is a chance that Kenya might keep the existing circular economy model for reusing glass bottles, and 'tunnel through' to the revitalised glass bottle deposit systems that are becoming more popular in the Global North, as seen in Denmark (State of Green, 2018) and Canada (Alter, 2019). However, if this will happen then the conceptualisation of the circular economy in Kenya clearly needs to place greater emphasis on these low-tech, quiet sustainability solutions.

In conclusion, the instrumental type of the circular economy has resulted in low-tech circular systems being overlooked. This develops our answer to the fourth research question by suggesting that the reality of the circular economy in Kenya strongly differs to the forms envisaged by the discourse coalition from the Global North. Instead, some Kenyan business models are showing that a low-tech approach, combined with quiet sustainability, can more closely articulate the ideal type of the circular economy than the more instrumental forms that are explicitly linked to the concept in the Global North.

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<sup>68</sup> Interview with M. Mwangi on 26 January 2018 in Nairobi, Kenya.

## 6.5 - Do Social Enterprises With Scale in Kenya Support Circular Economy Policies?

The previous example of Coca-Cola's influence on the plastic bottle ban indicates that multinational corporations in Kenya might use their scale to hinder environmental policies that are perceived to be unfriendly to business. Circular economy policy making has become prominent in the European Union and China (McDowall et al., 2017). However, there is no circular economy legislation in Kenya yet. Therefore, it is worth considering the role of smaller companies and that of the increasingly popular form of businesses in Kenya - social enterprises (Thieme, 2015). This will enable us to see if these businesses are more likely to promote policies that would support the ideal type of the circular economy. This furthers our answer to the fourth research question by seeing if the circular economy in Kenya might need to similarly be led by legislation, as is being seen in the Global North.

Here we can return to Sanergy to answer this question as they provide a critical instance case for two main reasons. Firstly, as Sanergy's 'exit strategy' is reliant on the Kenyan government contracting their services at a large scale, they have understandably been particularly focused on liaising with the government and claim to be trying to 'support policy development'.<sup>69</sup> In this regard, their medium-scale is important as it means that Sanergy are sufficiently large to have significant interest and capacity to try and influence policy making in Kenya. In this sense Sanergy might be articulating the forms of 'advanced neoliberalism' described by Hobson (2016, p.93), by advocating for their preferred forms of regulation. In this way Sanergy's strategy echoes the way that ISO management schemes have sought to develop forms of environmental governance through a neoliberal approach (Flynn and Hacking, 2019, p. 1261). More recently, such strategies have been repeated under the circular economy in the form of the private-sector's Cradle to Cradle certification (C2C, 2020).

Secondly, as Sanergy is a medium-sized social enterprise, this enables us to see whether their medium-level of scale and charitable ethos has promoted or curtailed

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<sup>69</sup> Interview with D. Auerbach on 7 September 2017 in Nairobi, Kenya.

aspects of their business decision making in regard to their environmental impact. Subsequently, in this section we will analyse whether Sanergy's explicit charitable focus as a medium-sized social enterprise is leading towards the ideal type of the circular economy and how their scale has impacted their approach to policy.

Thirdly, we will consider Sanergy's role in trying to impact local legislation. Working in sanitation and dealing with hazardous waste, Sanergy are subject to several legal requirements beyond those of most standard businesses in Kenya. For example, as outlined in the recent *Kenya Environmental Sanitation and Hygiene Policy 2016 – 2030*, there is a polluter pays principle which implies that Sanergy are liable for all damages caused by any contamination from their waste collections as well as any cleanups required (GoK, 2016b, p. 30). This policy lists Urine Diverting Dry Toilets which essentially cover Sanergy's container-based system. However, it also later highlights the need to develop 'licensing systems to facilitate enforcement of regulations relating to hygienic desludging of UDDTs... [and use of] equipment and protective clothing for staff' (ibid., p. 51). This is why Sanergy have prioritised collaborating with the National Environment Management Authority (NEMA), so that there is appropriate legislation to cover the peculiarities of container-based sanitation. From Auerbach's perspective he believes that typical sanitation legislation fails to properly account for container-based systems such as Sanergy's.<sup>70</sup>

Sanergy have also invested in this area as their long term strategy is entirely dependent on a good relationship with the government. Sanergy hope that the government will contract their services instead of conventional sanitation, such as pit-latrines or sewage systems, for Kenya's informal communities. In 2015 Sanergy employed five staff members full-time as part of a government relations team. This was only realistic at their scale (out of over 250 employees in total) where they have sufficient spare capacity to do this.<sup>71</sup> Part of this team's work is to improve legislation that is impractical and unenforceable due to the lack of infrastructure that has led to problems such as 'flying toilets' in Nairobi's slums (Lusambili, 2011; Lagerkvist et al., 2013).

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<sup>70</sup> Interview with D. Auerbach on 7 September 2017 in Nairobi, Kenya.

<sup>71</sup> Interview with S. Kibuthu on 29 August 2017 in Nairobi, Kenya.

The social enterprise's self-reported aim is to promote progressive sanitation policy in Kenya. They do this primarily by lobbying for increased investment in water, sanitation and hygiene services,<sup>72</sup> and publishing research specific to Kenya's sanitation challenges to aid regulators' decision making (Sanergy, 2016b). For example, in 2018 Sanergy were part of a collective that published a comprehensive waste analysis for Nairobi's sanitation systems that was developed with Nairobi City County (Sanergy, 2018). This claimed that 66% of faecal waste throughout Nairobi is never treated. This was later reported in the national newspapers helping to attract attention to Sanergy's aim of increasing public funding towards the crisis (The Star, 2018). Again, this research work is only possible because of Sanergy's significant scale. Overall, here Sanergy provide a critical instance case through their unique situation where they are openly trying to change legislation. This enables us to interrogate how Sanergy's positioning as a social enterprise in Kenya is aligned or not to the development of policies aligned to the circular economy.

Sanergy's status as a social enterprise suggests that they should place social and environmental considerations in higher regard compared to for-profit businesses. According to one of their three American founders, Sanergy's charitable status in the USA mandates that they meet several legal requirements as well as many more expectations from their donors and social investors. Auerbach reported that many environmental and social aspects of how the company is governed have been compulsory conditions from their financiers. Therefore, Sanergy treat their waste in accordance with both the legal standards set by the Government of Kenya as well as several more onerous<sup>73</sup> best practice guidelines from the World Health Organisation, such as providing medical insurance for their sanitation workers (World Health Organization, 2019, p. 68). However, Sanergy's role as a sanitation service provider blur the boundaries between where they are altruistically advocating for positive policy change and where they are more cynically advocating for policies that would support their specific business model.

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<sup>72</sup> Interview with S. Kibuthu on 29 August 2017 in Nairobi, Kenya.

<sup>73</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

A useful example of how Sanergy have supported Kenyan legislation comes from the Water Bill of 2014 (GoK, 2014). One notable aspect of the Water Bill is that it penalises any polluter who fails to treat any sewage they are responsible for. This meant that producers of waste now had significant incentive to ensure they put in place an adequate sanitation system or face prosecution. Sanergy were supportive of this bill as it helped to build their customer base. The new legislation increased the likelihood for middle and low-income areas, that are unable to afford current alternatives such as septic tanks that average about US\$6,000 to install and require regular maintenance, to try and source a suitable sanitation system privately. In this way the Water Bill essentially increased Sanergy's potential customer base. Analysing this outcome makes it plain to see Sanergy's economic motivations for supporting this legislation. This economic self-interest is something that can be seen in more detail through Sanergy's experience with Kenya's 2017 plastic bag ban.

Prior to the plastic bag ban on the 28<sup>th</sup> August 2017 there was understandable skepticism by many Kenyans as this was the third ban in only a decade with both previous attempts failing (BBC, 2007; Goitom, 2017; Oyake-Ombis, 2017). Therefore, many businesses simply had not put plans in place to account for being unable to buy or use plastic bags on the 28<sup>th</sup> August. Prior to the ban Sanergy's container-based sanitation system was dependent on single-use plastic bags to line their waste containers (plastic barrels with screw-on lids) to give a reliable seal to ensure waste does not leak from these barrels. These bags were similarly to be outlawed by this ban. Considering Sanergy's proactive approach in trying to push Kenyan environmental policies forward, one would have expected this environmentally focused social enterprise to be well prepared to adhere to this latest and well reported legislation; however, this was not the case.

When interviewing one member of the Sanergy team on the 17<sup>th</sup> August, shortly before the ban was enacted, the Sanergy team did not have a plan in place to comply with the new legislation.<sup>74</sup> Apparently this was due to skepticism throughout the Sanergy team about whether the ban would be enforced, or would capitulate as seen in

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<sup>74</sup> Interview with S. Kibuthu on 17 August 2017 in Nairobi, Kenya.

other similar attempts in 2007 and 2011 (BBC, 2007; Goitom, 2017; Oyake-Ombis, 2017). Upon seeing the active enforcement of the ban on the 28<sup>th</sup> August, Sanergy apparently were able to quickly adapt their system and began sourcing thicker, reusable plastic bags (that were compliant with the new single-use plastic bag ban). At their considerable scale, this significantly increased their costs in sourcing thousands of new bags and the time taken to wash each individual bag suitably so that it could be reused.<sup>75</sup> However, Sanergy's operations now had a smaller environmental impact and were compliant with the new legislation. Analysing the outcomes of Sanergy's operations over this period it becomes clear that, in this instance, Sanergy's actions were dictated by the strict enforcement of a government policy rather than their self-proclaimed higher standards for social and environmental impacts.

The plastic bag ban had been first announced on the 28<sup>th</sup> February 2017 by the Cabinet Secretary for Environment and Natural Resources Judi Wakhungu through the Kenya Gazette Notice No. 2356. It was widely reported in national and international media (Daily Nation, 2017b; The Star, 2017; The Standard, 2017; The Economist, 2017). This gave Sanergy a 6-month warning period where they were expected to address any issues within their operations and find alternatives to single-use plastic bags. NEMA were seen to be open and collaborating with those businesses that requested their support and advice during this preparation period from February to August, also hosting events to advertise biodegradable bag suppliers in Kenya. Yet, despite Sanergy's close relationship with NEMA, and adequate staff allocated to managing this relationship, Sanergy chose not to engage with NEMA about the ban, leaving it until the very last minute to determine how they would meet the requirements of the plastic bag ban.

This response was somewhat understandable considering the history of failed plastic bag bans in Kenya and the ongoing petitions against the ban. Many other organisations interviewed at the time were similarly sceptical and hesitant about changing their supplies until after the ban was being enforced. Organisations, such as the Kenya Association of Manufacturers, lobbied intensively against the ban from the

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<sup>75</sup> Interview with S. Kibuthu on 29 August 2017 in Nairobi, Kenya.

15<sup>th</sup> of March 2017 right up to the deadline. This included presenting a petition to the President of Kenya on the 2<sup>nd</sup> of August, just weeks before the ban's implementation deadline (Business Daily, 2017b). However, it is also likely that because the ban increased Sanergy's costs, they were not pro-active in responding to the ban ahead of the deadline. Overall, the ban demonstrated that despite their charitable nature as a social enterprise, Sanergy approached this policy in a similar way to most other for-profit Kenyan businesses. This implies that Sanergy's strategy towards policy development is echoing the existing forms of environmental governance under advanced neoliberalism, as identified in extant renditions of the circular economy by Hobson (2016, p. 93).

A notable argument is that whilst Sanergy are ostensibly an environmentally focused social enterprise, in this case they had actively decided to pursue the cheaper but less environmentally friendly option. In this critical instance case, a medium-sized social enterprise could not be relied upon to support environmental policies that contribute to the circular economy. Instead, this case suggests that a social enterprise with some scale is still inclined to echo the actions of for-profit businesses in choosing to support only the aspects of the circular economy that directly sustain, rather than challenge, their business model. As this part of Sanergy's operations is not supporting the ideal type of the circular economy it instead suggests that such forms of neoliberalism do not necessarily support the ideal type. In conclusion, this case suggests that even social enterprises with sufficient scale to address their environmental impacts are unlikely to do so unless these impacts are explicitly covered by government policy. Therefore, in order for the ideal type of the circular economy to be realised then government enforcement of circular policies is vital. This helps us to further develop the answer to the fourth research question. It does so by suggesting there is a significant similarity in how the circular economy must be realised in Kenya and the Global North if the ideals of absolute sustainability are to be achieved. It seems that the ideals of the concept must inevitably be encouraged by legislation.

## **6.6 - Conclusion: Scale Can Be Pivotal in Articulating the Ideal Type of the Circular Economy**

This chapter has analysed several examples of business models and activities to see the importance of scale in achieving the aims of the ideal type of the circular economy. In taking a bottom-up approach this chapter provides an alternative point of view to the top-down approach commonly seen in circular economy discourse (Stahel, 2013; Webster, 2013; Ellen MacArthur Foundation, 2019c). In summary, these examples have shown that scale is a significant component that enables important aspects of the ideal type of the circular economy to be achieved. Without scale many factors are simply out of the control of businesses, meaning that circular economy models cannot be realised.

Notably the extent of the scale required is complex and different for each business. For example, Table 5, presented towards the beginning of this chapter, highlights the varied scales that three of the main cases from this chapter are working at. Sanergy highlighted that their medium-scale was enough to vertically integrate enough of their operations to be viable. The Coca-Cola subcase takes this scale to an extreme through their large operations. Yet the Akala sandal industry also demonstrated that through interorganisational operation many small businesses are able to create significant scale at a national level. However, the empirical evidence of this chapter also demonstrates that scale does not imply that companies will necessarily strive for the ideal type of the circular economy either. This conclusion therefore develops the conceptualisation of the circular economy in one aspect - scale. This is done by explaining how the actually existing type of the circular economy is different to how academics, such as Stahel and Webster, have conceptualised the circular economy that is largely incompatible with large economies of scale (Stahel, 2013; Webster, 2013). In doing so the evidence from this chapter also found that the scale of larger companies can lead to more instrumental forms of the circular economy. This questions how advocates have promoted MNCs as exemplars for circular economy change (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm, 2017). Otherwise, from the cases analysed

in this chapter all of the following factors contributed to making the ideal type of the circular economy possible.

Firstly, the success of the ubiquitous Akala sandal in Kenya showed that thousands of self-employed artisans, can also collectively create circular economy products through interorganisational scale. In this way they are competing against the world's biggest shoe manufacturer, Bata, and their Kenyan factory. In this case, as well as those of Gearbox and AB3D, we saw that the development of local manufacturing was supportive of the ideal type of the circular economy. Notably, the interorganisational scale demonstrated in the Akala sandal industry was important in creating an enabling environment that supported these circular economy activities. However, on the other hand AB3D and Gearbox's relatively small-scale activities showed relatively small impacts that are likely to require the immense investment, as seen through the Taifa laptop case, in order for AB3D or Gearbox to significantly increase their scale. Fundamentally these cases concurred with a part of Stahel's suggestion, that more localised manufacturing would support circular economy models to be enacted within Kenya. This finding is novel in that it has evidenced Stahel's (2013) suggestion in the Kenyan context, yet this is a context that is wholly different from the European context for which Stahel was writing. This finding also helps us to answer the first research question by highlighting that these business models were closer to the ideal type of the circular economy when articulating quiet sustainability, an aspect particularly seen in the Coca-Cola subcase.

Secondly, we saw that Sanergy's medium-sized enterprise was able to create scale in parts of their operations and this was pivotal to enabling their circular economy model for waste collection. This scale enabled Sanergy to sufficiently vertically integrate their supply chain. This meant they could create their upcycled products Evergrow Organic Fertiliser and KuzaPro, whilst also investigating future options for generating biogas. In a similar fashion, the example of Coca-Cola's operations with glass bottles in Kenya showed the importance of scale. Thanks to the scale of their operations Coca-Cola are able to control their supply chain and distribute their products in reusable glass packaging through a circular business model that emulated much of the ideal type. Whilst these business models vary in myriad ways, throughout each of them scale proves to be an important aspect that increases the opportunities for reuse

and closing material loops as suggested by Park et al. (2010). This is an important contribution that helps us to answer the first research question by seeing the successful forms that the circular economy is taking in Kenya.

Thirdly, the examples of SME activities in this chapter have shown that where scale is lacking it has generally hindered their circular economy activities. For example, whilst many aspects of Sanergy's operations are directly contributing to a circular economy, they have not been able to address every dimension of their activities. In this case, Sanergy's business model has a higher carbon footprint than standard sewerage systems, and therefore in this regard is not compatible with the ideal type of the circular economy. One factor in explaining why Sanergy had not been able to address the challenges of carbon emissions is simply that they do not yet have sufficient capacity to address this additional challenge. That said, whilst Sanergy may not be able to achieve the ideal type of the circular economy, they are arguably contributing through an actually existing type of the circular economy. Sanergy are clearly making positive social and environmental impacts through their circular economy business model, as noted by Tearfund (Gower and Schröder, 2016). A key reason they are doing so is their social focus. This focus has given their business model a more equal balance between environmental, social and economic concerns. Subsequently, this has led to Sanergy articulating an actually existing form of the circular economy. This is a useful finding as it qualifies, through multiple case studies, Stahel's (2013) and Webster's (2013) suggestion for limited economies of scale, instead indicating that in several ways scale is a vital enabler of circular economy business models. Therefore we can conclude there is a middle-ground between the contrasting points of view on how scale should be addressed to realise the ideal type of the circular economy.

Fourthly, this chapter has also evidenced the importance of government legislation in mandating positive environmental actions. This was primarily done through analysing Sanergy's organisational status as a medium-sized social enterprise to see whether this directed their activities towards a more circular business model. It is certain that this charitable ethos behind the company directs much of their attention towards making a positive social impact. However, when considering that the company is primarily concerned with environmental issues in waste management, it was surprising to see that in regard to the plastic bag ban in 2017, Sanergy's actions were dictated by

policy rather than their ethos. Sanergy claimed that their social enterprise status steered them towards often exceeding the environmental and social requirements of local legislation. However, in regard to the plastic bag ban this was not the case. This was primarily because it was not in their economic interest. In this way, this example from Sanergy demonstrates that social enterprises cannot be relied upon to undertake best environmental practice without strong government policies.

Beyond this case study the plastic bottle ban that was blocked by businesses interests in 2018 and benefited Coca-Cola further hinted that the scale of MNCs could be leveraged to derail sustainability policy initiatives. In this way the empirical evidence of this chapter presents a novel finding and a new challenge to how the circular economy discourse coalition has so far presented MNCs as ideal circular economy proponents. These cases have also helped us to build an answer to the fourth research question by suggesting a similarity between the Kenyan circular economy and the archetype from the Global North - that policy will be critical in achieving the aims of the ideal type of the concept.

Lastly, this chapter has provided examples of circular economy practices that rely on low-tech processes. This has further helped to answer research question four by demonstrating one way in which a Kenyan interpretation of the circular economy contrasts with the technocentric circular economy of the Global North. This has highlighted that the circular economy needs to be more inclusive of low-tech activities for it to be relevant in Kenya. Table 5 highlighted that all three of the main cases of this chapter used low-tech and that such use helped them to more closely articulate the ideal type of the circular economy.

The ubiquitous success of the Akala sandal in Kenya is highly related to the low barriers to entry as artisans can manufacture the Akala sandal without complex tools or machinery. Conversely, Coca-Cola's use of reusable glass bottles in Kenya sits within the formal economy and within one of the world's biggest companies that use high-tech systems throughout their global supply chain. Yet, their Kenyan operations are highly dependent on a low-tech business model that is rarely thought of in circular economy discourse. Yet both of these business models are closely linked to the ideal type of the circular economy by providing social, environmental and economic benefits. Therefore, in order for the circular economy to be more relevant in the Kenyan context, low-tech

activities such as these need to be included within the concept's overly technocentric ideation from the Global North. Moreover, from the Coca-Cola subcase it was notable that the reuse of glass bottles in Kenya articulated quiet sustainability whereas Coca-Cola's loud sustainability in the UK was leading to an instrumental form of the circular economy. This is an important finding which will shortly be expanded upon in Chapter 7, contrasting the impacts of quiet versus loud sustainability.

It is important to note that whilst such activities could be dismissed as environmentalism through poverty, as these business models are often labour intensive and provide low-income employment, they provide important contributions through quiet sustainability. This is not an attempt to romanticise poverty, but instead to emphasise how these business models provide environmental benefits that are not adequately accounted by profit-focused businesses. Therefore, if the ideal type of the circular economy is to be realistic, it is critical to account for and include these quiet sustainability contributions. This would support the inclusion of these often low-tech and labour intensive business models within a circular framework that would then also help to justify the expansion of such models with higher wages, helping to close the equity gap alongside material loops. If this can be done effectively enough to adequately account for these quiet sustainability contributions then such models would no longer be dismissed as environmentalism through poverty and they would help address issues of income inequality. This is an important finding that builds onto existing arguments for the circular economy to be more inclusive of social dimensions (Lemille, 2019; Merli, 2018; Moreau et al., 2017). This line of argument goes on to suggest that low-tech and labour intensive business models can play an important role in creating more socially equitable forms of the circular economy. Indeed, as shown in Table 5, the main cases of this chapter all demonstrated quiet sustainability in articulating actually existing forms of the circular economy. This further challenges the circular economy discourse coalition from the Global North by deconstructing the circular economy in a context from the Global South and highlighting this conceptual gap.

Overall, this chapter has revealed new insights into how scale can be considered within the circular economy. In doing so this further evidences Korhonen et al.'s (2018a) assertion that the circular economy is an essentially contested concept. This chapter has also countered the assertions of Stahel (2013) and Webster (2013) in

showing that in some instances scale is helpful in creating an enabling environment for businesses to articulate aspects of the ideal type of the circular economy. However, on the other hand, scale does not necessarily result in companies striving for the social and environmental aims of the circular economy and excessive scale can promote instrumental types of the circular economy. To further explore this phenomena the following chapter will further investigate the instrumental type of the circular economy.



## Chapter 7 - Loud and Quiet Sustainability

This chapter shows how the dominant conceptualisation of the circular economy from the Global North is unsuited to the Kenyan context and is potentially harmful. This is done by analysing this conception through the various articulations of the circular economy identified in the Kenyan case studies of this research. This builds onto the argument from Chapter 5, that any understanding of the circular economy in Kenya inherently needs to address the issues of extreme income inequality. This could be addressed by reimagining the concept from an international development perspective on poverty reduction. Then, advancing the conclusions of Chapter 6, this chapter will address questions surrounding how larger companies can be seen more actively engaging with loud sustainability, and potentially greenwashing. This will be done by using the concept of quiet sustainability to directly juxtapose loud sustainability. Initially, the ways in which these two concepts oppose one another will be expounded. Then we will use these concepts to compare the activities of large multinational companies (MNCs) against small and medium-sized enterprises (SMEs).

To begin, it is helpful to outline the data from several companies that this chapter predominately draws upon, giving context as to why these particular cases help to evidence these arguments. This chapter primarily concerns the experiences of three companies introduced in Chapter 5: Stonehouse, Bintis and Sanergy. The presentation of these case studies follows the example of other similar works such as Murphy and Carmody (2015). Again these companies have been chosen as they provide a heterogenous range, spanning various sectors, enabling this section to speak to the circular economy as a whole, rather than compartmentalise this understanding to waste management alone.

Secondly, the different scales that each company is working at helps to expand on the conclusions of Chapter 6 where scale has been identified as such an important component to achieve the ambitions of the ideal type of the circular economy. More specifically, the case of Stonehouse's partnership with Safaricom, provides a critical instance case, where the unique convergence of this SME with an MNC results in a

conversion of quiet sustainability to loud sustainability. This is supplemented by the perspectives of related companies sought out specifically to provide comparisons for this research, including the Umbrella College and Ubuntu Power. Later in the chapter the experiences of Bintis and Sanergy will be considered for their relevance towards quiet sustainability and in developing a local interpretation of the circular economy. Whilst Bintis and Sanergy are in vastly different industries (food processing and waste management respectively), these differences help to show the widespread and divergent approaches to quiet sustainability from Kenyan SMEs.

This chapter draws on debates surrounding the importance and role of greenwashing, particularly by MNCs in the Global South. This follows on from the volume of literature that evidences contemporary greenwashing practices in the Global South (Buseth, 2017; Clarkson et al., 2008; Wang, 2017; Hamann and Kapelus, 2004; Lodge and Wilson, 2016). Buseth's analysis showed that the green economy was utilised as a new opportunity to introduce greenwashing in East Africa. This was primarily done by MNCs who used the emerging space to create profits by mixing terminology in often contradictory ways to mask a greenwashing reality (Buseth, 2017). Therefore, it is worth asking if the circular economy is following this trend, where the ambiguity of newer sustainability terminologies is being instrumentalised by MNCs in Kenya.

This was highlighted by Clarkson et al. (2008) as well as Hamann and Kapelus (2004), who noted how corporate social responsibility (CSR) programmes made it more likely that corporations would engage with greenwashing. In this way, the critical instance case of Stonehouse and Safaricom presented in this chapter will provide an apposite way to see if similar outcomes are being replicated in Kenya. From this we will see if the empirical evidence from this research counters the idealistic viewpoint of Bowen (2014), that companies are moving beyond greenwashing. Or whether his critics, such as Egbon (2017), are correct that greater critique of greenwashing practices is needed to promote strong sustainability.

This chapter also draws from debates concerning SMEs in developing countries. Works with an African focus and Kenyan data, such as Mead and Liedholm's *The Dynamics of Micro and Small Enterprises in Developing Countries* (1998), that has been cited as seminal (Reeg, 2015), help to identify some typical aspects of the SMEs

of this research. For example, in defining Bintis and Stonehouse as 'non-growers' - businesses that are established but are struggling to increase employment and income. These businesses are typical and still represent the most common type of SME in Kenya (Mead and Liedholm, 1998; Adeyeye, 2016). Moving from this foundation, this chapter then seeks to add to contemporary debate around sustainability issues within SMEs in Kenya (Crick et al., 2018), by highlighting the overlooked contributions of quiet sustainability.

Overall, this chapter will show how the differing articulations of the circular economy seen from each of the case studies relate to loud and quiet sustainability. From these examples we will see that the SMEs of this research typically do not engage with loud sustainability but instead demonstrate quiet sustainability through an actually existing type of the circular economy. Contrastingly, the data from MNCs shows a tendency to engage with loud sustainability through an instrumental type of the circular economy.

The second key argument is that any articulation of the circular economy in Kenya is fundamentally connected to the significant low-income population. Subsequently, when considered in this developing country context the circular economy is linked to international development. Furthermore, this context leads to an increased emphasis on the social justice aspects of the circular economy. In some cases this increased focus on social justice can also lead to environmental actions, making the circular economy a more realistic and relevant concept in Kenya.

Thirdly and finally, that the current conception of the circular economy from the Global North is largely ignorant of these quiet sustainability contributions from the Global South. This conceptual failing is leading to the circular economy being used in loud sustainability and this has the potential to undermine quiet sustainability contributions in Kenya. It also highlights the potential for the circular economy to enable a new language of greenwashing. Therefore, it is vital that the conception of the circular economy in Kenya is more inclusive of quiet sustainability.

Before beginning the in-depth analysis of the cases used in this chapter, it is helpful to briefly outline the structure of each new case that is presented in this chapter. This chapter goes into detail on the Bamburi Cement and Safaricom subcases. Due to the relationship with Safaricom, Stonehouse are also presented here as it is worth highlighting the contrasting aspects of each company as they are working together on a

joint project. This chapter also draws upon the Bintis case study which is not presented in the table below. This has been done to avoid repetition and because it is possible to compare this table directly with Table 4 that was given in Section 5.2. By using the same structure for the analysis this reveals some of the similarities and differences of all the cases used in Chapters 5, 6 and 7. The data presented in the following table will be used throughout the chapter before being summarised in the concluding section at the end of the chapter.

**Table 6: How Themes Are Addressed in Three Significant Cases of This Chapter**

<b>Theme</b>	<b>Stonehouse</b>	<b>Safaricom</b>	<b>Bamburi Cement</b>
Social impacts	Strong Building education infrastructure	Moderate CSR programmes and accessible services	Weak None identified in this context
Environmental impacts	Strong Use of renewable energy technology	Weak Inappropriate use of renewable energy technology	Weak Waste-to-energy by burning waste tyres
Economic model	Strong For-profit business	Strong For-profit business	Strong For-profit business
Geographic scale	National	National	International
Enterprise Size	Small	Large	Large
Sector	Digital infrastructure	Telecommunications	Construction
High-tech or low-tech	High-tech	High-tech	High-tech
Loud or quiet sustainability	Quiet sustainability	Loud sustainability	Loud sustainability
Use of CE terminology	No	Yes	Yes
Type of CE	Actually existing	Instrumental	Instrumental

## 7.1 - Loud Sustainability Through the Circular Economy

The variety of examples given in the previous chapters show a breadth of activities, some akin to the ideal type of the circular economy, and others that are incompatible with this ideal, from both small companies as well as multinationals. From some of these cases we have seen that businesses often fail to live up to their own sustainability ideals. This will be highlighted through the case of Safaricom and Stonehouse's partnership in the following section. Here we will see how Safaricom's instrumental approach undermines the quiet sustainability of Stonehouse. This case concurs with the volume of literature that calls attention to the greenwashing activities of MNCs, particularly in the Global South (Buseth, 2017; Clarkson et al., 2008; Wang, 2017; Hamann and Kapelus, 2004; Lodge and Wilson, 2016). Therefore, it is worth delving into the details of these cases to question to what extent circular economy practice in Kenya is affected by greenwashing and loud sustainability?

At the outset of this question, it is necessary to reiterate some details of this conceptual framework that uses greenwashing, loud sustainability and quiet sustainability, all of which were introduced in Section 2.1. Quiet sustainability conceptualises the 'widespread practices that result in beneficial environmental or social outcomes... but are not represented by their practitioners as relating directly to environmental or sustainability goals' (Smith and Jehlička, 2013, p. 1). On the other side of the sustainability spectrum is greenwashing. Greenwashing is a popular term generally used to describe 'disinformation disseminated by an organisation so as to present an environmentally responsible public image' (Seele and Gatti, 2017, p. 241). Loud sustainability is a concept I introduced to separate out the cynicism of greenwashing against more naive exaggerations of sustainability marketing. Furthermore, I use loud sustainability as a more direct antonym to the academic concept of quiet sustainability in order to avoid the baggage and ambiguity that comes from greenwashing's basis as a popular concept.

Next it is helpful to establish the well known argument that MNCs have long been accused of greenwashing, and therefore loud sustainability by proxy, particularly through CSR initiatives (Fallon, 2013; White, 2008). Notably MNCs have been identified as being more likely than SMEs to engage in this form of greenwashing (Nurse, 2014;

Clarkson et al., 2008). It has even been alleged by Rob White, a distinguished professor at the University of Tasmania, that most corporations are involved to some degree in greenwashing (White, 2008). This phenomenon of greenwashing is prevalent in both the Global North and in the Global South, where most CSR activities are tinged with greenwash (Hamann and Kapelus, 2004; Buseth, 2017; Bracking, 2015; Brockington and Ponte, 2015).

Greenwashing is a popular concept in Kenya, often featuring prominently in national newspapers (The Standard, 2012, 2016, 2019). This is backed up by Kenya's climate change activists who have also been noted protesting against greenwashing in the country (KCIC, 2018). In one case, one MNC was even accused of working with a Kenyan supplier purely to greenwash their corporation (Tearfund, 2018; The Standard, 2019). Overall, this awareness of greenwashing was further confirmed by the vast majority of this research's interviewees. Closely connected to the circular economy, the related concept of the green economy (discussed in Section 2.4) has been explicitly linked to widespread greenwashing in East Africa (Buseth, 2017), and in the Global South more generally (Bracking, 2015; Brockington and Ponte, 2015). Therefore, when considering the sparse use of the circular economy terminology in Kenya, it is unsurprising that one of the MNCs that are using the term are doing so through loud sustainability.

LafargeHolcim are the multinational corporation behind their Kenyan subsidiary, Bamburi Cement. In briefly analysing the corporate's triple bottom line, as presented in Table 6 earlier in the chapter, the MNC has a strong, for-profit economic model in the construction sector. Beyond espousing that health and safety is the 'overarching value at Bamburi Cement' (Lafarge, 2020), the company does not make claims to having much of a social impact and therefore has been regarded as weak for the purposes of this research. In regard to their environmental impact Bamburi Cement claims that their operations are part of the circular economy because they are creating 'value from waste by transforming it into resources for all our production processes – providing sustainable waste treatment solutions' (Lafarge, 2018). In Kenya this strategy is apparently being realised by their use of waste tyres as a fuel source for their cement kilns. The merits of this strategy are more complex and so will now be briefly analysed.

In 2017 Bamburi Cement burnt 1,700 tonnes of used tyres in a waste-to-energy process 'solving an environmental challenge... as previously the disposal of tyres was through informal open burning thus emitting poisonous fumes... and reducing the quantity of fossil fuels consumed in cement making process' (Lafarge, 2019). Such a claim skims over the inherent contradiction within, as regardless of this supposedly 'circular' process tyres are still being burnt as the waste disposal system, whether it be by Bamburi Cement or done in Kenya's informal sector. Therefore, the same poisonous fumes are still being emitted, albeit in a different, presumably safer, location - although these details were notably unavailable and Bamburi Cement declined to comment when asked. Furthermore, Akala artisans question how true the claim is that all of these used tyres would have been destroyed through informal open burning.<sup>76</sup>

Whilst this waste-to-energy method, using cement kilns with a refuse derived fuel, is arguably a better alternative to landfill or open burning and makes greater use of more advanced technologies, it is still at the bottom of the waste hierarchy. It certainly does not compare to the more circular approaches available for waste tyres through recycling. For example tyre recycling alternatives include: re-treading, a process to create new tyres by remoulding with recycled rubber treads; or re-using scrap rubber in construction materials such as crumb rubber. This is why the circular economy explicitly aims to minimise waste-to-energy processes as it is seen as a last resort and is generally incompatible with the ideal type of the circular economy (Muznik, 2017). This is why Bamburi Cement's overall environmental impact has been rated as weak for the purposes of this research.

Overall from this case we can see Bamburi Cement engaging in loud sustainability, using the vogue of the circular economy. In this way Bamburi Cement are articulating an instrumental form of the circular economy. This contrasts strongly with the quiet sustainability practices of Akala sandal artisans who are similarly using waste tyres to articulate their more ideal form of the circular economy. This puts forward the question whether the louder a company is about their circular economy contributions, the more likely they are to be engaging in greenwashing? From Safaricom and Stonehouse's

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<sup>76</sup> Interview with S. Etiang on 8 November 2016 in Magadi, Kenya.

partnership we will now see in more detail how another MNC is also articulating the instrumental type of the circular economy through loud sustainability, subsequently undermining the quiet sustainability activities of an SME.

## 7.2 - The Instrumental Type of the Circular Economy in Action

The way in which Stonehouse's product, the EBOKS, addressed the circular economy was explained in Section 5.5. This was done alongside the structured analysis of their business as compared to other cases of this research as shown in Table 4 and Table 6. Therefore, to avoid repetition the same detailed information is not given again here. In brief, the EBOKS is a solar powered computer lab, that has several pertinent features pushing it towards the ideal type of the circular economy. Briefly these include: using recycled materials for its construction, utilising renewable energy, designing for durability and longevity with long-term maintenance plans, local manufacture that reduces associated carbon emissions as well as increased opportunities for repair, and a positive social impact from supporting off-grid schools. Lastly, and most pertinently for this section, Stonehouse and the EBOKS demonstrate many elements of quiet sustainability as more circular design options have been taken without doing so to brand the EBOKS as a circular or green product.

Muckle, the EBOKS' inventor, continually stressed throughout all nine interviews undertaken that in designing the EBOKS he had not aimed to 'specifically choose 'green' or 'sustainable' options but that his design was simply 'the most logical choice for solving the challenge these off-grid schools faced'.<sup>77</sup> A review of Stonehouse's marketing materials backs up Muckle's claim as there are only a few mentions of the eco-friendly credentials of the EBOKS on Stonehouse's website (Stonehouse, 2017), and the few external public relations articles featuring the EBOKS (and not Safaricom) do not acknowledge the sustainability aspects of the EBOKS (Wakoba, 2016; Nairobi Design Week, 2016; Tebudele, 2015). As will be seen shortly this approach from the

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<sup>77</sup> Interview with M. Muckle on 5 April 2017 in Magadi, Kenya.

SME contrasts strongly with the instrumental type and loud sustainability articulated by Safaricom.

In 2016 Stonehouse secured a contract with Safaricom through their CSR programme to build 45 EBOKS for schools throughout Kenya. Safaricom is Kenya's largest telecoms company, and part of the multinational telecoms conglomerate Vodafone. In briefly analysing Safaricom's triple bottom line, as earlier presented in Table 6, it is clear that the corporate has a strong for-profit economic model. The social impacts of the company are less clear. There are significant social impacts from their much lauded connectivity innovations, such as M-Pesa that has been recognised for making banking services more accessible by combining new technologies with low-tech devices. However, considering the high charges and subsequent substantive profits accumulated from the platform, the positive social impacts are debatable (Mbogo, 2010, Mbiti and Weil, 2015). Therefore, for the purposes of this research Safaricom have been rated as having a moderate social impact.

Safaricom's environmental impact has been rated as weak as based on the evidence available the corporate has largely engaged in tokenistic e-waste collections as part of their CSR initiatives (Otieno and Omwenga, 2016; Anyango, 2008). There is also a questionable use of renewable energy that will be discussed in detail in this section. The company have explicitly linked their work to the circular economy, albeit only recently in 2019, when discussing their approach to e-waste collections (Safaricom, 2019). In reviewing their activities through this research, the company was noted articulating loud sustainability and enacting an instrumental form of the circular economy, which will be discussed shortly in this section.

Safaricom have long engaged with various CSR projects. When interviewed, David Munya, a Sustainability and Social Policy manager at Safaricom, stated that CSR forms a 'vital part of Safaricom's brand.' He went on to say that CSR helps Safaricom to create and maintain customer loyalty as they try to align the company with Kenya's sustainable development.<sup>78</sup> The collaboration with Stonehouse helped Safaricom to emphasise the key role they play as an ICT (Information and Communications

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<sup>78</sup> Interview with D. Munya on 23 August 2017 in Nairobi, Kenya.

Technology) company in Kenya, whereby their technologies, such as M-Pesa, can lead to sustainable development and poverty reduction (Mbogo, 2010; Mbiti and Weil, 2015). In many ways Safaricom's recent CSR programme with Stonehouse, the '47-in-1 Technology for Learning Initiative' exemplified their approach to CSR and their technocentric view of development.<sup>79</sup>

This was by far Stonehouse's biggest ever contract, valued at 72 million KES (US\$720,000).<sup>80</sup> This represented a significant sum for the small company that had only one full-time member of staff and used contractors for the bulk of their project-work. By 2018 the 47-in-1 initiative had delivered 18 out of the 47 computers laboratories that were to be built. In this way the programme had brought some considerable scale to Stonehouse's business. Overall, this critical instance case provides an opportunity to analyse a unique convergence of an SME working with a MNC, particularly because it resulted in a conversion of quiet sustainability to loud sustainability. This case enables an investigation into how scale, achieved for Stonehouse through this partnership, impacted Stonehouse's actually existing type of a circular economy business model.

This case is worth specific focus due to the unique nature of the partnership between this Kenyan SME that typifies the actually existing type of the circular economy, and a MNC that will be seen pushing these activities towards the instrumental type of the circular economy through loud sustainability. As this case was selected through convenience sampling it is not generalisable; however, it provides a unique opportunity to demonstrate two important facets with empirical evidence. Firstly the impacts of loud sustainability by MNC, and secondly the impact of scale on a business model developed by an SME that articulates much of the ideal type of the circular economy. In highlighting these impacts this critical instance case suggests an important relationship and indicates a direction for future research to understand how MNCs and SMEs might contribute towards the ideal type of the circular economy.

From the outset of the contract, the scale of the 47-in-1 initiative was leveraged by Safaricom to coerce Stonehouse to lower the prices of each EBOKS. According to

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<sup>79</sup> Interview with D. Munya on 23 August 2017 in Nairobi, Kenya.

<sup>80</sup> Interview with M. Muckle on 31 August 2017 in Nairobi, Kenya.

Muckle, his other clients have typically paid 2.5 million KES (US\$25,000) for an EBOKS. However, Safaricom were able to use the significant size of the contract being offered to convince Muckle to agreed to a fee of just 1.6 million KES (US\$16,000) for each EBOKS built (Safaricom, 2017), reducing Stonehouse's profit to 'almost nothing'.<sup>81</sup> This typified the way that Safaricom's superior scale influenced the entire project as Safaricom fundamentally altered the circular economy value proposition of the EBOKS.

Stonehouse had designed the EBOKS as a solution to the challenge of providing affordable computer laboratories to off-grid schools without electricity access. However, through the Safaricom 47-in-1 initiative several of these laboratories have been installed in on-grid schools that had access to electricity. This made most of the EBOKS design redundant in these schools. As established earlier, when used in the relevant off-grid context for which it was designed for, the EBOKS is a product that articulates an actually existing type of the circular economy. However, when used in an on-grid context the EBOKS is considerably over-engineered and many of its off-grid features are made superfluous.

For example, when used in an on-grid area the following parts of the EBOKS are significantly under-utilised: the battery, the low-energy computers, the solar panels and the DC-DC wiring system (that reduces energy wastage). To construct a similar computer laboratory in an on-grid school it would be considerably more economical than an EBOKS too as cheaper, higher-wattage PCs could be used. When adding these factors together, the EBOKS in an on-grid setting represents a significant waste of resources, both economical and materially.<sup>82</sup> Used in this way, the EBOKS no longer represents the actually existing type of the circular economy, primarily because a key aspect of the concept is the elimination of all forms of waste (Ellen MacArthur Foundation, 2019f). In this case it appears that the public relations motives, inherent in CSR programmes, outweighed the logical decision making of using an off-grid product in an on-grid area.

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<sup>81</sup> Interview with M. Muckle on 6 April 2017 in Magadi, Kenya.

<sup>82</sup> Ibid.

Safaricom embarked on this project because of their CSR agenda that sees them make regular donations to Kenyan charitable causes.<sup>83</sup> Part of this project was also used to raise customer awareness for Safaricom and so they enlisted the beneficiary communities in fundraising for their schools' own EBOKS computer lab. Safaricom only provided 50% of the funding to each school to pay for the EBOKS and the school was required to raise the rest themselves. Although this reduced the cost burden for schools to 800,000 KES (US\$800,000) for a solar powered computer lab, it meant that only relatively wealthy public schools in Kenya were able to participate in the project. Here is the major downfall in regard to the circular economy potential of the EBOKS through this project, as most of these wealthier schools are located in on-grid areas and have electricity connections. For example, the first EBOKS installed through Safaricom's 47-in-1 initiative was at Ndundu Primary School in Kiambu County. Here the EBOKS is located five metres away from one of Ndundu Primary's classrooms that is equipped with grid electricity powered lightbulbs, typifying the inappropriate use of the EBOKS throughout the 47-in-1 initiative.

Nevertheless, from Safaricom's perspective, the significant amount of public relations work that Safaricom have been able to do with this CSR initiative makes this awkward aspect of the programme unimportant to the MNC (Safaricom, 2016, 2017, 2018; The Star, 2015). When questioned about this waste of resources Munya, who was clearly well rehearsed in managing Safaricom's public relations, tried to justify this saying that the EBOKS was designed 'to ensure sustainability of the project once handed over to the community'.<sup>84</sup> In this way, the full ambiguity of the term 'sustainability' was used.

Munya explained that by providing solar panels the schools would not be burdened with additional electricity bills. It is true that the schools might in some way be able to justify the expense of the solar equipment on lower running costs in the long-run, or the more regular supply of power compared to grid power that has frequent blackouts. However, when compared to a similar computer laboratory construction projects it is clear that a more suitable design would have been drastically cheaper. For example,

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<sup>83</sup> Interview with D. Munya on 23 August 2017 in Nairobi, Kenya.

<sup>84</sup> Ibid.

the Umbrella College has built several computer laboratories in Kenya in on-grid areas that have on average cost 700,000 KES (US\$700,000). When interviewed, the founder of the Umbrella College also emphasised that if there is already a suitable building in place the computer equipment and fit out can cost as little as 200,000 KES (US\$200,000), only a quarter of the required fundraising by Safaricom.<sup>85</sup> These arguments were further substantiated when interviewing the manager of Ubuntu Power, who have built a solar powered computer laboratory in rural Kenya and overseen the construction and design themselves. He believed that the substantial investment in solar power infrastructure at such a small scale, such as that of the EBOKS, was 'hardly worth' the small offset from electricity bills if on-grid electricity was available.<sup>86</sup> Therefore, it seems likely that a suitable on-grid design would have overall been cheaper for both Safaricom and the beneficiary schools.

Nevertheless, the green branding opportunity for Safaricom in being able to align the company with a technocentric sustainable development initiative was deemed to be a worthy investment, regardless of the inappropriate infrastructure it would be installing in schools. In this way it seemed that Safaricom believed they were able to promote a futuristic brand of technology (solar powered ICT rather than grid electricity). This supported their wider corporate brand that tries to position Safaricom as a technology leader in Kenya. Safaricom proclaim they are 'working hard towards the creation of technologies that... better the lives of the human race' (Safaricom, 2020). Therefore, for Safaricom's CSR programme, it was worth investing more in this programme despite wasting much of the EBOKS' equipment.

Here we can see the poorly aligned incentives of a CSR programme resulting in loud sustainability that subverts and conceals the quiet sustainability contributions of Stonehouse's business model. This critical instance case demonstrates how an SME articulating the actually existing type of the circular economy through their product the EBOKS, was converted into the instrumental type of the circular economy by an MNC's loud sustainability agenda. Generally this was the result of the perverse incentives created by CSR, where greenwashing has been regularly noted by academia

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<sup>85</sup> Interview with L. Ndirangu on 31 January 2018 in Nairobi, Kenya.

<sup>86</sup> Interview with J. Herrada on 11 February 2018, Nairobi, Kenya.

(Fallon, 2013; White, 2008). In this case, Safaricom were incentivised to work in areas where the local community are likely to become valuable Safaricom clients. By using the requirement for the community to fundraise 800,000 KES (US\$800,000) for the project, Safaricom essentially ensured that the community were relatively wealthy and therefore more likely to spend significant sums on Safaricom's services in the future. Subsequently, Stonehouse's work in this instance is no longer in keeping with quiet sustainability as their product has been used for loud sustainability by Safaricom. In this sense we can see Safaricom taking a weak sustainability approach where they are prioritising their future economic gains over environmental concerns, despite using the project to demonstrate their green brand.

The multiple ways that Safaricom have used the 47-in-1 initiative to project a green and socially responsible brand highlights their instrumental approach. As mentioned in the earlier paragraphs of this section, Safaricom's Sustainability and Social Policy manager alluded to the financial 'sustainability' of the 47-in-1 programme. Later, in the same interview, Munya then went on to use the many other meanings of 'sustainability'. For example, in emphasising that CSR forms a 'vital part of Safaricom's brand' helping them create and maintain customer loyalty as they try to align the company with Kenya's sustainable development.<sup>87</sup> Other Safaricom public relations statements similarly use the term 'sustainability' liberally, linking the company to increasingly diverse conceptions of what sustainability could mean. This is exemplified by the description of the 47-in-1 project being sustainable because 'Safaricom is working with communities to impart skills to the teachers' (Safaricom, 2017). This statement implies the skill levels of the teachers are what makes the project sustainable, rather than relating to environmental or even financial criteria.

When speaking with Munya to interrogate what exactly was 'sustainable' about the project, it was clear that the term was being used to mean all things to all people. Munya was equally happy for the term to mean economical sustainability, the longevity of the social impact of the computer classrooms or the environmental impact of using solar energy. In this way Safaricom are undermining the conceptual value of

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<sup>87</sup> Interview with D. Munya on 23 August 2017 in Nairobi, Kenya.

sustainability by overusing the term. Furthermore, this popular use further bifurcates from understandings of environmental strong sustainability or the technical definition of sustainable development. In this way this case indicates that loud sustainability leads towards weaker forms of sustainable development. Overall, from this case I argue that because of the circular economy's lack of inclusion of quiet sustainability, the development of the circular economy in Kenya will tend towards the instrumental type where loud sustainability is common.

### **7.3 - The Value of Local Terminology**

From seeing how an MNC in Kenya is pushing articulations of the circular economy towards the instrumental type, it is useful to further elaborate on the ways that loud sustainability subverts quiet sustainability contributions in practice. One of the key ways that loud sustainability devalues quiet sustainability is by perverting the way language is used and subsequently depowering quiet sustainability initiatives. This is a theme that has been noted in recent greenwashing debates (Austin, 2019; Parafiniuk and Smith, 2019; More, 2019) and will be seen in this section. The previous chapters have illustrated examples where terminology of the circular economy has been used through loud sustainability and hints towards a new, revitalised form of greenwashing. It is also possible that the terminology of the circular economy is particularly susceptible to enabling loud sustainability in Kenya because as a Western concept it can easily undermine vernacular concepts. This section will shortly present this phenomenon through the case of *kienyeji*.

The ubiquitous nature of greenwashing means that many consumers struggle to differentiate greenwash from verifiable 'green' claims. Subsequently, this means that greenwashed competitor products often undermine products that are closer to sustainability ideals by devaluing green branding (Eden et al., 2008; Wheeler, 2010). A similar phenomenon is prominent in the Global North where the Fair Trade movement has considerable consumer momentum (Davenport and Low, 2013), yet the impacts of Fair Trade products are questionable. Dolan (2010) demonstrates how there are significant positive as well as negative impacts on countries, such as Kenya, that are

assumed beneficiaries of the Fair Trade movement. It is beyond the scope of this study to analyse the impacts of the Fair Trade or similar movements in Kenya. However, this section will demonstrate that a localised quiet sustainability approach offers opportunity to counteract some of the negative impacts of greenwashing and loud sustainability. In doing so, this section simultaneously responds to Hobson's call to highlight 'other transformative pathways and practices' (Hobson, 2016, p. 89) and Mavhunga's appeal to use African vernaculars as modes of theory, even if they are used to engage with conceptions from the Global North (Mavhunga, 2017), such as the circular economy. So now we can turn to the green branding experiences of Bintis in Kenya and *kienyeji*.

As the Bintis case study was introduced in Chapter 5, a further introduction will not be repeated here. For a summary of how Bintis compare against the case studies of this chapter please refer to the systematic and comparison given in Table 4 which is comparable with Table 6 given in this chapter. For this chapter, Bintis provide an opportunity to explore quiet sustainability through their operations. One of the challenges that Bintis quickly encountered when setting up their business was in how they could differentiate their high-end range of foodstuffs. A key part of their strategy was to create a high-quality brand that could command high prices. This would enable them to pass some of the value addition of their products back to the Kenyan farmers who provided the raw ingredients. In this sense Bintis strategy looked to take advantage of what they perceived to be a significant socially orientated and green consumer base in Kenya. In embarking on this mission Bintis' founders were well aware of many dubious advertising claims made for foodstuffs in Nairobi.<sup>88</sup> Recently these issues have been highlighted in national newspapers and international media featuring fake products and false advertising, ranging from hazardous cosmetics to counterfeit maize seeds (Mpungu, 2019; The Standard, 2013; Reuters, 2018). Maganjo sought to overcome such competition by developing Bintis products to be certified as organic, so they could build a trusted brand. From Bintis experience in attempting to do so we will begin to see the various challenges of this Western terminology (Barton, 2018) and its local vernacular comparators in Kenya.

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<sup>88</sup> Interview with W. Maganjo on 19 April 2017 in Nairobi, Kenya.

To begin, it is necessary to briefly define 'organic' to understand its popular meaning and value in Kenya as well as its relevance to the circular economy. 'Organic' is a term that is legally restricted and certified for products in many countries. While standards vary from country to country, the term 'organic' generally means that foods are guaranteed not to have used synthetic pesticides, synthetic herbicides, or chemical fertilisers during production, and that no antibiotics or growth hormones are given to animals. Organic producers and processors also are subject to rigorous certification inspections by third-party inspectors to ensure that they are producing and processing organic products in a trustworthy manner (Raynolds, 2000).

Organic agriculture has been linked to the circular economy at the fringes of circular economy debate (Dimitrov and Ivanova, 2017; Alobwede et al., 2019; Galati et al., 2018; Rahmann et al., 2019). These linkages predominately revolve around the idea that the common interpretation of the circular economy's biosphere is essentially organic agriculture where inputs generally flow in and out of the biosphere in a cyclical manner (Ellen MacArthur Foundation, 2016c). There are also more explicit references to how organic fertilisers are more compatible with the circular economy than synthetic fertilisers that often: exacerbate air pollution, contaminate soils, leach chemicals into water supplies, erode soils and deplete nutrients (Ellen MacArthur Foundation, 2019). For this section, it is not necessary to detail all the similarities between organic agriculture and the circular economy, as the key argument of this section is simply to evidence the way that Western concepts, such as organic or the circular economy, can undermine vernacular concepts that might otherwise be contributing towards quiet sustainability.

In Kenya in 2017 legislation for organic labelling was still under development by the Kenyan government as it has been since at least 2006 (Taylor, 2006). Therefore, the only way for a company to certify its produce as organic in Kenya was through an internationally recognised body. This process has been enabled by the Kenya Organic Agriculture Network (KOAN, 2017), supported by the international organic certifying organisation the Soil Association and the East African Organic Products Standard (KilimoHai, 2017). Considering this, it is also worth noting that 'organic' as a term is not as widely recognised in Kenya as is more typical in the Global North (Ayuya et al.,

2015; Taylor, 2006). Subsequently, only a small proportion (1.7%) of farmed land is certified organic in Kenya (Kledal et al., 2010).

There is considerable debate around the benefits of organic agriculture both in the Global North where it is relatively popular (Trewavas, 2001), and in the Global South where some consider it to be an approach that could frustrate poverty reduction efforts (Thurrow, 2012, p. 227; Pasternak, 2016). Nevertheless, according to an international organic farming advocate, the Soil Association, organic farming is growing at 20% per annum in Kenya and is worth over 10 million KES (US\$100,000) annually (Soil Association, 2017). What is most notable in this trend is that the organic brand is helping to reap higher prices for organic farmers in Kenya compared to non-organic produce (Ayuya et al., 2015). This is something that Bintis' founders had noted.<sup>89</sup> However, to date Bintis have been unable to find suitable local suppliers that would enable them to certify their range of produce as organic. So instead Bintis have for now settled with the term '100% natural' to describe their products (Bintis, 2017) as 'natural' foods are not legally defined internationally, yet they hope this conveys at least some of their brand values to their customers.

In the sixth interview with one of Bintis' founders, Maganjo began to go deeper into the complexities of her personal opinions on the organic movement in Kenya.<sup>90</sup> This reflection led to an acknowledgement that one of the main reasons she was striving to make Bintis an 'organic company' was not through a detailed scientific reasoning of how and why organic farming was better for people and planet. Instead, from what she described as a 'fair understanding' of organic agriculture, she saw that while the organic system might not be perfect, it was at least a challenge to conventional fertiliser-based farming that has long damaged parts of Kenya's ecosystem (James, 2019). For Maganjo organic farming represented an opportunity to reclaim aspects of Kenya's heritage. She thought this could be done by promoting fossil-fuel free traditional farming systems that are not reliant on chemical fertilisers, or alternatively by re-branding *kienyeji* - a Swahili term often used to describe indigenous farming that

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<sup>89</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

<sup>90</sup> Interview with W. Maganjo on 26 July 2017 in Nairobi, Kenya.

shares much with organic agriculture and also the circular economy (Nginya et al., 2019).

*Kienyeji* is broad term that is generally defined as 'traditional, local or native' often being used to refer to certain customs in Kenya (Hinnebusch and Mirza, 1998). Today, one of the most common uses for the term is in describing agricultural customs. Through an example of *kienyeji* chicken we will see the overlap and differences between *kienyeji* and 'organic'. The use of *kienyeji* is widespread, including by government organisations, such as the Kenya Agricultural and Livestock Research Organization who supply their own brand of 'Kienyeji Indigenous Chicken' as improved breeding cockerels or hatching eggs supplied to farmers to help improve yields (KALRO, 2017). When interviewed Ali Hersi, the director at the Nairobi office of the large international non-governmental organisation the Society for International Development, stated that when used in an agricultural context, *kienyeji*, shares much with organic farming methods.<sup>91</sup> For example, although not legally defined, *kienyeji* chickens in Kenya will typically be reared free-range, without the use of antibiotics nor growth hormones, much the same as the regulations organic poultry is subject to. These kind of small-scale farming practices have been suggested as the most environmentally friendly and sustainable form of agriculture (D'souza and Ikerd, 1996). In this way *kienyeji* farming articulates a form of quiet sustainability.

Generally *kienyeji* agriculture is understood to be traditional in the sense that it describes the practices used throughout Kenya before the advent of industrialised farming. In following these practices it shares other aspects of organic such as minimising soil degradation and erosion as well as decreasing pollution through small-scale, diversified activities. Unlike industrialised monoculture, *kienyeji* farming is reliant on diversification and practices such as intercropping.<sup>92</sup> Furthermore, *kienyeji* agriculture shares several aspects that have been explicitly linked to the circular economy promoting greater biodiversity whilst avoiding non-renewable oil-based fertilisers and harmful chemical pesticides (Ali et al., 2018; Xi, 2011). These aspects are also why *kienyeji* is understood as the precursor to many of the 'modern' methods

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<sup>91</sup> Interview with A. Hersi on 17 January 2017 in Nairobi, Kenya.

<sup>92</sup> Ibid.

introduced during the colonial era. Subsequently, the term also has connotations of being anti-modern.

There was considerable protest against the colonial agricultural practices in the twentieth century when they were introduced, as they were seen by Kenyans as being unsustainable. For example, one of the roots of the Mau Mau uprising against the British stemmed from how the British forced Kenyans 'to abandon traditional farming practices such as crop rotation and resting land with fallow periods' (Elkins, 2005, p. 22). This was particularly enforced shortly after World War Two to increase farming output without regard to the long term environmental consequences in Kenya, such as reduced soil fertility and increased soil erosion (ibid.) This is one of many unfortunate consequences of British colonialism, which left a legacy of failed agricultural policies, as well as the widespread 'malimidwe' policy (essentially ridging) that was intended to support soil conservation, but had a detrimental impact as it did not account for local knowledge and led to soil erosion (McCracken, 2012, p. 391; Easterly, 2007).

These are just a few of many examples where traditional *kienyeji* practices are arguably more environmentally sustainable than imported Western methods that have led to fragile soils in Kenya (Nabudere, 2013; Throup 1987; Fiona and Mackenzie 2000). The movement towards 'catching up' with Western models of agriculture has been cited for undermining traditional subsistence agriculture and resulting in food insecurity (Baker, 2006, p. 159). Nevertheless, despite the formal use of *kienyeji* in contemporary government documents (ASAL-APRP, 2017), the term suffers from associations with 'backwards practices' and therefore is often used as a derogatory term.<sup>93</sup>

Hersi believes that this partially stems from the fact that the impacts of modern agriculture, such as genetically modified foods or a liberal and often inappropriate use of chemical-based fertilisers (see Adams, 2008, p. 358), are more visible in the short-term. This compares against the longer-term environmentally sustainable practices of *kienyeji* agriculture. Subsequently, Hersi believes the knowledge and nuanced importance behind *kienyeji* farming are being forgotten. This means that the

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<sup>93</sup> Interview with A. Hersi on 17 January 2017 in Nairobi, Kenya.

environmentally sustainable aspects of *kienyeji* such as: reduced exposure to pesticides and chemicals, decreased soil erosion, increased water conservation, and increased biodiversity, are subsequently being lost. Instead, these aspects, that are shared with organic farming practices, are being reconceptualised under an organic paradigm. Hersi noted that this change was happening most profoundly in the eyes of Kenya's middle-class who now wanted organic rather than *kienyeji* produce.<sup>94</sup> This reduced demand for *kienyeji* produce that is typically made by smallholder farmers means that these typically low-income farmers are receiving lower prices. Meanwhile, organic farmers in Kenya, who typically belong to larger companies, are reaping the rewards from this branding dividend. Therefore, from this understanding of *kienyeji* we can see how *kienyeji* has been devalued by the importation of Western concepts (such as organic) and the quiet sustainability contributions of *kienyeji* agriculture lost. In this way the Western conception of the circular economy could similarly undermine quiet sustainability practices, as similarly identified in the Coca-Cola and Akala sandal cases presented earlier.

When discussing these concepts with Maganjo of Bintis, she also noted the dichotomy between *organic* and *kienyeji*, as organic products wield considerable economic leverage.<sup>95</sup> The organic consumer trend seen from Nairobi's middle-class was something Maganjo and Chemweno sought to exploit when founding their company. Whilst 'organic' lacks legal status in Kenya, a few shrewd businesses have begun exploiting the brand value that the term evokes without necessarily providing reassurances to consumers as to the nature of their 'organic' products.

For example, there are several companies in Kenya selling 'organic' eggs such as those sold by Winnie's Pure Health or Ithanji Natural Products. In 2018 these commanded prices nearly double that of *kienyeji* eggs. It is worth highlighting that this extreme price differential is also in part due to the higher quality packaging that accompanied these organic branded eggs. However, when attempting to substantiate these organic claims, only one of these companies were able to provide certification to this author. Winnie's Pure Health are certified by the Kenya Organic Agriculture

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<sup>94</sup> Interview with A. Hersi on 17 January 2017 in Nairobi, Kenya.

<sup>95</sup> Interview with W. Maganjo on 2 August 2017 in Nairobi, Kenya.

Network (KOAN, 2018). Furthermore their Operations Director, Elsie Gitau,<sup>96</sup> stated they underwent regular inspections by an independent contractor, Nesvax, through the Kenya Organic Agriculture Network (Nesvax, 2018).

On the other hand, Ithanji Natural Products did not respond to a number of requests for information. Whilst it remains unknown if Ithanji's 'organic' eggs would have met the organic requirements of the Kenya Organic Agriculture Network, the fact that the authenticity of these claims could not be verified indicates potentially shrewd business practices. Nevertheless, the critical point here is that primarily thanks to the term 'organic' Ithanji's eggs were selling for nearly double the value of a *kienyeji* egg, yet the differences between the two products are small and hard to discern. This significant margin and consumer trend where the Nairobi middle-class were buying more organic products, rather than *kienyeji* products, was something that Maganjo wished to exploit through Bintis' products.<sup>97</sup> Here we can see a stark example of Mavhunga's warning that the 'importation and consumption of rigid Western meanings... [are a] threat to a self-determined African path to the future' (Mavhunga, 2017, p. 1). In this way a local terminology of sustainable agriculture - *kienyeji*, has been supplanted by a Western conceptualisation - organic. From interviews with Bintis this highlighted the complexity of trying to address sustainable consumption through green terminology.

Considering *kienyeji* within the context of the circular economy, we can see how the imported conceptualisation of the circular economy from the Global North has potential to undermine quiet sustainability efforts. This echoes the way that low-tech systems in Kenya, exemplified by the glass bottle reuse by Coca-Cola, as well as the Akala sandal artisans, have been excluded from technocentric conceptualisations of the circular economy. Furthermore, it is possible that the circular economy in Kenya would not help combat environmental degradation as it undermines smallholder farmers, that have been suggested as the most environmentally friendly and sustainable form of agriculture (D'souza and Ikerd, 1996). This echoes the way that instrumental use of imported terminologies can undermine quiet sustainability. This was earlier seen from the example of Stonehouse's partnership with Safaricom that compromised quiet

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<sup>96</sup> Interview with E. Gitau on 5 March 2018 online.

<sup>97</sup> Interview with W. Maganjo on 2 August 2017 in Nairobi, Kenya.

sustainability efforts through their articulation of the instrumental type of the circular economy. That said, there are also reasons to be optimistic that the circular economy could be leveraged to support *kienyeji* practices too.

Sharma and Joshi's (2019, p. 176) analysis of Indian agricultural practices explored how 'pre-modern' endogenous farming communities followed principles of the circular economy. This shows many similarities with how *kienyeji* practices in Kenya also maintain cycles of nutrient flow. Sharma and Joshi go on to note how after the 'green-revolution' in India, many farmers shifted their cultivation practices to mimic linear agriculture models. These models featured mono-cropping and increased use of chemical fertilisers, pesticides and herbicides, and were not specifically suited to the local environmental and cultural context. Again, this also echoes the way that *kienyeji* farming practices in Kenya have been displaced by 'modern' methods supported by contemporary discourse. Yet Sharma and Joshi (2019, p. 184) nonetheless suggest that the circular economy provides an opportunity to revive traditional farming practices by re-establishing nutrient flows and energy cycles at the farm level. This was possible primarily by applying the key principles of the circular economy to demonstrate the value of traditional farming practices, both economically and environmentally, to the community. Considering the similarities between smallholder *kienyeji* agriculture in Kenya and the revived farming systems in Rajasthan, India by Sharma and Joshi, it suggests that the circular economy might provide an opportunity for similar benefits in Kenya too.

In the same volume the following chapter by Watabe develops this idea using a case study from Thailand. Here Watabe combines the circular economy with organic farming claiming that it may also 'be effective for building a circular economy by making full use of organic resources and reducing imported chemicals' (Watabe, 2019, p. 190). Furthermore, organic farming can also realise prices '10 to 20 per cent' higher (ibid., p. 194). Watabe's research suggests that it is possible for the organic movement to be aligned with the circular economy in the Global South. If such harmony could be realised in Kenya then it might be possible for the circular economy to support traditional *kienyeji* agriculture in Kenya rather than compete against it, as has been seen from this section.

That said, whilst seeing these possibilities Watabe stresses that ‘those who practice activities that are in line with... circular economy concepts often do not do so for the sake of sustainability’ (Watabe, 2019, p. 190). Instead they do so because these practices simply happen to be the best way to sustain their livelihoods. In this way Watabe echoes the argument that quiet sustainability can be critical to achieving the ideals of the circular economy. Therefore, using the power of the circular economy discourse coalition to support such quiet sustainability, alongside other powerful concepts such as organic, could help to promote such quiet sustainability practices. In applying this to the Kenyan context, it could be beneficial to use the technocentric language of the circular economy alongside the widely popular organic movement to highlight the positive quiet sustainability contributions that *kienyeji* agriculture is making, such that these important local practices are retained.

Overall, through current practices in Kenya, it appears that the dominant conception of the circular economy will also undermine other quiet sustainability initiatives that are traditional, as opposed to modern. Yet the work of Watabe (2019), as well as Sharma and Joshi (2019), shows that there are alternatives whereby the circular economy could be used as a catalyst to revive important traditional practices that espouse quiet sustainability. That said, to date the circular economy in Kenya is repeating similar flaws previously seen from technological fundamentalist green development in the Global South (Salman and Nagy, 2019; Leach and Scoones, 2015, p. 124). In summary, these examples highlight that if the circular economy is to become a new development paradigm in Kenya it needs to be radically altered so as to be inclusive of quiet sustainability, rather than undermining these overlooked contributions.

## **7.4 - Articulations of Quiet Sustainability by SMEs and Social Enterprises**

The previous section has given us a greater understanding of why the overlooked contributions of quiet sustainability are so important. As well as the ways the existing conception of the circular economy from the Global North could undermine these

sustainability actions. So now it is worth highlighting some of the ways quiet sustainability is being articulated by the SMEs and social enterprises. This will help to show the range and breadth of these activities, as well as the reasons behind them, as each of these small actions typically contribute towards an actually existing type of the circular economy. In the case of Bintis, some of these actions have already been highlighted, such as reducing waste by enabling glass recycling and promoting renewable forms of energy generation. Now we can delve into the details of how they are counter-acting the adverse impacts of loud sustainability and subsequently pushing away from the instrumental type of the circular economy.

Chapters 5 and 6 have provided a background to how Bintis was created as a company. In brief, the two founders believed they could build a company that would fill a niche in Nairobi's burgeoning middle-class for healthier, tastier food. In doing so, they believed their business activities could create positive social and environmental outcomes. However, despite the laudable ambitions of the founders, the company has struggled to make the kinds of impact they had initially envisaged. For example, they had planned their supply chain to be entirely local, so as to support Kenyan businesses. Yet they were unable to do this for a number of reasons, including a lack of scale. Subsequently, after just one year of operations, their supply chain directly involved companies from six countries: Kenya, Malawi, Rwanda, Egypt, Dubai and the USA. Their supply chain also failed to fulfil their other ambition, to create a range of organic products.

At the time of interviews from March 2017 to March 2018, Bintis had been unable to find suitable local suppliers that were able to certify their produce as organic. As discussed in the previous section, as organic is not a legal term in Kenya. This means that Bintis could nevertheless use the term 'organic' in their marketing materials, even if they couldn't guarantee their products met organic standards set in other countries, without fear of legal reprisals. However, on interview the founders swiftly countered this suggestion as they felt strongly that their company would never engage in such false advertising or greenwashing.<sup>98</sup> This was made particularly clear when discussing the

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<sup>98</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

range of competitor products that Maganjo identified as falsely using the term 'natural'.<sup>99</sup>

Although natural foods are not defined internationally (Negowetti, 2013), the term typically implies minimal processing and no addition of hormones, antibiotics or artificial flavours. As the term 'natural' can be used without any legal implications in any country, this often means shrewd companies use the term regardless of the true nature of their products (Romána et al., 2017). Maganjo claims there is an abundance of products falsely claiming to be natural in Kenya, particularly in the honey sector. According to Maganjo, there are several, widely sold, honeys in Nairobi's supermarkets that are a blend of sugar, water and honey that claim to be 'natural' implying they are 100% pure honey. This is a trend that has been noted worldwide with some companies investing in expensive processes to detect fake honey (Trifković et al., 2017; Yeow et al., 2013). On the ninth interview with Maganjo, I probed into this topic again. At the time Bintis had put significant effort into sourcing raw ingredients they believe to be organic but without the necessary certification. Yet, they were not branding their products as organic and they still thought that the term 100% natural was being undermined by their competitors falsely using the term. Bintis' refusal to engage with similar practices explains how the company is at times contributing towards a form of quiet sustainability by trying to promote sustainable consumption.

Collectively, many small quiet sustainability decisions such as this are enabling Bintis to articulate a form of the actually existing type of the circular economy. For example, how Bintis' decided to use glass jars, rather than plastic for the packaging for their nut butters and honeys. This decision came with a number of significant consequences for the business. Firstly, the cost of each glass jar is significantly more than a plastic equivalent as Bintis do not have sufficient scale to set up a reuse system for their jars. Secondly, it meant that Bintis had to prioritise this environmental dimension over their ambition to support local Kenyan businesses as they were unable to find a suitable manufacturer of glass jars in Kenya. However, the founders' believed<sup>100</sup> that the glass jars were significantly more likely to be recycled in Kenya

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<sup>99</sup> Interview with W. Maganjo on 19 April 2017 in Nairobi, Kenya.

<sup>100</sup> Interview with W. Maganjo and A. Chemweno on 12 April 2017 in Nairobi, Kenya.

thanks to the wide number of glass recycling facilities (Daily Nation, 2017c; Kibwage, 2002). Whilst this is only a small step closer to the ideals of the circular economy, Bintis' founders are actively trying to make their product more recyclable in the local context.

Another example of the way Bintis are contributing towards quiet sustainability comes from how they chose their suppliers. According to Chemweno, when Bintis were reviewing potential suppliers they chose to work with JungleNuts as their processor for a number of reasons. However, one of the clinching factors was JungleNuts' approach to the waste produced in processing raw nuts. JungleNuts have an organic waste-to-energy system that helps to power their factory by burning their organic waste which is predominately nut shells. For Chemweno, this demonstrated that JungleNuts had 'an environmental ethos that was compatible with Bintis' company values' and was a strong incentive to choose them as their processing partner.<sup>101</sup> In a small way, this demonstrates how Bintis are trying to articulate a form of sustainable production. Of course this statement by Chemweno is easy to make retrospectively when being interviewed about sustainability, and should not be purely taken at face value. However, regardless of the veracity of this claim, the fact that none of Bintis' marketing materials contain any reference to this waste-to-energy facility, nor similar low-carbon messaging, shows that Bintis are not engaging in loud sustainability. Instead they are articulating quiet sustainability through an actually existing type of the circular economy. At the same time, Bintis are trying to encourage a form of green consumption. In doing so Bintis' business model lies firmly within the dominant capitalist industrialising model, suggesting that such a form of the circular economy is a continuation of mainstream sustainable development.

Similar quiet sustainability actions can also be seen from Sanergy who are also performing an actually existing type of the circular economy, as outlined in Section 4.2. Although Sanergy are significantly larger than Bintis, being classified for this study as a medium-size business, several of their activities also demonstrate contributions towards quiet sustainability. Arguably, several of these aspects are encouraged by their

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<sup>101</sup> Interview with A. Chemweno on 26 July 2017 in Nairobi, Kenya.

status as a social enterprise, and in pushing their social agenda they are subsequently encouraging environmentally friendly practices.

Sanergy's business model requires them to carry out weekly collections at their nearly 3,500 Fresh Life Toilets in operation. These collections are something Sanergy had invested a lot of time in testing various collection mechanisms to see what was most efficient and cost effective.<sup>102</sup> As previously discussed in Section 6.3, Sanergy did not demonstrate significant concern over their carbon impact. As described in Section 2.8, the ideal type of the circular economy is carbon neutral (Ellen MacArthur Foundation, 2019b). Therefore, in order for Sanergy to be contributing towards the actually existing type of the circular economy, they should be making some significant efforts towards reducing their carbon impact. So it is useful to look at their logistical processes in some detail to see how this aspect of their operations is articulating a form of quiet sustainability.

When compared to pit latrines, that are normally emptied with waste vacuum trucks (also known as exhauster trucks), there are several reasons this type of well known technology was unsuitable for Sanergy's business model. Firstly, Sanergy's small container-based sanitation system make it impractical for an exhauster truck to collect small volumes of waste at a time. Secondly, the fact that Sanergy's target market are hard to access slum populations, where there are often no formal roads, this generally makes it impossible for such a large vehicles to access their Fresh Life Toilets. Consequently, Sanergy's solution was designed to work with small 20 kg containers that could be moved by hand when necessary. This was a part of their social mission to 'create a sanitation solution for all'.<sup>103</sup>

Their solution requires a labour-intensive collection system which creates a significant number of jobs. This is particularly important given Nairobi's extreme 55% youth unemployment (Awiti and Scott, 2016), and is clearly a part of Sanergy's social brand messaging. However, what is of particular interest for this study is that despite Sanergy's lack of interest in their carbon impact, their logistics system, enabled by these small containers, demonstrates an environmentally friendly approach.

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<sup>102</sup> Interview with D. Auerbach on 16 March 2017 in Nairobi, Kenya.

<sup>103</sup> Ibid.

Sanergy have trialled a few different systems of collecting these containers and subsequently chose a low-carbon and high social impact system, *mkokoteni* pushcarts, over a system more regularly used globally, motorbike couriers. Kenya's many informal motorbike couriers, locally called *Boda Bodas*, are well known in Nairobi for carrying loads cheaply (Mutiso and Behrens, 2011). For example, *Boda Bodas* are often used by Nairobi residents during water shortages, carrying 40 litres from nearby water sources for as little as 50 KES (US\$0.50) per trip. Therefore, one would expect Sanergy to have adopted this solution for aggregating their container waste. Yet their trials showed that an alternative haulage system was more cost effective for their needs, and made a greater social impact at the same time.

This solution was the ubiquitous Kenyan *mkokoteni*, a small pushcart that costs roughly 1,500 KES (US\$15) to purchase.<sup>104</sup> *Mkokotenis* have long been one of the cheapest forms of urban haulage in Nairobi and *mkokoteni* operators are often amongst the poorest of Nairobi's informal sector workforce (Seierup, 2001). Sanergy's trials showed that in many instances *mkokotenis* were cost competitive and able to service most of their toilet network. In this system *mkokotenis* aggregate the waste containers at suitable central points where it is collected en masse by a larger truck to their processing facility at Athi River that is 40 km from most of Nairobi's slums.

Subsequently, Sanergy's social impact aims motivated them to create a predominately *mkokoteni* collection network as it would create more employment opportunities in these low-income communities. Sanergy now employ dozens of *mkokoteni* operators through which Sanergy claim to have had a significant social impact (Sanergy, 2012). Particularly because these operators now receive 'competitive salaries, personal protective gear and full benefits including health insurance and a pension plan.'<sup>105</sup> Of course, considering Sanergy's role as a social enterprise, it is hardly surprising that their communications officer would be keen to report such positive a social impact as part of their perception management. However, what is of more interest to this analysis of Sanergy's quiet sustainability contributions is that the low-tech *mkokoteni* collection network presents an example of when a low-tech system

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<sup>104</sup> Interview with S. Kibuthu on 21 July 2017 in Nairobi, Kenya.

<sup>105</sup> Ibid.

can be more carbon friendly than a higher-tech system that would rely on fossil-fuelled vehicles, *Boda Bodas*. Whilst of course the *mkokoteni* system still relies on a diesel-fuelled truck, the overall distances travelled by fossil-fuelled vehicles is substantially reduced and the amount of waste per vehicle collection is significantly higher. Overall this means that the *mkokoteni* system has a substantially lower carbon impact when compared to the *Boda Boda* alternative.

Section 6.3 examined Sanergy's carbon impact and the way they had approached this part of their operations, including some idealistic plans to fuel their collection vehicles with biogas emitted by the waste they collect. It should be noted that simply by the virtue of using *mkokotenis*, it will not have sufficient carbon savings to offset the associated carbon emissions from Sanergy's container-based sanitation system that is significantly more carbon intensive than traditional sewerage. Therefore, it is not surprising that Sanergy have not engaged with any public relations attempts espousing this carbon friendly aspect of their operations.<sup>106</sup> However, the critical point here is not the size of the impact that *mkokoteni* logistics have, but the fact that their quiet sustainability contribution is largely being ignored despite it being compatible with the ideal type of the circular economy.

*Mkokotenis* closely articulate the ideal type of the circular economy for a number of reasons. Firstly, they are a carbon neutral transportation system. Secondly, the pushcarts are generally made from reused materials such as waste tyres. Lastly, as noted by Sanergy, they have a positive social impact by providing jobs to some of Nairobi's poorest informal workers. In these ways, the *mkokoteni* system, that is low-tech and high-employment, is largely compatible with the ideal type of the circular economy as well as quiet sustainability. Therefore, we can again see a form of the circular economy in Kenya that questions the technological fundamentalist conceptualisation of the circular economy in the Global North.

That said, it is important here to avoid romanticising a job (*mkokotenis*) that only exists because of a lack of alternative employment opportunities. As well argued by Karnani (2009), 'romanticising the poor harms the poor.' Although Sanergy would argue

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<sup>106</sup> Interview with S. Kibuthu on 17 August 2017 in Nairobi, Kenya.

they are providing a step-change towards better, formal employment for *mkokoteni* operators with staff benefits, fundamentally low-tech *mkokotenis* are only economically viable where there is a significant population with low incomes and there is a serious lack of alternative employment prospects (Seierup, 2001). That said, Sanergy argue that their *mkokoteni* operators are receiving reasonable salaries. In this sense I argue that Sanergy are adequately valuing the social and environmental impacts that *mkokotenis* are making. Subsequently, their *mkokoteni* operators are being adequately remunerated for their contributions towards an ideal type of the circular economy. Yet the mainstream conception of the circular economy from the Global North has to date avoided low-tech, high-employment systems such as this that are generally found in the Global South (Velis, 2017). I argue that in order for the ideal type of the circular economy to become a paradigm shift in Kenya it must be less technocentric. It must also be more inclusive of quiet sustainability actions, even if they are only step-changes towards better quality employment, so that it can be more relevant and realistic in the Global South.

## **7.5 - Conclusion: Quiet Sustainability Is a Step Towards the Ideal Type of the Circular Economy**

This chapter has demonstrated how the opposing concepts of loud and quiet sustainability can be seen in Kenyan companies. In doing so, we have seen from the examples of this research that larger corporations have promoted loud sustainability, whereas smaller companies generally demonstrated forms of quiet sustainability. This difference is summarised by Table 6 presented earlier in this chapter. This shows that Stonehouse, a small company, articulated quiet sustainability in contrast to the MNCs of Safaricom and Bamburi Cement who demonstrated loud sustainability. This novel finding is of particular importance as it is primarily through quiet sustainability that these smaller companies are articulating the actually existing type of the circular economy. Whereas the loud sustainability activities of MNCs typically exemplify the instrumental type of the circular economy.

From this data I put forward the argument that quiet sustainability is an important step towards the ideal type of the circular economy. This is an important novel contribution as it links the previously disparate concepts of the circular economy and quiet sustainability. By deconstructing the circular economy in Kenya, this has integrated the relatively unknown concept of quiet sustainability into the theory of the circular economy. This also begins to challenge the circular economy discourse coalition that has espoused loud sustainability to date. For example, the loud sustainability seen from the Ellen MacArthur Foundation when they claimed that by following their ideation of the circular economy India could reduce their greenhouse gas emissions by 44% by 2050 (Ellen MacArthur Foundation, 2016a, p. 12), without giving much evidence to substantiate this claim beyond their 'assumptions'.<sup>107</sup> Challenging the extant discourse coalition in this way is vital if the ideal type of the circular economy is to become more realistic. Although it is worth noting that the ideal type of the circular economy has proven too challenging to be found perfectly emulated through this research in Kenya.

This chapter has also outlined the prevalence of greenwashing in the Global South, predominately by multinational corporations. This enabled this thesis to build onto extant debates concerning CSR in the Global South (see Hamann and Kapelus, 2004; Buseth, 2017; Bracking, 2015; Brockington and Ponte, 2015). Using this platform to analyse the Kenyan cases of this study helped to reveal new findings. Most importantly this prompted my novel contribution through the concept of loud sustainability that aided comparisons of greenwashing against quiet sustainability by instead using the more easily identified loud sustainability. From the case of Bamburi Cement, part of the LafargeHolcim MNC, we saw that the circular economy was explicitly linked to loud sustainability in Kenya. In this case, the burning of waste tyres was advertised by the MNC through loud sustainability, despite the activity being largely incompatible with the ideal type of the circular economy. In this way it appears that the trend identified by Buseth (2017), that new forms of sustainability are often used instrumentally in East Africa is correct.

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<sup>107</sup> Interview with S. Herrmann on 6 September 2017 online.

A similar instrumental type of the circular economy was then seen through the example of Safaricom's misuse of the EBOKS. The EBOKS is a solar powered computer laboratory that represents an actually existing type of the circular economy. The EBOKS is made by a company, Stonehouse, whose activities typically demonstrate a form of quiet sustainability. Yet, through Safaricom's loud sustainability activities, the EBOKS was being misused in on-grid schools. This undermined the quiet sustainability of the EBOKS as many of its features such as solar panels, batteries, low-energy computers, were made essentially redundant and being wasted. This waste of resources therefore consigns the implementation of the EBOKS by Safaricom to the instrumental type of the circular economy. In this case a technocentric viewpoint has fundamentally undermined quiet sustainability. This is particularly interesting because the three companies considered in Table 6, presented earlier in this chapter, all used high-tech, yet only Stonehouse were doing so in a way that resulted in an actually existing type of the circular economy.

Notably, Stonehouse was the exception in refraining from using circular economy terminology, whereas both Safaricom and Bamburi Cement were explicitly using the term in their public literature, an aspect also emphasised earlier in Table 6. From this example we can see that, because the ideal type of the circular economy does not include sufficient aspects of quiet sustainability, the concept of the circular economy is enabling loud sustainability. This echoes the findings of Clarkson et al. (2008) as well as Hamann and Kapelus (2004) in that CSR is promoting loud sustainability and potentially encouraging greenwashing. This is an important conclusion as it counters Bowen's (2014) idealistic view that companies are moving beyond greenwashing.

Furthermore, the way that Stonehouse's quiet sustainability directly contrasted Safaricom's loud sustainability has highlighted a flaw in the traditional approach to CSR. This case leads to a novel finding in suggesting that a CSR approach is likely to undermine quiet sustainability and instead promote loud sustainability, and so is unlikely to lead to absolute sustainability. Building on extant debates concerning CSR this finding suggests that CSR is unlikely to lead to the ideal type of the circular economy. This is a particularly important finding considering the prominent role that MNCs (and their respective CSR programmes) have played in the circular economy discourse coalition to date (Ellen MacArthur Foundation, 2019c; Valenzuela and Böhm,

2017). Furthermore, it highlights these nascent concerns that have to date remained at the sidelines of circular economy debate (Kirchherr et al., 2018).

Following on from this, the chapter has detailed how loud sustainability, through the use of language, can subvert and undermine the contributions of quiet sustainability. Essentially the circular economy can enable loud sustainability by providing a new lexicon to draw upon in new forms of greenwashing. From Bintis' case we saw the dichotomy between the Western conception of 'organic' versus the vernacular *kienyeji*. Here the Western concept of 'organic' has taken on many positive aspects of modern agriculture in Kenya. Subsequently this has undermined the important quiet sustainability contributions of *kienyeji* practices, by devaluing *kienyeji*'s meaning to imply that rudimentary practices hold little value in a modern economy. In this way Bintis highlighted the complexities of trying to encourage sustainable consumption through green terminology. This echoes the way the imported technocentric conceptualisation of the circular economy is equally likely to undermine quiet sustainability efforts, as seen through the earlier example of Safaricom's technocentric loud sustainability. These examples evidence that the technological fundamentalist viewpoint of the circular economy from the Global North is flawed when considering ideal sustainable development in the Global South. This novel finding is of particular importance as it highlights the value of quiet sustainability that has been overlooked to date. It also emphasises the power that the circular economy discourse coalition might hold in the Global South, despite such ideas not being suited to such radically different contexts. Therefore, these examples highlight that if the circular economy is to become a new development paradigm in Kenya it needs to be radically altered so as to be inclusive of quiet sustainability rather than undermining these overlooked contributions.

The ground-up cases developed in this chapter have also helped to counter the multitude of macro-level analyses of the circular economy that have been developed to date (e.g. Ellen MacArthur Foundation, 2016a, 2017; Yuan et al., 2006; Bonciu, 2014). This has proven to be pivotal in revealing the important contributions of quiet sustainability articulated at the grassroots. Consistently throughout the cases presented in this chapter, business that articulated forms of quiet sustainability were performing an actually existing form of the circular economy. Whereas business that were demonstrating loud sustainability were seen articulating instrumental forms of the

circular economy. In this way these cases have also suggested that quiet sustainability is critical to achieving the ideal type of the circular economy. This is an important novel finding as it questions the way that the circular economy discourse coalition has so far demonstrated loud sustainability and failed to acknowledge the substantial role that quiet sustainability contributions make towards absolute sustainability.

Lastly, this chapter detailed the articulations of quiet sustainability by SMEs and social enterprises. This included Bintis' ethos that influenced their decision to use glass jars. This was because the founders' considered glass to be a more sustainable form of packaging, despite the additional challenges and costs that came with choosing glass over plastic. Furthermore, their ethos influenced their choices of which suppliers to work with. They typically favoured suppliers that were able to evidence some attempts towards sustainability, such as JungleNuts' organic waste-to-energy facility. Each of these small actions contribute towards an actually existing type of the circular economy by: counter-acting loud sustainability, reducing waste by enabling glass recycling, and promoting renewable forms of energy generation, all of which promote forms of sustainable production. Similarly, from Sanergy's *mkokoteni* logistics network we saw that their socially focused business model also led to a more carbon friendly model. From these examples of activities, that to date have not been explicitly framed within the existing ideal type of the circular economy from the Global North, we can again see that the concept of the circular economy needs to be more inclusive of quiet sustainability to be more relevant and realistic in Kenya. These cases have also connected the circular economy to the largely disparate field of international development, primarily doing so through quiet sustainability, which was often seen to be synergistic with addressing social justice. This finding responds to calls from the sidelines of extant discourse for a more socially focused circular economy (Merli, 2018; Moreau et al., 2017; Lemille, 2019). This is important in helping to demonstrate how a reformed version of the circular economy could aid development efforts in the Global South and address issues of inequality.

This aspect was further emphasised by analysing the triple bottom lines of the three companies considered in Table 6. Importantly this showed a connection between Stonehouse's articulation of quiet sustainability that supported the strong social and environmental impacts the company was making. This was particularly revealing as

whilst all three of the companies analysed in Table 6 had strong, for-profit business models, both Safaricom and Bamburi Cement were unable to demonstrate strong social or environmental impacts through their activities that exhibited loud sustainability.

Overall, this chapter has shown that in a few cases SMEs in Kenya are making considerable contributions through quiet sustainability that are overlooked in the dominant conception of the circular economy from the Global North. This is particularly evident where the Western conception of the circular economy circumvents considering the role of the poor in building towards the ideal type of the circular economy. In this way, the imposition of this Western concept onto the Kenyan context does not work. Although this research has shown there are significant activities that relate to the circular economy in Kenya, these activities have a fundamentally different nature to the Western discourse coalition's conception of the circular economy. This is primarily because these practices are inclusive of Kenya's poor. Reimagining the circular economy from an international development perspective, as explained in Chapter 5 it helps to develop the conceptualisation of the circular economy such that it might become a paradigm shift from sustainable development by being more inclusive of quiet sustainability. However, in its current form, where the concept is often used instrumentally, the concept is enabling loud sustainability and at times opportunities for revitalised forms of greenwashing.



## Chapter 8 - Conclusions

This thesis has analysed the circular economy in Kenya at a time when the concept is becoming an increasingly powerful development approach. This contribution argues that there are important weaknesses in the dominant conceptualisation of the circular economy from the Global North, most notably the omission of quiet sustainability and an insufficient concern for social justice.

In general this thesis has set out to answer the following primary research question, what forms is the circular economy taking in Kenya. In answering this question this thesis has contributed to the conceptual development of the circular economy and opened up the space for the rest of the research questions. In order to answer this wide-ranging enquiry, first a concluding definition of the circular economy, an essentially contested concept (Korhonen et al., 2018b), was presented. This definition was built from the numerous conceptual reviews of the circular economy (Kirchherr et al., 2017), as well as the Ellen MacArthur Foundation's seminal definition (Ellen MacArthur Foundation, 2015a; Bruel et al., 2019). Noting the wide-ranging critiques of the circular economy's myriad meanings, I proposed a working definition in Section 1.3 to help apply the concept to this study's Kenyan focus. Appending the Ellen MacArthur Foundation's seminal definition clarified what was meant throughout this thesis by the circular economy. It also ensured the concept had the necessary emphasis on achieving a balance and harmony between economy, environment and an equitable society.

Further to my definition, this thesis identified three different forms of the circular economy that help to understand the complexities of the concept in theory and praxis. The first is the 'ideal' type of the circular economy; this is the most idealistic form of the concept that helps to deliver absolute sustainability, economic benefits whilst also ensuring social benefits with minimal negative outcomes or knock-on effects. Secondly, the 'actually existing' type of the circular economy describes what is most often found in practice. In this form there are partial articulations of the ideal type, but also partial failures to address all three of the holistic aims of the ideal type - the economic, social

and environmental. Thirdly, there is the 'instrumental' type of the circular economy, the least sustainable form that largely fails to address the environmental and social aspects of the ideal type. The instrumental type helps to describe the often cynical approach that corporations take, in using the terminology of the circular economy either in articulating loud sustainability or in new forms of greenwashing.

## **8.1 - Situating This Thesis Within Circular Economy Discourse**

This thesis has explored the circular economy within the Kenyan context that is significantly different to most socio-economic contexts in the Global North where the majority of circular discourse emanates from. Therefore, in Chapter 2 it was important to outline where and how the concept originated. To date the circular economy has been dominated by the Global North where the concept originated. Although the concept has been eagerly embraced by China since evolving from European roots in the 1970s, it has largely remained a Western-centric model. The circular economy concept became widely adopted in 2011 by both academia and industry (Nissen, 2015), largely thanks to the advocacy of the Ellen MacArthur Foundation (Griffiths and Cayzer, 2016). In general it has been promoted and dominated by non-academic interests (Lahti et al., 2018) that have often pulled the concept away from radical transformations. Subsequently, these business-led positive conceptualisations of the circular economy (e.g. Allwood et al., 2012; Ellen MacArthur Foundation, 2016a; Webster, 2017) 'exclude large parts of the social dimension, emphasise economic benefits, and simplify the environmental perspective' (Geissdoerfer et al., 2017, p. 766). Circular economy advocates have distracted critique of the concept meaning that the 'basic assumptions concerning the values, societal structures, cultures, underlying world-views and the paradigmatic potential of [the circular economy] remain largely unexplored' (Korhonen et al., 2018b, p. 544).

The circular economy shares much with the contemporary form of sustainable development in typically being reformist rather than radical (Hobson and Lynch, 2016). Notably, the way that circular economy discourse is largely absent of social dimensions (Moreau et al., 2017) echoes the way its closest comparator, the green economy has

evaded questions of social justice (Scoones et al., 2015). This thesis responds to this conceptual failing by advocating for and proposing a more radical conception of the circular economy that is defined by its contributions to fostering a balance and harmony between economy, environment and an equitable society.

This thesis has also shown, using discourse analysis in Section 2.9, the prevalence of a discourse coalition (Hajer, 1993, p. 45) from the Global North that is influencing the concept while promoting it globally. This highlighted the professionalisation of the circular economy and demonstrated how the concept falls within broader Western systems of thought and economic organisation. Furthermore, it explored how the construction of a technical matrix has depoliticised circular economy discourse and cast it in a more neutral language of science. Using a Foucauldian understanding of discourse has helped us to understand how this process is impacting power dynamics. In particular it raised significant questions as to whether this expert discourse, by depoliticising social problems, might maintain unsustainable business as usual practices rather than lead to absolute sustainability.

By creating 'regimes of truth' (Foucault, 1991) circular economy discourse and institutions can marginalise and disqualify non-Western knowledge systems. In this way this conceptualisation of the circular economy might be producing new forms of epistemic violence (Spivak, 1988). This could then lead to the (re)production of dominance and inequality between the Global North and the Global South in many of the same problematic ways previously seen in development discourse (Namuddu, 1989; Escobar, 1995; Mudimbe, 1998; Ferguson, 1994). This issue within new Western sustainability concepts was particularly highlighted in the example given in Section 2.9 that showed how the green economy has been instrumentalised in South Africa.

This direction of analysis was then brought to recent circular economy discourse using Willig's (2008, p. 114-129) six stages of discourse analysis to dissect a pivotal publication by the Ellen MacArthur Foundation (2014b). This demonstrated how the Ellen MacArthur Foundation's conception of the circular economy has gained power and has narrowed sustainability issues towards a single facet - waste. In doing so circular economy discourse was identified promoting new forms of 'sustainability' that are little more than 'business as (slightly un)usual' (Hobson, 2016, p. 93). In Table 2 I outlined a framework of this dominant conception of the circular economy from the

Global North and how these aspects often tended towards weak sustainability. From this basis I have gone on to argue that this conception has resulted in a mobilisation of bias that is detrimental to the development of strong sustainability in the Global South, something this thesis begins to counter.

Using a Kenyan context to locate this analysis, this thesis begins to redress the geographic hegemony over the concept that is largely exclusive of the Global South, with the notable exception of China (Geissdoerfer et al., 2017; Schröder et al., 2019a). Through this research, the actually existing type was seen being articulated by a variety of generally small and medium-sized enterprises (SMEs), whereas the instrumental type was most often exhibited by multinational companies (MNCs). However, the ideal type has proven to be so idealistic, impractical and unrealistic that this research has not been able to identify any business models that truly fit under this holistic concept. Nevertheless, in separating out the various types of the circular economy (the ideal, the actually existing, and the instrumental) it was possible to show that the concept can be translated into the Kenyan context. In doing so, this has highlighted and challenged aspects of the concept in order for it to become a relevant sustainability paradigm in Kenya.

To date the circular economy has rarely been integrated into international development discourse, with only a few academics engaging substantially (Velis 2017a; Schröder et al., 2019a). This debate has generally emphasised the circular economy's failures to address social justice concerns in the Global South. There are also other concerns regarding the application of the circular economy in the Global South. One notable viewpoint from Stahel (2013) pointed out that the linear economy (the antithesis of the circular economy) is actually more suitable for overcoming scarcity and therefore might be more suitable for developing economies. Whereas other extremes question whether the circular economy is enabling a neoliberal agenda that could harm the Global South (Hobson, 2016; Flynn and Hacking, 2019). In a similar way to how academia has been slow to link these disparate fields, there are only a few instances of international development practitioners starting to engage with the concept (e.g. Gower and Schröder, 2016; SEED, 2014). In a small way this thesis has begun to address this gap by establishing the importance of the circular economy in Kenya.

There are several conspicuous dimensions of the Kenyan economy that made it a suitable locale for analysing the circular economy in the Global South. These included: the increasing impacts of climate change, increasing carbon emissions from Kenya, significant international influences present in Kenya, and a regional concentration of high-tech industry in Nairobi. Furthermore, recent Kenyan technologies provide an important opportunity to challenge the North-South system of technology transfer and bring this context into a reconceptualisation of the circular economy (Mavhunga, 2017).

There are also several reasons as to why the circular economy is in some ways more pertinent to countries in the Global South, such as Kenya. For example, green economic decision-making is in its infancy in Kenya (Faccer et al., 2014; Momanyi, 2017). This means that Kenya has an opportunity to leapfrog to more sustainable systems rather than need to retrofit existing unsustainable systems (Szabó et al., 2013). However, the circular economy also has potential negative economic and social impacts on the Kenyan economy. Many of these negative impacts relate to the instrumental type of the concept as well as its neoliberal leanings. There are also potential knock-on impacts of the circular economy's adoption in the Global North resulting in the exportation of unsustainability or the green conditionality of financing (McDonough and Braungart, 2009, p. 13; Baker, 2006, p. 162).

Furthermore, the discourse analysis of key Kenyan strategy documents presented in Section 4.4 revealed that circular economy discourse diverges away from absolute sustainability, yet it is also worryingly disparate from Kenya's own development agenda as laid out in *Vision 2030* (GoK, 2007). In these ways the extant environmental discourse coalitions seem to be reducing Kenya's focus on social issues through means such as replacing an interest in indigenous technology with a technocentrism focused on high-tech from the Global North. Moreover, extant circular economy discourse further emphasises the primacy of businesses and corporates to the detriment of realising social justice. Therefore, it is pivotal to include critiques from viewpoints in the Global South to avoid a new sustainability paradigm that could echo the harmful impacts of neoliberalism in Kenya (Harrison, 2005).

To analyse the circular economy in a Kenyan context this thesis uses a conceptual framework including these key concepts: ideal types from sustainability discourse (Sharma et al., 2007; Rametsteiner et al., 2011), actually existing sustainability (Barry,

2012; Krueger and Agyeman, 2005), corporate instrumentalism (Arend, 2014; Heikkurinen, 2013), the triple bottom line (Elkington, 2013), frugal innovation (McMurray and de Waal, 2019), bricolage entrepreneurship (Baker and Nelson, 2005), weak and strong sustainability (Pelenc and Deduerwaerdere, 2015), and most importantly quiet sustainability (Smith and Jehlička, 2013). This has helped to develop the global conceptualisation of the circular economy by indicating why it needs to be inclusive of social justice, and how this can be done by accounting for important quiet sustainability contributions. From this background and an understanding of what the circular economy means in the Kenyan context, the rest of the more specific research questions can be answered.

## **8.2 - Answering the Research Questions: The Circular Economy Must Be Reimagined**

In order to begin answering the research questions this thesis began by tracing how the terminology of the circular economy spread to Kenya. In Chapter 4 we saw that this was in a similar way to how the green economy emerged. The concept originated in Europe (Stahel and Reday-Mulvey, 1981), first spreading to sub-Saharan Africa through South Africa, and then primarily through the influence of the United Nations (UN) to Kenya. Interviews from this research confirmed that there are only a few instances of the circular economy appearing outside of the United Nations direct influence in Kenya. Nevertheless, the concept's terminology has begun to appear in government circles through a UN supported government strategy document (Soezer, 2016). Furthermore, several Kenyan politicians and some industry leaders have also begun using the terminology of the circular economy in public statements (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019; Wakiaga, 2018). On the other hand, Chapter 4 also began to describe examples of how aspects of the ideal type of the circular economy were being articulated in Kenya without explicitly using the terminology.

## **Contributions to Circular Economy Theory and Practice in Kenya**

One of the earliest arguments of this thesis is that circular economy activities can be identified in Kenya under pre-existing terminologies of sustainability. Section 4.3 outlined several examples of ways that the circular economy can be seen under various different sustainability guises such as eco-development or sustainable development. This also included a comparison with quiet sustainability - the idea that 'large sections of humanity may already be on [sustainable pathways] without feeling the need to proclaim the fact loudly' (Smith, and Jehlička, 2013, p. 34). For example: the historical closed-cycle practices of village life highlighted by Mathews and Tan (2010) as well as Desrochers (2000, 2001, 2002, 2008); frugal innovation (Bhatti, 2012) through the Angaza pay-as-you-go solar lantern (Schäfer et al., 2015); and bricolage entrepreneurship evident in Kenyan designed biogas and wind energy systems (Linna, 2013).

In highlighting these examples, as well as many others throughout Chapters 4-7, this research demonstrates how the circular economy can be understood within a context in the Global South. Furthermore, doing so illuminated the ways that quiet sustainability often embodies aspects of the ideal type of the circular economy. This adds to the argument that reimagining the circular economy, so that it is inclusive of quiet sustainability, would make it more relevant for the Kenyan context. This contribution also helps to address the geographic imbalance in circular economy debate by highlighting how the circular economy can be identified in the Global South in spite of the Global North's dominance over the concept. In doing so I argue that the circular economy is not exclusive to the world's most industrialised and developed economies, but instead contributions from the Global South serve to enhance the concept and give it greater utility.

In answering the first research question, what forms is the circular economy taking in Kenya, this study found dozens of activities that could be identified under the terminology of the circular economy. These compatible activities were often low-tech business models that low-income populations played a significant role in enabling and articulating. These were the business models found that were closest to the ideal type of the circular economy. This is a key contribution to the theory and practice of the circular economy in Kenya, that such low-tech circular economy business models can

play an important role in supporting low-income populations. This was exemplified by the deviant case of the Akala sandal.

The Akala sandal is a ubiquitous Kenyan sandal made from upcycled waste car tyres by thousands of artisans throughout the country that was presented in Section 6.2. This case demonstrated how circular economy praxis can be found in sectors atypical to the technocentric core that dominates circular economy discourse in the Global North. The Akala sandal business model relies on indigenous technology and it is precisely because it is not dependent on imported technology that the fabrication of these sandals is extremely widespread in Kenya. Importantly the Akala sandal is regenerative by design, whilst helping to achieve a better balance and harmony between economy, environment and an equitable society. In these ways the Akala sandal industry demonstrates frugal innovation and bricolage entrepreneurship whilst articulating a near ideal type of the circular economy. However, despite these notable contributions, in its current form the industry is fundamentally reliant on extreme inequality as both the consumers and artisans participate in the industry because of a lack of other economic options. Therefore, in this way the Akala sandal industry does not quite perfectly fit the ideal type of the circular economy.

Other empirical cases also demonstrated similar facets. For example, Sanergy's tippy taps, presented in Section 5.3, further demonstrated how low-tech bricolage entrepreneurship can have a significant role in articulating ideal forms of the circular economy. Here I suggest that this is what the ideal type of the circular economy realistically looks like. That it is more likely for small-scale operations that exemplify quiet sustainability, articulated at scale by thousands of independent artisans to be able to realise the ideal type of the circular economy. Whereas the cases of Safaricom and Bamburi Cement in Chapter 7 suggested that the technocentric form of the circular economy proposed by the Ellen MacArthur foundation that is dominated by MNCs is more likely to lead to an instrumental type.

In answering research question two, where can the circular economy be found in Kenya, the cases from the research showed aspects of the circular economy could be found within most businesses. However, those that came closest to the ideal type of the circular economy generally did so through forms of quiet sustainability. This means that important models, such as the practice of reusing glass bottles that increases

employment (shown in Section 5.5), whilst also providing important social and environmental benefits, are undervalued when compared to less sustainable models that revolve around plastic bottles as most commonly seen in the West. In some sense this case demonstrates ways in which reversing the directionality of technology from the Global North onto the Global South could promote quiet sustainability systems from the Global South to be adopted in the Global North. This is another key contribution to circular economy theory - that quiet sustainability and low-tech activities support the ideal type of the circular economy in Kenya. This is an aspect that strongly contrasts with the technocentric approach seen to date from the circular economy discourse coalition from the Global North.

When considering the circular economy within Kenya this thesis has also highlighted the importance of local terminology and the potential for circular economy terminology to subvert the contributions of quiet sustainability. The circular economy is providing a new sustainability lexicon that is at times enabling new forms of greenwashing. There were a few explicit circular economy cases seen from this research that fit into the category of loud sustainability (a stepping stone towards greenwashing), such as the circular economy branding for a waste-to-energy system by Bamburi Cement (see Section 7.1), part of the LafargeHolcim MNC, that ignores the contention that waste-to-energy schemes are incompatible with the ideal type of the circular economy (Muznik, 2017).

Nevertheless, the impacts of Western concepts undermining vernacular terms, that embody quiet sustainability, were demonstrated through the Bintis case study in Section 7.3. This showed the dichotomy of the Western conception of 'organic' versus the vernacular *kienyeji* - a Swahili term often used to describe indigenous farming methods. Here the Western concept of 'organic' has taken on the positive aspects of modern agriculture, subsequently undermining the important quiet sustainability contributions of *kienyeji* practices. This was primarily happening as the term organic was devaluing *kienyeji's* meaning to imply rudimentary practices held little value in a modern economy. This highlighted Mavhunga's warning that the 'importation and consumption of rigid Western meanings... [are a] threat to a self-determined African path to the future' (Mavhunga, 2017, p. 1). This also leads to the recommendation that

Kenyan consumers must be alerted to new forms of greenwashing and the instrumental use of new terminologies such as the circular economy.

A similar process was identified in Kenya's informal sector that was undermining repair activities. Detailed in Section 6.2, the vernacular *jua kali* often refers to a repair by any means necessary (Orwa, 2007). *Jua kali* repair activities generally use innovative but inadequate and transient methods that degrade the overall value and quality of a product, yet they comprise the majority of repair activities in Kenya (Ngure, 2013). These *jua kali* repair activities could be transliterated as bricolage entrepreneurship that is generally accepted within the circular economy (Kalmykova et al., 2018). However, to date these quiet sustainability activities have often been disparaged by technological fundamentalist advocates of the circular economy (Hobson 2016). Overall, the technocentric dominant conceptualisation of the circular economy imported from the Global North to date seems likely to undermine quiet sustainability efforts as the term becomes more popular in Kenya. This means that the circular economy needs to be reimagined to be more relevant and supportive of quiet sustainability in Kenya.

This brings us to the third research question; how can the circular economy be understood within this local context? Here the Akala sandal also introduces one of the key arguments of this thesis as the production of the Akala sandal demonstrates much of the ideal type of the circular economy, yet it is also a phenomenon inextricable from the context of extreme income inequality. In this way this case shows that the concept cannot avoid these complex socio-economic dimensions. Therefore, when considering the circular economy in this Kenyan context, the concept needs to be responsive to the challenges of extreme income inequality and large low-income populations. The empirical evidence from Sanergy's use of *mkokoteni* pushcarts shown in Section 7.4 further emphasised the important role that low-tech and labour intensive business models can have in creating employment opportunities for low-income populations that support the ideal type of the circular economy. Yet the current circular economy discourse coalition largely evades considerations of social equity. Therefore, when attempting to apply the concept to a Kenyan context, this is a conspicuous failing. The fact that over a third of Kenyan's live below the international poverty line (World Bank, 2018), means that to apply the concept to a context that fundamentally contrasts with

the Global North it must be reimagined. Therefore, when considering the circular economy in Kenya, the concept must have a significantly greater emphasis on social justice to be relevant as a development paradigm.

These differences led to answering research question four, how does this local interpretation of the circular economy compare to the archetypal circular economy of the Global North? The cases of this research established that this interpretation of the circular economy in Kenya is fundamentally different to the archetype from the Global North. Primarily, this difference stems from the context extreme income inequality in Kenya that emphasises the importance of social justice. The cases of this research, such as Sanergy's use of *mkokoteni* pushcarts (Section 7.4) and the Akala sandal (Section 6.2), emphasised how labour intensive business models can be supportive of the ideal type of the circular economy whilst creating employment opportunities for low-income populations.

On the other hand, the Sanergy case study also highlighted that neoliberal mechanisms, such as public-private partnerships, may be supportive of the ideal type of the circular economy if they provide substantial social and environmental benefits. However, these benefits were strongly linked to Sanergy's not-for-profit status. Furthermore, Sanergy's policy strategy and response to Kenya's plastic bag ban highlighted concerns that a neoliberal approach does not always lead to the ideal type of the circular economy (Hobson, 2016; Flynn and Hacking, 2019). Beyond this, Sanergy's carbon-intensive activities also emphasised that the ideal type was unrealistic through their business model. In this way actually existing forms of the circular economy were shown to not necessarily be supportive in combatting climate change. Nevertheless, this case study highlighted how social dimensions are largely overlooked in the circular economy discourse coalition. For the ideal type of the circular economy, that implies social justice, to be realised in Kenya, it must be reimagined so that the important contributions of quiet sustainability can be leveraged.

The often low-tech contributions of quiet sustainability are overlooked in the dominant technocentric conception of the circular economy from the Global North. However, due to large low-income population in Kenya, any local interpretation of the circular economy needs to be more inclusive of quiet sustainability contributions such that local circular models can be developed that build upon these existing practices. For

example, frugal innovation demonstrated by AB3D in Nairobi in making 3D printers from electronic waste (Section 6.1) is a practice fundamentally compatible with the circular economy. Leveraging the support of circular economy advocates could be pivotal in scaling up these quiet sustainability activities. If this happens then frugal innovation could play an increasingly significant role in realising the ideal type of the circular economy in Kenya. Overall, this Kenyan study has situated the circular economy within the field of international development. In doing so, it has highlighted that further critique from a variety of international development perspectives is needed if the dominant conception of the circular economy is to become supportive of poverty reduction.

### **8.3 - Suggestions for Further Research**

In answering the research questions this thesis has revealed multiple dimensions of the circular economy in Kenya, in doing so this has also alluded to several areas that were beyond the scope of this study that would benefit from further research. In general this study demonstrated that the dominant conception of the circular economy from the Global North must be fundamentally altered to be more relevant to the lower-middle income context of Kenya. This aspect, amongst many others, is a key reason why similar studies based in other countries in the Global South would likely provide further conceptual challenges, and also address the geographic imbalance to date of circular economy debate. Whilst this study indicates it is likely that similar nuances would be replicated in other parts of the Global South, this study is not generalisable to that extent and thus further research is needed to confirm such.

This research was purposefully limited by its chosen boundaries, such as the Kenyan focus, as well as the methodological approach used. Further research could go beyond these boundaries, such as expanding beyond the industrial sectors covered in the cases of this thesis. The logic of these chosen limitations were discussed in greater detail in Section 3.6 of the methodology. As anticipated prior to field research, the levels of access that could be negotiated, particularly in larger companies proved challenging. Nonetheless, the access that could be negotiated opened up questions

surrounding the often instrumental use of the circular economy by MNCs. Therefore, it could prove valuable for future research to investigate if the ways that MNCs are engaging with an instrumental type of the circular economy are leading to new forms of greenwashing, or if this is simply loud sustainability. Being able to prove the duplicitous intent behind greenwashing is of course particularly challenging; however, being able to do so would enable circular economy discourse to challenge such behaviours. This might then enable the concept to become the sustainability paradigm shift that is needed.

The conceptual framework of this thesis helped to interpret the circular economy within the Kenyan context where the term is rarely used. This meant that through the research other terms that are popular in Kenya were used such as: sustainability, sustainable development, green and the green economy. Alongside these a selection of more academic and technical terms were also used including: quiet, weak and strong sustainability; ideal and actually existing types from sustainability discourse; and corporate instrumentalism. In focusing on these terminologies, this research accepted several other terms as analytical boundaries. For example, there is significant debate surrounding terms such as 'development' or the 'Global North/South' and several of these key notions have been used to explore phenomena that occur within these prevalent systems without questioning whether these systems are right or not. Indeed, the very existence and morality of international development has long been critiqued (Horton and Roche, 2010; Streeten, 1981). Challenging these terminologies was not practical within the scope of this research due to the depth of analysis required for these complex concepts. Instead, where relevant the arguments of African post-development authors concerning the detrimental conceptualisations of African countries that international development can reinforce have been acknowledged and integrated into the analysis. Therefore, subsequent analysis would benefit from problematising how the circular economy interacts within these wider debates of development.

This thesis has also furthered the perspectives of a few international development actors, such as Tearfund, who have begun a reimagining of the circular economy by shifting the focus of the concept from the macro-level to the micro where quiet sustainability is generally found. Building onto this background, further research could attempt to reveal the ideal type of circular economy practice in the Global South. Whilst

identifying perfect articulations of this ideal is unlikely, in order to create truly sustainable systems we must discover and realise ways to achieve such ideals.

## **8.4 - Three Key Conclusions**

The first concluding argument of this thesis is that the circular economy can be implicitly identified in Kenya. This key finding provides a foundational contribution to understanding circular economy practice in Kenya. The circular economy in Kenya was often seen enacted through quiet sustainability activities, which were often undermined by the circular economy discourse coalition that was enabling loud or weak sustainability. This is an important contribution to circular economy theory which has often been overly technocentric to date. This argument stems from the fact that many aspects of the circular economy could be identified within most Kenyan businesses, albeit under various sustainability guises. Notably, the business models that came closest to the ideal type of the circular economy generally did so through forms of quiet sustainability. These cases also showed that low-tech business models and low-income populations both played a significant role in enabling business models close to the ideal type. For example, the case of the Akala sandal industry, presented in Section 6.2, demonstrated frugal innovation and bricolage entrepreneurship through quiet sustainability. In doing so the industry is very nearly able to articulate the ideal type by upcycling materials and providing economic, environmental and social benefits. However, this case also emphasised that social justice could not be overlooked and must be addressed in order to make the ideal type more realistic.

### **Contributions to Circular Economy Policy in Kenya**

This first conclusion leads to recommendations for the development of circular economy policy in Kenya. These recommendations begin with the idea that any such policy should specifically target and support low-tech, 'hidden' circular economy businesses that are articulating forms of quiet sustainability in ways that are supportive of the ideal type of the circular economy. From this understanding of an implicit circular economy in Kenya, this study found that the circular economy discourse coalition could

be undermining these important quiet sustainability contributions. For example, the Bintis case study in Section 7.3 highlighted the dichotomy of 'organic' agriculture against 'traditional' or *kienyeji* agriculture in Kenya. This showed how the loud sustainability of organic agriculture is undermining the quiet sustainability practices of 'traditional' *kienyeji* agriculture. This results in lower prices for *kienyeji* farmers, who are often low income smallholders and have an important role in promoting sustainable agricultural practices. As the Western concept of the circular economy gains traction in Kenya, it can also be seen to be undermining quiet sustainability practices as the Western concept of organic has done. This was seen directly from the instrumental type of the circular economy articulated by LafargeHolcim and Bamburi Cement, in Section 6.2, that promoted weak sustainability.

In a similar vein, the critical instance case of Stonehouse, seen in Section 7.2, demonstrated how the quiet sustainability actions of Stonehouse were undermined by Safaricom. This stemmed from Safaricom's interest in performing loud sustainability by using Stonehouse's high-tech products inappropriately. Subsequently, their joint activities led away from Stonehouse's actually existing type of the circular economy business model away from the ideal through Safaricom's articulation of the instrumental type. These cases draw attention to how, in this Kenyan context, the dominant conception of the circular economy is lacking because it does not adequately include important quiet sustainability contributions. Instead this discourse coalition is enabling loud sustainability, to the detriment of quiet sustainability, as was also seen in the Coca-Cola case in Section 6.4. In doing so these cases suggest that at times the terminology of the circular economy could be enabling new forms of greenwashing.

The second argument of this thesis is that the dominant conception of the circular economy from the Global North is unsuited to the Kenyan context, primarily because it is overly technocentric and does not adequately address social justice. This leads to the recommendation that circular economy policy in Kenya must diverge from models used in the Global North in order that it can support Kenya's distinct context, such as the *jua kali* sector. To do this, a Kenyan interpretation of the circular economy should reimagine the concept to ensure that social justice is given equal weighting to environmental and economic concerns. This would give the concept greater value in

Kenya by enabling it to capitalise on the myriad efforts of businesses articulating quiet sustainability.

This argument begins from an understanding that the archetype of the circular economy from the Global North prioritises economic growth whilst simultaneously aiming to provide positive environmental outcomes. Yet this research's international development critique has highlighted that, when applied to the Kenyan cases studied, the concept is flawed because it fails to address the crucial challenges of social inequity. Indeed, the instrumental type of the circular economy has potential to exacerbate inequity in Kenya whilst also undermining the environmentally friendly contributions from quiet sustainability, as identified in the cases of Bintis and Stonehouse. A significant reason why the current conception is inappropriate in Kenya is because it overlooks low-tech business models that often also addressed the socio-economic challenges of inequality.

The Akala sandal industry, that demonstrates many aspects of the ideal type of the circular economy, exists because of, rather than in spite of, extreme inequality in Kenya. The industry is importantly providing employment for thousands as well as durable footwear for Kenya's low-income populations. Yet, this model was arguably much closer to the ideal type than the instrumental type demonstrated by MNCs such as Safaricom and LafargeHolcim, when considering the wide spectrum of forms of circular economy practice identified through this research. Therefore, the fact that low-tech activities such as these are not included in the dominant ideal that is setting the circular economy agenda and guiding best practice, demonstrates a failing of this technocentric conception. This has led to overlooking important contributions from quiet sustainability which often demonstrates solutions that have positive social and environmental outcomes. In this case, if the circular economy was used as a tool to support industries such as the Akala sandal, it could lead to accounting for the environmental and social contributions of this industry and subsequently remunerate these low-income artisans appropriately.

This study therefore argues that it is important for the circular economy to become more inclusive and to at last 'take indigenous technology seriously' (Belshaw, 1979). The examples of quiet sustainability throughout this thesis have done so and in a small way begun to reverse directionality of technology from the Global North onto the Global

South (Mavhunga, 2017) as well as challenge the 'pedagogy of colonisation' (Nyabola, 2018, p. xxi). In this way this thesis provides a theoretical challenge to the dominant technocentric conception of the circular economy from the Global North. In critiquing the concept this study has reframed circular economy debate, revealing and addressing the dominant conceptualisation's failings that diminish its paradigmatic potential. Doing so has helped to bridge the divide between circular economy discourse and the field of international development, primarily by integrating the concept with sustainable development literature.

This leads us to the third argument of the thesis, that because of these conceptual failings, the ideal type of the circular economy is unrealistic and at times enabling instrumentalism. The diffusion of the circular economy has meant that the concept's core idea of a circular flow of materials has become blurred by the various actors that have pulled the evolving concept to their disparate agendas. In this way it has been claimed that the circular economy can solve the contemporary multitude of sustainability and development challenges. Yet the empirical evidence of this research shows that the holistic objectives of the ideal type are not realistically achievable in practice under the current economic system. This was primarily shown through the fact that none of the 71 organisations studied were able to demonstrate an ideal form of the circular economy. There were a multitude of reasons for this inability, a few of which are worth reiterating here.

In some cases the dominant conception of the circular economy was unrealistic due to the challenges of scale. Chapter 6 explained through the Coca-Cola case study how the cyclical flow of materials idealised by the circular economy discourse coalition is substantially easier for larger companies that can vertically integrate their supply chain. Yet, this case also highlighted that Coca-Cola were taking instrumental approach to the circular economy through their advocacy of high-tech plastic recycling systems over their more established glass reuse systems that demonstrated quiet sustainability. In a similar way, as shown in Chapter 7 through the case of Stonehouse and Safaricom, the MNC tended towards weak sustainability by articulating an instrumental type of the circular economy. Whereas, without the advantages of scale, the SME typified the actually existing type, pushing closer towards ideal sustainability.

This case also highlighted how overlooking quiet sustainability the concept can tend towards weak sustainability through the instrumental type of the circular economy. This has stemmed from the dominant conceptualisation's preponderant use by corporations, which has been actively promoted by advocates such as the Ellen MacArthur Foundation. Subsequently, many corporations have actively engaged with the concept, demonstrating forms of loud sustainability, and potentially greenwashing, by using the technocentric vogue of the circular economy. If the concept more actively promoted low-tech business models then it might lead to strong sustainability instead.

Section 6.4 explained how the reuse of glass bottles rather than the recycling of plastic bottles delivered significant social and environmental benefits through quiet sustainability. If such overlooked models were promoted within the conceptualisation of the circular economy they could be supported and potentially deliver greater benefits than the technocentric models currently promoted. Instead the lack of importance assigned to quiet sustainability contributions by the discourse coalition is resulting in loud sustainability. This was seen directly from both the Coca-Cola and Bamburi Cement cases. In doing so these cases show that, at times, the terminology of the circular economy could be enabling new forms of greenwashing under an instrumental type of the concept. This further makes the ideal type of the circular economy unrealistic as corporate instrumentalism leads to weak sustainability.

Whilst it is important to note that ideals in themselves are inherently unrealistic, the key point is that this ideal was largely unattainable because the dominant conception of the circular economy does not adequately address social justice and is overly technocentric. By reconceptualising the circular economy this would make the ideal more attainable. This could be done by integrating important quiet sustainability contributions, so that social justice takes equal priority as the environment and economy. Nonetheless, it is worth noting that several Kenyan businesses studied articulated actually existing forms of the circular economy, including the three main SMEs studied: Sanergy, Bintis and Stonehouse. Furthermore, some business models studied, such as the Akala sandal industry, were very close to achieving the ideal type too. Therefore, through reimagining the circular economy in these ways it might be possible to realise the ideal.

This leads to a third recommendation for the development of circular economy policy in Kenya. In order to reduce instrumental use of the term, legal standards for performance measurement, reporting and accounting need to be developed for the circular economy. Due to the nature of this recommendation, it is of course somewhat internationally applicable. However, the key point to note in regard to this recommendation that is specific to Kenya, is that simply adopting international standards may not be sufficient. For example, the 'globally recognised' Cradle to Cradle™ certification for the circular economy (C2C, 2019), whilst containing some social aspects, would not be sufficient to address Kenya's challenges of extreme inequality (Oxfam, 2019; SID, 2004). For example, whilst the 'Social Fairness Requirements' of C2C (2020) accreditation would address human rights issues such as ensuring 'child labor' and 'forced labor' were not used, such meagre steps will hardly begin to address the fact that over a third of Kenyan's live below the poverty line (World Bank, 2018). Therefore, it is important for Kenya to develop its own legal standards for the circular economy if the concept is to achieve balance between the social, environmental and economic aspects of this model.

Overall, from this conceptual critique this thesis concurs with the handful of academics to date who have highlighted the need for more radical critique from arguments such as degrowth (Ghisellini et al., 2016; Hobson, 2016). Beyond this I argue that the current conception of the circular economy also needs to be reformed from a social perspective. In this sense, the predominant focus of the circular economy on economic potential and limitless growth needs to be radically altered such that economic concerns become subservient to environmental and social justice concerns. This needs to be a radical shift such that even if an industrial process has a perfectly circular flow of materials, it cannot be considered to be part of the ideal type of the circular economy unless it also provides adequate social equity and is compatible with environmental sustainability too. This shift would mean that the ideal type of the circular economy would adequately account for quiet sustainability contributions. This would dilute the technological fundamentalism of the circular economy and make the concept more open to low-tech solutions that are often more socially inclusive and can have significant environmental benefits. In this way the concept might begin to echo

Schumacher's now nearly half-century old point that 'small is beautiful' (Schumacher, 1974).

This country specific study has not aimed to be generalisable, as discussed in Section 3.2; however, these key conclusions have relevance for understanding the circular economy outside of Kenya too. Firstly, the way that the dominant technocentric conceptualisation of the circular economy currently overlooks quiet sustainability is a globally relevant argument, as it is likely that similar examples could be found in other countries too. This study has shown that one of the primary reasons why quiet sustainability is so important is the large low-income population in Kenya that often performs quiet sustainability. Therefore, this argument is also pertinent for other countries in the Global South with large low-income populations. This geographic interest is then similarly shared by the key conclusion that the concept of the circular economy would be of more value in Kenya if it is redefined to ensure social justice is given equal weighting to environmental and economic concerns. This conclusion is also of relevance to countries that face the most extreme challenges of inequity, which are typically in the Global South. Similarly, the overarching argument that the ideal type of the circular economy is unrealistic in its current form is likely to apply to whichever country or businesses the concept is considered in. In this way this thesis also challenges the concept at a global level.

## **8.5 - Contributions**

To summarise the contributions of this thesis to both policy and practice of the circular economy in Kenya, the following table outlines some of the key arguments and their subsequent contributions to their relevant fields. This locates my arguments within the following contexts: the practice and policy of the circular economy in Kenya, the theory of the circular economy at a global level, and lastly within the field of international development. The following table also summarises this thesis' contributions towards global circular economy theory as well as making recommendations for international development theory and practice. It also presents a summary of the contributions toward circular economy practice in Kenya with

recommendations for policymakers that have been discussed earlier in this chapter, in Sections 8.2 and 8.4 respectively. These further contributions and recommendations will be collectively explained in detail shortly following this table.

These recommendations are intended to support the development of the circular economy, particularly in drawing attention to aspects of the concept that I believe have been largely overlooked to date but are vital if the concept will support progress towards absolute sustainability, particularly in the Kenyan context. It should be noted that whilst I make recommendations for international contexts outwith Kenya, these are solely based on this study's Kenyan focus. Therefore, the limitations outlined earlier in this chapter should be noted and these conclusions are not intended to be entirely generalisable, but instead to inspire further research into these aspects in other specific contexts.

**Table 7: Summary of Key Arguments and Contributions**

Key argument	Practice of CE in Kenya	CE policy in Kenya	Global CE theory	International development
The circular economy (CE) is implicitly identifiable in Kenya.	Low-tech CE business models can support low-income populations.	Policies should target low-tech 'hidden' CE businesses.	Quiet sustainability can support the ideal type of the CE.	Practitioners should encourage governments and donors to support 'hidden' CE as an industrial development strategy.
The dominant conception of the CE from the Global North is unsuited to Kenya because it is overly technocentric and fails to promote social justice.	In contrast to the CE discourse coalition, quiet sustainability and low-tech activities support the ideal type of the CE in Kenya.	Policy must diverge from models used in the Global North to support Kenya's distinct context, such as the <i>jua kali</i> sector.	CE theory must explicitly include low-tech and quiet sustainability business models that are more socially inclusive.	Practitioners need to create CE case studies from the Global South that highlight the importance of low-tech and socially inclusive business models.
The ideal type of the CE is unrealistic and enabling instrumentalism.	Consumers must be alerted to new forms of greenwashing and instrumental use of the CE.	Legal standards for performance measurement, reporting and accounting need to be developed for the CE.	CE theory needs to be refined and create quantifiable targets that make the ideal objectively realistic.	Practitioners should call out against greenwashing by MNCs through 'naming and shaming' in the media while advocating for specificity in circular economy claims until legal standards are in place.

## **Contributions and Recommendations for International Development Theory and Practice**

The key argument of this thesis, that the circular economy is implicitly identifiable in Kenya under varying sustainability guises, has led this research to identifying the important role of quiet sustainability in enabling the ideal type of the circular economy. This is an important novel contribution for circular economy theory at a global level. This research has highlighted examples where the discourse coalition from the Global North has tended towards instrumental forms of the concept, such as the Caterpillar case discussed in Chapter 2. This has significant implications for how the international development community should engage with ideas of circular economy. It also questions the role of the powerful grey literature that is so prevalent within the circular economy discourse coalition.

This thesis has analysed the significant role that multi-lateral institutions, such as the United Nations, have had in recently promoting the circular economy in sub-Saharan Africa (European Commission, 2019). In Kenya this has resulted in the concept being integrated into Kenyan government strategies (Soezer, 2016) and being explicitly supported by several politicians (Wakhungu, 2017a; Ministry of Environment and Forestry, 2017, 2019). As there have only been a few detailed academic studies exploring the concept in poorer countries (e.g. Schröder et al., 2019a), this research has questioned the application of the concept in Kenya. By interrogating the history of similar terminologies, such as the green economy and sustainable development, this thesis has noted the development of a circular economy discourse coalition from the Global North and goes on to challenge their conception. This thesis has also built an evidence base from which it contributes to the work of Schröder et al. (2018a), who situated the concept within the context of the Sustainable Development Goals, by developing an understanding of how the circular economy is being forged within the dominant sustainable development paradigm in Kenya. Furthermore, this study begins to bridge the divide between the traditionally separate fields of international development and the circular economy.

Considering the power of the extant circular economy discourse coalition, international development practitioners should use their position to raise awareness of 'hidden' instances of circular economy practice. For example, as has recently been

done by Tearfund (Gower and Schröder, 2016; Ridpath et al., 2017). This could enable governments to leverage such 'hidden' circular economies to encourage donors to support their own specific interpretations of the circular economy as an industrial development strategy that would also be supportive of poverty reduction efforts. This would likely further identify more low-tech business models that are inclusive of low-income populations, enabling them to be included in policy discourse. This would also enable businesses in the Global South to leverage a global interest in the circular economy by adopting the terminology to describe their quiet practices that currently contribute towards a 'hidden' form of the circular economy. In general, the value of quiet sustainability in achieving the ideals of the circular economy is a novel contribution I make to the theoretical underpinning of the circular economy that remains an essentially contested concept.

In identifying the importance of quiet sustainability in realising the ideal type of the circular economy, this study also has theoretical implications for international development. To date the concept of quiet sustainability (Smith and Jehlička, 2013) has appeared only at the margins of environmental discourse. Yet I argue that the concept should be included within mainstream sustainable development that continues to be so influential within international development. If this was done it would support international development practitioners to successfully argue the value of quiet sustainability contributions made in the Global South in reaching absolute sustainability at a global scale. Appropriately accounting for these quiet sustainability contributions would then enable policymakers to justify their support for these often low-tech activities that can be overlooked for being traditional rather than modern (Sharma and Joshi, 2019; Escobar, 1995). Similarly, this would encourage businesses to account for their own quiet sustainability contributions and leverage these against the environmental zeitgeist. This process could be kickstarted by intergovernmental organisations, such as UNIDO, through their 'SDG Accelerator Fund' that is expected to direct funding towards circular economy projects (UNIDO, 2019b).

A key novel contribution towards circular economy theory in general is that the concept must become explicitly inclusive of low-tech and quiet sustainability models if the ideal type of the circular economy is to be made more realistic. For example, by including frugal innovation and bricolage entrepreneurship, as well as local terminology

such as *kienyeji* or *jua kali*. This would help to address some of the ways that the dominant conception of the circular economy from the Global North is unsuited to economies in the Global South. This would be done primarily by countering the extant technocentrism of the concept, but also in highlighting ways that the concept can promote socially inclusive business models through quiet sustainability.

These aspects are of particular relevance to international development as post-development academics have long argued the harm that can be done from the importation of Western development theories (Mavhunga, 2017; Nagendra, 2018; Li, 2007; Ferguson, 1994). Therefore, international development academics must further engage critically with the circular economy to ensure that this new development model does not evade the important critiques of previous development regimes such as sustainable development (Escobar, 1995, p. 155).

In practice this means that international development agents should be creating case studies of circular economy practice from the Global South that further highlight how the concept can be used to create socially inclusive business models. Deconstructing the circular economy in Kenya, in a similar way to how sustainable development has been opened up to critique from a range of academic disciplines, has helped to advance circular economy discourse. Doing so has suggested ways to address some of the concept's failings and challenge the influence of the extant discourse coalition. Moreover, it has also suggested that further critique from a post-development perspective is required. This is needed to further challenge the discourse coalition from the Global North in order that global circular economy theory becomes more inclusive of alternative models from the Global South.

This thesis also contributes to circular economy discourse by providing a bottom-up perspective of the circular economy to complement the existing multitude of macro-level analyses (Murray et al., 2017; Ellen MacArthur Foundation, 2016a, 2017; Schröder et al., 2018b). It also contributes to wider academia by helping to redress the existing geographic imbalances in current debates that largely exclude sub-Saharan Africa from circular economy discourse. In this vein this research highlights the nuances of the Kenyan economy such that these concerns might be accounted for and fulfilled should the concept come to be a global development paradigm shift in the future.

This research has also alluded to how the circular economy can be instrumentalised. In doing so this has opened the field up to similar arguments previously made by Brockington and Ponte (2015) about corporate social responsibility (CSR) in regard to the use of the green economy in South Africa. In this way this study has also built onto the critique of Valenzuela and Böhm (2017) by further questioning if the circular economy is leading to new forms of greenwashing. Again, this novel contribution is of particular importance for practitioners who should be prepared to call out against greenwashing by MNCs, using the media to name and shame such companies while also advocating for specificity in circular economy claims until legal standards are in place.

This brings us to an overarching recommendation, that circular economy theory needs to be refined such that quantifiable targets can make the ideal type of the concept objectively realistic and measurable. Whilst there has been some take-up of such measures led by the private sector (e.g. C2C, 2019; Ellen MacArthur Foundation, 2020c), as earlier discussed these private solutions are subject to flaws and biases that can make them unsuited for application in the Global South. There have been some attempts to introduce public-sector circular economy frameworks, although these have predominately been in the Global North and China (European Commission, 2018). Therefore, advocating for more relevant legal standards for countries in the Global South is an important role that international development practitioners are uniquely positioned to take. In laying this groundwork, practitioners will be supporting governments in the Global South to more readily create their own approaches to the concept without being marginalised by the circular economy discourse coalition from the Global North. In doing so, international development practitioners might also be able to advise donors on how best to align investments in climate resilience and sustainable development with the circular economy.

### **A Balanced Circular Economy**

A core theme throughout this study has been that the circular economy proposed by the discourse coalition is unbalanced, with a tendency to prioritise economic concerns, followed by environmental considerations and lastly social dimensions. The case studies presented in earlier chapters have shown that business models that more

equally address each of these considerations through their triple bottom line, articulated forms of the circular economy that were closer to the ideal type. Therefore, I argue that achieving a balanced triple bottom line is important in making the ideal type of the circular economy more realistic and achievable. In order to do this, it is vital to be able to adequately account for the social and environmental impacts of a business in a way that can be measured against economic goals. This has long been a topic of heated debate, indeed the failure to develop a widely respected accounting mechanism is one of the major criticisms of Elkington's (2013) triple bottom line (Sridhar, 2011).

A company's economic impact is an aspect that has been widely studied and is largely agreed upon by using standard measures such as total revenue and profit. At a national level the most dominant measure remains GDP, despite many criticisms of this often inaccurate and over-simplified measure (Rifkin, 2011; de Waal, 2015). There have been many attempts to measure social impacts, including some that try to relate social value back to what is perceived as the most important comparator - GDP (Trotter et al., 2014). However, the issue of how to measure social value is still strongly debated, particularly due to the political nature of such a question (Mulgan, 2010; Zappalà and Lyons, 2009; Clifford et al., 2013; Hanna, 2010).

Due to the complexity of this issue, I used a rudimentary ranking of weak, moderate and strong throughout the cases presented in Tables 4-6. This followed the scorecard approach that has been popularised in international development by Oxfam (2020). I took a similar approach in considering the environmental impacts of a company's activities as this is similarly complex question. Due to the ever-changing nature of understanding what absolute sustainability includes and excludes, environmental metrics are also continually updated. Of most relevance to the circular economy are two environmental impact measures. Firstly, the popular understanding of greenhouse gas emissions that has been discussed earlier. Secondly, Life Cycle Analysis, which is a more in-depth tool that provides a framework, typically for measuring the environmental impact of a specific product (e.g. Accorsi et al., 2015). Such measures have been included in previous attempts to make subjective measurements quantifiable in a triple bottom line framework. However, there remains considerable work for such measures to become a recognised international standard (Wang and Lin, 2007).

Nonetheless, work in these areas can be drawn from to help build an understanding of how to achieve a balanced approach to the circular economy.

Using such mechanisms it would be possible to objectively bring balance to the triple bottom line of circular economy models. As a starting point I have used a simplified approach, albeit subjective, by rating various business activities weak, moderate and strong, in regard to these three dimensions. This approach, outlined in Section 5.2, has given an indication of how such a process can work. For example, Table 5 presented in Chapter 6, contrasted the activities of Coca-Cola in Kenya against their UK operations. This showed how in Kenya they used a low-tech, refillable glass bottle system that resulted in moderate social and environmental impacts. This contrasted to the high-tech approach to recycling plastic bottles in the UK that was explicitly branded as being a circular economy solution (Coca-Cola, 2018a), yet this system only led to weak social and environmental impacts. Therefore, if even such a basic triple bottom line analysis of circular economy solutions was taken (and incentivised) it could lead to Coca-Cola supporting what is arguably a more sustainable business model in Kenya, rather than their current focus on promoting and expanding their recycled plastic solutions (Coca-Cola, 2018a). Of course this is just a simplified example, but one that I hope might spur further research to build an evidence base for the impact that low-tech, quiet sustainability activities can have in achieving the ideals of the circular economy.

Overall for the ideal type of the circular economy to be more relevant and effective in the Kenyan context there needs to be a shift in how we conceptualise the circular economy. This research suggests that the dominant technocentric conception, which overlooks social justice concerns, is an unrealistic development model in Kenya. Focussing on the social dimensions of the concept has revealed important contributions from quiet sustainability. Harnessing these often low-tech and labour intensive contributions, and accounting for them with appropriate remuneration, would enable the circular economy framework to address issues of social inequity in Kenya. Therefore, the value of the circular economy could be increased by redefining the concept so that it places equal importance firstly on social equity, secondly on the environment and lastly on economic concerns. In doing so, the circular economy may become the

paradigmatic shift needed to address the urgent environmental issues facing society today.



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## 10 - Appendix A: List of Interviewees

Interviewee	Organisation	Date	Location
Achola, R.	Kenya Forestry Research Institute	25/01/2017	Lodwar, Kenya.
Adhiambo, H.	Barbets Duet	19/11/2016	Nairobi, Kenya.
Anjalusi, E.	Avallain Foundation	12/12/2016	Nairobi, Kenya.
Asamba, M.	Kantar and the Jomo Kenyatta University of Agriculture and Technology	19/01/2018	Nairobi, Kenya.
Auerbach, D.	Sanergy	21/09/2016, 16/03/2017, 07/09/2017, 25/09/2017.	Nairobi, Kenya.
Ayoo, D.	BBOXX	23/05/2016	Homa Bay, Kenya.
Babu, M.	Strathmore University	28/02/2017	Nairobi, Kenya.
Bevan, C.	Tearfund	28/08/2017	Online.
Birkelo, P.	Gearbox	23/08/2016	Nairobi, Kenya.
Braund, C.	Wildlife Works	05/03/2017	Voi, Kenya.
Carvalho, E.	Korando	28/05/2016	Kisumu, Kenya.
Chemweno, A.	Bintis	26/07/2018	Nairobi, Kenya.
Chemweno, A. and Maganjo, W.	Bintis	12/04/2017	Nairobi, Kenya.
Chepkwony, R.	Egerton University	19/07/2016	Njoro, Kenya.

Chumba, W.	Ministry of Energy	23/01/2017	Lodwar, Kenya.
Da Silva, I.	Strathmore University	10/03/2017	Nairobi, Kenya.
Egerton-Read, S.	Ellen MacArthur Foundation	30/08/2017	Online.
Etiang, S.	Memusi Foundation	08/11/2016	Magadi, Kenya.
Faraja, E.	Jofar Systems	30/01/2017	Nairobi, Kenya.
Gathui, T.	Practical Action	20/06/2016	Nairobi, Kenya.
Gikanga, H.	East African Compliant Recycling	08/08/2016	Nairobi, Kenya.
Gitau, E.	Winnie's Pure Health	05/03/2018	Nairobi, Kenya.
Gower, R.	Tearfund	31/10/2017	Online.
Gregersen, C.	Aalborg University	26/09/2017	Nairobi, Kenya.
Guantai, E.	Recykla International	21/09/2017	Nairobi, Kenya.
Heinzen, B.	Barbets Duet	05/11/2016	Nairobi, Kenya.
Herrada, J.	Ubuntu Power	11/02/2018	Nairobi, Kenya.
Herrmann, S.	Ellen MacArthur Foundation	06/09/2017	Online.
Hersi, A.	Society for International Development	17/01/2017	Nairobi, Kenya.
Heslop, B.	WSV Global	18/01/2017	Nairobi, Kenya.
Hoyle, W. and Menke, M	TechForTrade	04/05/2016	Online.
Karimi, E.	Sanergy	27/03/2017	Nairobi, Kenya.
Keana, D.	Energy 4 Impact	06/07/2016	Nairobi, Kenya.
Kibet, B.	Ministry of Renewable Energy	23/01/2017	Lodwar, Kenya.

Kibuthu, S.	Sanergy	21/07/2017, 17/08/2017, 29/08/2017.	Nairobi, Kenya.
Kimathi, P.	Skynotch Energy	11/05/2016	Nairobi, Kenya.
Kimori, E.	ComplitKenya	24/05/2016	Kisii, Kenya.
King, L.	Elephants & Bees	03/03/2017	Voi, Kenya.
Kingiri, A.	African Centre for Technology Studies	17/03/2017	Nairobi, Kenya.
Kinoo, P.	ViAfrica	13/02/2017	Thika, Kenya.
Kirimi, F.	Kenya Forestry Research Institute	25/01/2017	Lodwar, Kenya.
Kithae, J.	Total	02/06/2016	Nairobi, Kenya.
Klopp, R.	BRCK	22/08/2016	Nairobi, Kenya.
Kuhaisa, V.	UNESCO	01/11/2017	Nairobi, Kenya.
Kup, V.	Usanii Lab	17/11/2016	Nairobi, Kenya.
Kuria, D.	Ecotact	15/06/2016	Nairobi, Kenya.
Ligoo, J.	UNICEF	26/09/2017	Nairobi, Kenya.
Lumala, M.	Upendo	01/08/2017	Kitale, Kenya.
Maganjo, E.	Awesome Nairobi Ltd	06/12/2016	Nairobi, Kenya.

Maganjo, W.	Bintis	21/03/2017, 19/04/2017, 26/07/2017, 02/08/2017, 15/08/2017, 31/01/2018, 08/02/2018, 06/03/2018.	Nairobi, Kenya.
Masika, A.	BRCK	15/08/2016	Nairobi, Kenya.
Matinyi, P.	Kenya Forestry Research Institute	26/01/2017	Lodwar, Kenya.
Mbiru, H.	Networks 4 Learning	30/07/2016	Nairobi, Kenya.
Muckle, M.	Stonehouse	16/05/2016, 05/04/2017, 06/04/2017, 07/04/2017, 08/04/2017, 31/08/2017, 11/03/2018, 11/03/2019, 06/09/2019.	Nairobi, Kiambu and Magadi, Kenya and online.
Muga, D.	ComplitKenya	24/05/2016	Kisii, Kenya.
Mumbi, H.	SunnyPeople	09/06/2016	Nairobi, Kenya.
Mumbi, S.	Avallain Foundation	12/12/2016	Nairobi, Kenya.
Munya, D.	Safaricom	23/09/2017	Nairobi, Kenya.
Munyambu, S.	WEEE Centre	23/06/2016	Nairobi, Kenya.
Muthomi, J.	Energy 4 Impact	06/07/2016	Nairobi, Kenya.
Mutisya, S.	Rainmaker Realty	21/02/2017	Nairobi, Kenya.

Mutuku, E.	Elephants & Bees	04/03/2017	Voi, Kenya.
Mutungu, N.	An Honest Intention	17/01/2017	Nairobi, Kenya.
Mwangi, M.	Coca-Cola	26/01/2018	Nairobi, Kenya.
Mwaura, G.	UNESCO	01/11/2017	Nairobi, Kenya.
Mwaviswa, O.	Ministry of Energy	23/01/2017	Lodwar, Kenya.
Nawali, S.	Sure24	18/07/2016	Nakuru, Kenya.
Nderitu, S.	Kenya Climate Innovation Center	04/08/2016	Nairobi, Kenya.
Ndirangu, L.	Umbrella Pasha	31/01/2018	Nairobi, Kenya.
Ndoto, J.	Jofar Systems	30/01/2017	Nairobi, Kenya.
Njunga, V.	Roll out the Barrel Trust	07/11/2016	Magadi, Kenya.
Nyathera, R.	ComplitKenya	25/05/2016	Kisii, Kenya.
Nyoike, N.	IBM	30/03/2017	Nairobi, Kenya.
Nzumu, M.	Elephants & Bees	04/03/2017	Voi, Kenya.
Ochie, H.	Centre For Research In Sustainable Development	17/08/2016	Nairobi, Kenya.
Okech, S.	Memusi Foundation	08/11/2016	Magadi, Kenya.
Oliech, J.	Computers For Schools Kenya	28/06/2016	Nairobi, Kenya.
Ombatti, R.	AB3D	15/05/2016	Nairobi, Kenya.
Omondi, S.	The Jomo Kenyatta University of Agriculture and Technology	29/01/2018	Nairobi, Kenya.
Onderi, V.	East African Compliant Recycling	08/08/2016	Nairobi, Kenya.
Onuonga, F.	BRCK	22/08/2016	Nairobi, Kenya.
Onyango, J.	Sure24	18/07/2016	Nakuru, Kenya.

Owino, J.	Kenya Forestry Research Institute	26/01/2017	Lodwar, Kenya.
Oyaro, J.	Signature Journal	20/02/2017	Nairobi, Kenya.
Paffenholz, D.	TakaTaka Solutions	16/06/2016	Nairobi, Kenya.
Raison, O.	Ecozoom	16/06/2016	Nairobi, Kenya.
Rotich, G.	The National Environment Management Authority	27/07/2016	Nairobi, Kenya.
Rotich, J.	BRCK	22/08/2016	Nairobi, Kenya.
Ruhara, R.	The Youth Banner	31/08/2016	Kilifi, Kenya.
Smith, K.	Mr Green Trading	01/07/2016	Nairobi, Kenya.
Smith, R.	Elephants & Bees	03/03/2017	Voi, Kenya.
Swadri, A.	Camara	28/08/2016	Mombasa, Kenya.
Theuri, M.	Energy 4 Impact	01/11/2016	Nairobi, Kenya.
Tibbs, H.	Freelance Consultant	12/05/2017	Online.
Truscott, R.	East African Compliant Recycling	17/05/2016	Athi River, Kenya.
Twaha, T.	Red Cross	28/03/2017	Nairobi, Kenya.
Voltman, E.	Digital Education Africa Network	03/04/2017	Nairobi, Kenya.
Wafula, S.	Memusi Foundation	08/11/2016	Magadi, Kenya.
Waithira, V.	Nakumatt	31/05/2016	Nairobi, Kenya.
Wambugu, A.	Strathmore University	21/03/2017	Nairobi, Kenya.
Wanjohi, P.	Mazingira Safi	02/06/2016, 08/06/2016, 16/06/16.	Nairobi, Kenya.

Zablon, W.	African Circular Economy Network	19/09/2018	Nairobi, Kenya.
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## 11 - Appendix B: Interview Questions

Interviews were semi-structured according to the following guiding questions. These were amended and supplemented where necessary to take into account the professional expertise and position of the interviewee within the relevant organisation and explore areas of interest in more depth when relevant.

What does sustainability mean to you? And to your business? Do you have a sustainability or environmental policy?

What does the circular economy mean to you and to your business?

How do you compare the circular economy with sustainability concepts?  
E.g. linear economy, green economy, cradle to cradle, industrial ecology, sustainable development, green.

Do you think your understanding of the circular economy is different from a mainstream conception? Is it altered in any way because of the specific Kenyan context you are working in?

Are there any practices or activities within the local area that you would describe as sustainable? Do you think these fit within a circular economy?

Are there any local concepts or ideas that you would relate to the circular economy?

What sectors, spaces, systems and populations do you think relate most strongly with the circular economy?

How has the local economy changed in regard to concerns around sustainability / the circular economy in the recent past? The last five years? The last ten years? Have your own views towards sustainability changed?

Do you believe there is currently an enabling environment locally for improving sustainability / the circular economy? Has your business been impacted by any relevant sustainability policies?

E.g. National Environmental Policy / National Environmental Action Plan / Environmental Management and Co-ordination Act / Kenya Rural Development Strategy / Rural Electrification Master Plan / National Climate Change Response Strategy / Vision 2030 / Plastic Bag Ban

What are the barriers to taking sustainability actions that your business is facing?

What policy changes would you recommend that would support your sustainability aims?

Are sustainability concerns current part of your financial decision making? If so, how? Can you demonstrate this?

Who are your main suppliers? Were they chosen for any particular ethical or environmental reasons? If so, what?

Does your company have a specific perspective on development or poverty reduction in any way? Does this drive you to seek particular outcomes from your business activities?

Do you monitor the impacts your business makes either economically, socially or environmentally? If so, how are you tracking these impacts? How does this relate to your business, the culture and your strategy? Are they a clear part of your business model/strategy?

Do you monitor your carbon impact in any way? Is this something you are aware of or interested in?

Do you have a particular approach to the waste generated from your business activities? Is this of much importance to you or your business model? Have you analysed this?

Have you previously sought external investment? Have you explored the opportunities for social or green investments? If yes, do you see these changing in future with more green or circular propositions?

Have you propositioned your business in regard to socially or environmentally good products? Do such motivations play an important role in your marketing strategy?

Does corporate governance play a significant role in how you approach social and environmental dimensions of your business? Do you anticipate this to change if you scale up?

What role does your supply chain or business network have in how you address aspects of the circular economy? Can you visualise or detail either of these networks? Can you illustrate this network through drawing your business ecosystem?

Who else would you recommend speaking to in considering the circular economy in Kenya?