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MEASURING SUSTAINABILITY IN LESS DEVELOPED COUNTRIES: THE CASE OF TOURISM IN THE GORILLA PARKS OF THE DEMOCRATIC REPUBLIC OF CONGO

by

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A thesis submitted to the University of Plymouth

in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

Plymouth Business School

July 2019

ACKNOWLEDGEMENTS

Author's Declaration

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Word count of main body of thesis: 68,169

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Measuring Sustainability in Less Developed Countries: Case of Tourism in the Gorilla Parks of the Democratic Republic of Congo

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ABSTRACT

This research proposes a method and tool for measuring the sustainability of tourism in Less Developed Countries (LDCs), more specifically the gorilla tourism of the D.R. Congo. Since the Brundtland Report several assessment models have been proposed but have all failed to capture the centrality of sustainability, i.e. stakeholders, the very ones who can take action for sustainability to be achieved or not. This research has helped to design a holistic and stakeholder-centred method and tool for measuring sustainability of tourism, the Sustainability Value Model (SVM) using Social Network Analysis (SNA) method. The SVM tool provides a visual assessment of the sustainability level attained by the tourism sector. It also evidences specific improvement areas for achieving set sustainability targets.

The Literature Review emphasises the importance of target setting in measuring sustainability, and frameworks have been developed but there are hardly any that measure sustainability of tourism in a holistic manner, leading to action. Two theories underpin this research; Stakeholder Theory and Social Exchange Theory were found to be the most relevant ones for providing the most appropriate framework for this research. Three research questions were then developed to address the ex-ante measurement gap and a mixed-methods methodology was implemented. It consists of semi-structured interviews and quantitative surveys using rosters. Analysis was carried out by means of the SNA method using UCINET software and NetDraw, its related graphing tool.

The results indicate the existence of five stakeholder groups and 26 sustainability indicators in the gorilla tourism of the D.R. Congo. A key finding is the design of the SVM, which graphically presents the level of sustainability or unsustainability achieved in the sector. The research reveals a significant disconnect of relationships between the five stakeholder groups. This high level of disconnect (very poor quality of perceived exchanges) between stakeholders evidences the fact that the sector is vulnerable and prone to break up as its stakeholders hardly support one another.

As far as the author is aware, this research is the only one conducted that presents a holistic approach for measuring sustainability of tourism in LDCs with a tool for carrying out the measurement. The results of this research present tourism managers with a practical tool for measuring sustainability of tourism and of any other industry. Academics will find an opportunity to further engage in sustainability measurement in their respective areas of research. Likewise, policy and decision-makers will make savings by easily spotting the most relevant investment areas for sustainability attainment.

Key words: sustainability, sustainability indicators, measurement, tourism, social network analysis, stakeholder, social exchange theory, value network analysis.

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LIST OF ABBREVIATIONS

3Ps   People Planet Profits

AEA   Adaptive Environmental Assessment

AMOEBA: A ducth acronym meaning general method for ecosystem description and assessment

BBC   British Broadcasting Corporation

CAPI   Computer Assisted Personal Interviews

CATI   Computer Assisted Telephone Interviews

CC   Carrying Capacity

CI   Conservation International

CIA   Central Intelligence Agency

CNCC   French for Congolese National Railway Company

CNN   Cable News Network

CSR   Corporate Social Responsibility

DPSIR   Drive – Pressure – State – Impact – Response

DRC   Democratic Republic of Congo

EA   Environmental Auditing

ECC   Effective Carrying Capacity

ECGLC   French for Economic

ECLG   Economic Community of the Great Lakes

EEA   European Environmental Agengy

EF   Ecological Footprint

EIA   Environmental Impact Assessment

EITI	Extractive Industries Transparency Iniiative
EU	European Union
FCO	Foreign Commonwealth Office
GDP	Gross Domestic Product
GIWA	Global International Water Assessment
GRI	Global Reporting Initiative
GTI	German for German Agency for Technical Cooperation
HIPC	Heavily Indepted Poor Countries
IMF	International Monetary Fund
IUCN	International Union for Conservaion of Nature
KBNP	Kahuzi-Biega Natioanl Park
LAC	Limits of Acceptable Change
LCA	Life Cycle Assessment
LDC	Less Developed Countries
MSY	Maximum Sustainability Yield
NGO	Non Governmental Organisation
NTO	National Tourism Organisation
OECD	Organisation for Economic Co-operation and Development
OHADA	Organisation for the Harmonisaion of Business Law in Africa
PCC	Physical Carrying Capacity
PPPs	Private-Public PartnershipS
PRSPs	Porverty Reduction Strategy Paper
RCC	Real Carrying Capacity
RCC	Real Carrying Capacity

SET	Social Exchange Theory
SI	Sustainability Indicaor
SNA	Social Network Analysis
SOE	State Of the Environment
SVM	Sustainability Value Model
TBL	Triple Bottom Line
TIES	The International Ecosystem Society
UCCN	French for the Concercation Authority
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNWTO	United Nations World Tourism Organisation
VFR	Visting family and Relatives
VNA	Value Network Analysis
VNP	Virunga National Park
WTTC	World Travel and Tourism Council
WCS	Worldlide Conservation Society
WWF	World Wildlife Fund

CHAPTER 1 – INTRODUCTION, KEY CONCEPTS, OBJECTIVES, RESEARCH OUTLINE

1.0. INTRODUCTION

The word 'sustainability' has gained importance and popularity among academia and practitioners. It is said to have become the watchword for most international aid agencies, the jargon of development planners, the preferred theme of conferences, and the most cited slogan of developmental and environmental activists (Lele, 1991).

However, the key question to date is to ascertain whether sustainability has been achieve. This difficulty arises from the fact that there is hardly any agreement on the word sustainability and the confusion existing between sustainability and sustainable development. Henceforth it has been hard to find a way to best assess sustainability. Various methods for measuring sustainability exist to date, of which the Triple Bottom Line and DPSIR are the main ones. However, none of these methods proposes a holistic approach for measuring sustainability as they all measure the effects caused by human activity (ex-post measurement) instead of assessing the very causes of unsustainability i.e. human beings (ex-ante measurement), as only these can bring about sustainability. The present research aims to address this gap and propose a model and tool for measuring sustainability in a holistic human centered manner using a relational approach through Social Network Analysis (SNA). This approach assesses different actors' interactions accruing benefits which lead to sustainability achievement within the gorilla tourism sector of the D.R. Congo

1.1. CONCEPTUAL BACKGROUND

From measuring sustainability ex-post this research intends to measure ex-ante sustainability. It posits that when network actors interact by exchanging benefits between them, they continually assess the satisfaction level they receive from the exchanges. Sustainability happens when stakeholders are happy with the benefits they receive and can

henceforth support the network and work towards strengthening it so that it can endure and stand the test of time. These actors are stakeholders within the gorilla tourism of the D.R. Congo.

1.2. CORE CONCEPTS

1.2.1. Sustainability

Sustainability, widely called sustainable development (Mowforth, 2016), is a "way to understand the world as a complex interaction of economic, social, environmental and political systems" (Sacks, 2015, p.11). Sustainability aim is to deliver well-being for world citizens in the present and in the future (Ibid.). However, a key question is how do we ascertain the level of sustainability attainment because sustainability, like truth or justice, could be seen as a destination to aspire to, "unless it is implemented in the present" (Capra, 1996, p.13). Sacks (2015) argues that sustainability calls for a holistic vision of a good society and henceforth, measuring sustainability would sound like measuring the immeasurable (Bell & Morse, 2003), more so in Less Developed Countries (LDCs).

A Although the economic development approach is sustained by the increase of demand, it stands as a conundrum to sustainable development and does not cover all the facets of sustainability, there is still room for a "*more inclusive sustainable model'* (Jallow, 2008, p.41).Sustainability is thus a complex concept to comprehend as it does not exist in its true nature (Mowforth & Munt, 2016). As a consequence, sustainability is "politically constructed and reflects the interests and values of those involved" (Mowforth & Munt, 2016, p.22). The ontological grounding of sustainability, as a concept, lies more in its practice than in its definition. It is best captured inductively through the evidence of its application and the ability of all support systems that fuel its momentum. It would be thought of as a way for all life forms to better themselves and realise their full potential and is said to be about the effect of present actions upon options available in the future (Crowther, 2008).

Future generations have been advocated for by the Brundtland Report (WECD, 1987), which defines sustainable development as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (Our Common Future, p.8).

It is worth noting that sustainability and sustainable development are sometimes used interchangeably (Gray & Bebbington, 2001). In a quite simplistic manner, (Sharpley, 2002, p.7) perceives sustainable development as *"Development + Sustainability = Sustainable Development"*, which would sound, to some extent, tautological as much as tourism sustainability would to sustainable tourism.

Sustainability requires that humans behave with tomorrow in mind, and they use less of today's capital for future generations, also referred to by Jacobs (1991) as intergenerational equity. However, Gilpin (2000), an environmental economist, argues that present generations owe nothing to future ones, as these will use scientific and technological progress made by today's generations to cater for their own needs that cannot be fully anticipated by the former, owing to changing contexts.

This debate opens up the perception of nature as an economic capital to be managed rather by economic rationality than by human intuition (Jallow, 2008). The concept of offsetting the impacts imposed on nature would mean that a natural capital could be substituted for another one of similar value, price or weight. It also brings about the concepts of weak and strong sustainability (Pearce, 1995; Gray & Bebbington, 2001), minimal and maximal sustainability (Jacobs, 2001), and even absurdly strong sustainability (Daly, 1995), and their related corollaries as substitution or maintenance of capital (whether human-made or natural).

Capital has occupied centre stage in the sustainability debate, yet social factors have been overlooked in most definitions. This omission has been later addressed, among others, by Sabapathy's (2007) definition of sustainability as

> *"the field of thinking and practice by means of which companies and other business organisations work to extend the life expectancy of: ecosystems; societies, and economies"* (Sabapathy, 2007, p.25).

Furthermore, sustainability is understood as supporting quality of life in a continuous manner (Wckeernagel, 1998). The quality of life referred to here is more of a subjective perception of societal well-being than a standard measure of well-being that economic factors such as GDP, GNP, etc, cannot capture.

The World Commission on Environment and Development (WECD, 1987) provides a more holistic definition of sustainability through its triangle comprising the elements of the concept: the environmental, economic and the social aspects "*both separately and in an* integrated way" (Jallow, 2008, p.35)

1.2.2. Measuring sustainability

Several approaches have been tried and used to assess sustainability achieved through global, regional and local projects (Bell & Morse, 2003). Of them all (discussed in Chapter 3), Sustainability Indicators (SIs) have been advocated as the way to evidence the achievement of various development project objectives. Initially from the Rio de Janeiro Earth Summit in 1992, the use of SIs has evolved and has turned sustainability into a measurable concept (Haas et al., 1992). In tourism, these SIs attempt to answer the question of whether it is possible to know objectively if the industry is improving or getting worse. Therefore, SIs confer a practical nature to the concept they are derived from. Seen through the lens of Sustainability Indicators, the *"adjective 'sustainable' becomes both a descriptor of something and a target to achieve"* (Cocks et al., 1997, p.33).

Previous research on Sustainability measurement has focussed on the process and impact of human activity on the environment (e.g. Driving force, Pressure, State, Impact and Response - DPSIR framework). The impacts of physical, economic and social activity on sustainability achievement in the corporate context have been reported by Elkington's

(2004) Triple Bottom Line (TBL), also referred to as Triple Ps (People, Planet, Profits). Other frameworks still, have echoed the aforementioned ones. All these frameworks have attempted to measure sustainability on the basis of observed effects, impacts of human activity, *ex-post* instead of the *ex-ante* assessment of sustainability (Arbter, 2003).

As a complex concept, Sustainability measurement requires a holistic approach, which assesses the possible drivers of sustainability or the lack of it. Seen through the systems-thinking lens, sustainability assessment refers to Stakeholder theory and Social Exchange theory. The theories emphasise that organisations should treat their stakeholders with particular care by continually striving to meet their changing needs. Organisations should thus contribute to the well-being of all their stakeholders and the community at large, to promote growth and development (Maker, 2008). Likewise, stakeholders in continuous interaction assess the value they receive from other stakeholders and decide whether they should sustain/support the system or not. Through their mutual interactions, stakeholders and organisations co-create value (Ng & Yip, 2009) which, if continued, would sustain the system. Therefore, assessing these interactions and the resulting value is forward or proactive and *ex-ante* assessment, rather than backward, reactive and *ex-post* assessment. Forward sustainability assessment evaluates a system/network in a holistic manner by analysing all the value exchanged among its stakeholders, the very agents and custodians of the system meant to be sustained.

The present research adopts this holistic understanding of sustainability, which would encompass as many key factors as defined and identified by (and within) the context/sector under research, i.e. gorilla tourism, in the present case. Key to this research is the concept of interactions, as it will help to develop a model explaining how sustainability in general, and sustainability of the gorilla tourism sector in particular, could actually be assessed.

Furthermore, these elements would henceforth behave differently from isolated parts as they were preconceived within the same context. Key to this research is the measurement of principles of CSR, namely sustainability, in a complex environment, namely the field of business, specifically tourism. Unless it is measured, sustainability is bound to remain a myth, as the common management saying goes 'what gets measured gets done'. Yet, there is lack of agreement over what needs measuring within the tourism sector.

1.2.3. Social Exchange, Stakeholders and Value Network

Whilst Social Exchange are concerned with interactions happening between individuals and the resulting positive or negative outcome, Value Network Analysis (VNA) is concerned with the way various network assets are converted into value. This research is the first of the kind combining Social Exchange Theory and Stakeholder Theory with Social Network Analysis in order to assess sustainability. Value Network Analysis has guided our choice of Social Network Analysis as a framework for analysing the way exchanges have accrued value to various stakeholder groups within the tourism sector, and how, ultimately this value contributes to sustaining the network in a durable manner and thus contribute to sustainability achievement.

Value Network Analysis draws from the intellectual and social capital, which is mainly concerned with intangible assets that include, among others, the level of trust between the people or organisations forming the relationships (Ap, 1992). The same author argues that Intangibles are informal, hardly ever negotiated and have a strong element of expectation and their benefits demonstrate the actual reasons for actors to engage in relationships and activities (Allee, 2008). Furthermore, relationships are built upon trust. Trust should be understood as the lifeblood of any network. Allee (Ibid.) perceives trust as reputation and brand, as the culminating point of social capital, both within and outside any organisation. Henderson (2008) thus argues that reputation transcends brand to include social citizenship

and environmental responsibility, which are demonstrated in sustainable business values and practices.

As the primary mechanism for value conversion, a network is used to explain the dynamics between stakeholders working together to attain specific goals and henceforth generate economic and social good (Peppard & Rylander, 2006).

Value Network Analysis suggests that the basic form of human interaction is the exchange of social and material resources, and it goes without saying that for a relationship to endure, received rewards needs to equal at least, or at best exceed the costs of the relationship. Hofmans (1974) argues that value, *a degree of reward,* is subjective to each actor in the network. It is dependent upon each actor's own assessment of its worth to them. Faced with the decision between two alternative actions, actors very likely choose the reward with the greatest value (Hofmans, 1974). Value is thus context-based, limited in time and space (Miell and Dallos, 1996) and, through multiple actors' interactions, it is continually created to self-sustain the network which has generated it. Value further strengthens relations and exchanges within the network.

Value exchanges are of interest to this research. They are derived from various interactions between actors within a network as actors give and receive benefits from one another. Value exchanges result are positively assessed by actors the system (tourism in the present case) is said to be sustainable, or unsustainable when the value exchanges are deemed negative. Analysing the value exchanges is therefore key to identifying the perceived value received by different actors of the gorilla tourism sector. Finally, presenting these exchanges in a visual format, through a value model, will shed more clarity on the resulting outcome from interactions within the network and evidence the level of sustainability or unsustainability in LDCs and more specifically within the gorilla park tourism sector of the D.R. CONGO. The value model is a graphical presentation of the values created within the Congolese tourism network.

Value Network Analysis helps in modelling, analysis, evaluation and improvement of the capability of a business to convert assets in order to achieve greater value for the whole network (Allee, 2008). Whilst this also applies to individuals, only those individuals or stakeholders involved in the context should define what value means to them (Smith, 1776).

1.3. RESEARCH EMPIRICAL CONTEXT

1.3.1. Why the D.R. Congo Gorilla Parks?

The country's importance is accounted for by the wealth of its natural touristic assets, accounting for 60% (about 130 million hectares) of all the Congo Basin. It is the world's second largest rainforest, after the Amazon, with its incredible array of biodiversity (Topal, 2005). Conservation International states that the D.R. Congo is one of the African countries with the richest and the most diversified wildlife, as its forests occupy two thirds (over 1.2 million Km_2, five times the size of the United Kingdom) of the country's total area.

Several of the D.R. Congo's protected areas and wetlands are internationally recognised and protected as UNESCO World Heritage sites. They are home to the great apes, the mountain gorillas or *Gorilla Beringei-Beringei*, the lowland gorillas or the Grauer Gorilla and the white rhinoceros, and the bonobos, to mention but a few. These species, and some others, like the Okapi (exclusive to the D.R. Congo), have experienced danger of extinction, throughout the ten years' unrest (1996-2006) in the DRC. Progress has been observed in recent years and numbers are on the rise again.

1.3.2. Why Gorilla Tourism in the D.R. Congo?

The Democratic Republic of Congo (D.R. Congo) has always raised interest at international stage in international environmental fora. This is due to the fact that its wealth of biodiversity and endogWhile data on tourism on developed countries and many other parts of the world abound, little is known about the D.R. Congo, especially for the period post 1996. Christie

and Crompton (2001) report that D.R. Congo tourism is not mentioned as an existing activity in the Poverty Reduction Strategy Papers (PRSPs), Interim-PRSPs, and Annual PRSPs Progress Reports. Several reasons have contributed to the country's absence from tourism forums. As Mowforth and Munt (2016) argue, Eastern Africa has enjoyed steady growth both numerically and financially "*despite the problems of politics and violence in Burundi, Rwanda and Zimbabwe and their overspill into neighbouring countries*" (Mowforth and Munt, 2016, p.97). It is interesting to note that the focal point of unrest in the region, the D.R. Congo, has been little discussed by the author, as he could not visit the country due to prevailing insecurity. This further emphasises the relevance of the present research for data collection. This shaky political, economic and social environment has encouraged little research in the country's tourism sector. It has been exacerbated by poor governance post conflict, and over reliance on the trade of minerals with all other sectors being neglected as a consequence. Over the last 50 years, very little investment effort has been noticed in the tourism industry, as the country's wealth was used up by the political elite and personal interests overtook public interest and initiative (Mowforth & Munt, 2016). However, evidence exists of the importance of the potentiality of this region in the field of tourism, as was the case in the pre-1994 period. Nature tourism (also called ecotourism, or again sustainable tourism) remains the main type of tourism still operated in the country, especially visiting the two gorilla national parks in Eastern Congo. Other forms of tourism, such as business tourism and visiting families and relatives, are limited due to insecurity in many parts of the country. To better ascertain the sustainability level of the country's gorilla tourism, research was warranted.

1.4. AIMS AND OBJECTIVES

The highlighted facts within the D.R. Congo indicate the importance of this country within the sustainability discourse, owing to its natural resources. However, due to lack of statistical data it is hard to assess the level of sustainability attained by this country's tourism sector. Additionally, all tourism assessment to date has been ex-post assessing the causes of unsustainability (ex-ante sustainability assessment). The one key question framing the present research is how to measure sustainability, and more specifically measuring the causes of unsustainability in Less Developed Countries in general and within the Congolese gorilla tourism sector in particular.

This research henceforth aims to design a relational tool for measuring ex-ante sustainability, addressing the causes of unsustainability. More specifically, the aim was achieved by means of the following objectives:

1. To assess the strength (intensity) of exchanges between stakeholders in the tourism sector.

2. To assess the quality (depth) of those exchanges

To achieve the set objectives, a mixed-methods approach was applied for data collection, data processing and analysis of the research findings. Some activities were carried out within the qualitatitive stage of the research: identification of key stakeholders and Sustainability Indicators within the Congolese gorilla tourism sector. Whilst the United Nations' Sustainability Indicators were assessed for applicability to the sector, new others were generated by those tourism stakeholders.

The gained insight was then used for survey questionnaires administered to 302 respondents in the two research areas, the Virunga and the Kahuzi-Biega gorilla parks. However, a pilot research preceeded the survey questionnaires. Its consisted of nterviews and rosters and aimed to test the measurement tool that would then be used for measuring sustainability of the Congolese gorilla tourism sector. The pilot stage was important to the

process as it enabled us to test the data collection process using a roster instead of a standard questionnaire. Data analysis was carried out by means of Ucinet and Netdraw, two Social Network Analysis (SNA) tools. SNA used relational data instead of transactional data and rosters used for collecting relational data. A roster is a matrix table with Nodes aligned vertically and horizontally with data representing either the presence/absence of a relationship or the amount shared between each crossing pair of nodes as in *Table 1*. It is worth noting that same actors usually do not hold relations between themselves (e.g.: Tourists Vs. Tourists).

CATEGORIES	International Community (Environment)	Governmental Institutions	Businesses	Local Communities	Tourists
International Community (Environment)		3	3	1	1
Governmental Institutions	1		1	1	1
Businesses	3	1		0	2
Local Communities	1	0	3		0
Tourists	2	1	1	0	

Table 1: A roster showing collected data on the strength of interactions between stakeholders within the tourism sector of the D.R. Congo

The data thus collected from the pilot stage was processed and analysed by means of the relational software. This stage was even more important as it evidenced from early stage, the design of the tool to be used in order to measure sustainability of the Congolese gorilla tourism sector in a holistic manner, the Sustainability Value Model (SVM).

By means of the three impact dimensions of sustainability: Socio-cultural, Economic and Environmental, the tool analyses interactions between stakeholders in the tourism sector and assesses the resulting exchanges from those stakeholders' interactions. These exchanges are based on sustainability indicators, i.e. benefits stakeholders exchange between them. The tool then applies cut-off points to determine the sustainability threshold. The threshold level demarcates unsustainability from the sustainability level. A sustainable network would thus have values above the cut-off point. In addition to overall assessment, each individual sustainability indicator is measured, as well as the three sustainability impact dimensions: Economic, environmental and socio-cultural.

In so doing, we believe the present research is an important contribution in the field of sustainability measurement as it is the first to measure ex-ante sustainability. The resulting tool designed by the author, the Sustainability Value Model (SVM), is the first in its kind, and presents four major contributions to the application and practice of sustainability measurement as follows:

1. Unlike all existing frameworks, especially the acclaimed 'Amoeba' and the 'Stretch the Web', SVM measures sustainability ex-ante using holistic, stakeholder-based approach

2. The tool solves the conundrum of ex-ante sustainability measurement through its relational approach (rather than transactional), thus opening new doors to research and practice of sustainability measurement.

3. SVM uses readily available relational softwares, and measures sustainability at three levels: overall, individual impact (economic, environmental and socio-cultural) and individual Sustainability Indicator. The tool uses graph and table reporting and is, in this respect, a better option than the newest around 'Stretch the Web'.

4. Finally, using the flexibility relational softwares provide, SVM is flexible as it allows multiple level analysis both at Stakeholder level and Sustainability Indicator level.

In addition, following successful application of SVM to measuring sustainability of the tourism sector, the tool can well be applied to any other sector or industry.

1.5.   THE STRUCTURE OF THE THESIS

To achieve the aim of this research a mixed methods approach for data collection was adopted with two-stage methodology: interviews and survey, both cross sectional.

It was based on rosters which are matrices including actors both vertically and horizontally. The qualitative phase was carried out by means of 13 interviews whilst the quantitative phase was achieved by meansof 302 questionnaires in forms of rosters.

Qualitative phase: data analysis was carried out using Nvivo. 13 semi-structured interviews were administered to different stakeholders in the Congolese gorilla tourism sector. Resulting insight consisted of the identification of 5 key stakeholder groups as well as 24 Sustainability Indicators locally generated and validated by the afore-mentioned stakeholders.

Quantitative data Data was collected for each of the 26 sustainability indicators of the research, i.e. each respondent had to provide answers to 26 roster questionnaires. All rosters required valued data (ordinal) sequentially addressing the strength and the quality of each of the sustainability indicators

Data analysis was exclusively carried out by means of the Social Network Analysis software UCINET and NetDraw, its associated graphing software. From 24 matrices (with 13 actors each) we came down to two main groupings: strength and quality of relationships. Nohria &

Eccles (1992) report that, as a methodology, Social Network Analysis has been a key tool used in the social sciences since the 1930s with keen focus on a range of questions about relationships and communication.

1.6.   OULINE OF THE THESIS

This research is designed around nine chapters including this introductory one.

Chapter Two covers the contextual review of the research. `starting with tourism importance onto a country's economic welfare, it critically presents the current situation of tourism in Less Developed Countries. It then carries on presenting all facets of the D.R. Congo's tourism and conservation and all its natural ecosystems presented. The chapter closes introducing the country's initiatives by the government in order to boost the tourism industry.

Chapter Three covers a critical review of sustainability measurement. Starting with the context of sustainability measurement the chapter discusses the importance of measuring sustainability, more specifically sustainability of tourism. A critical presentation of various frameworks for measuring sustainability concludes the chapter.

Chapter Four presents the theoretical underpinning of the present research. It introduces the conceptual model and presents the two main pillars of sustainability measurement: stakeholders and Sustainability Indicators

Chapter Five starts with a discussion around research philophy and its related ontologigical and epistemological stances. It covers the research methodology used in the present research. Starting with the pilot study the chapter highlights the process of data collection and analysis as well as the presentation of results from the research. It also discusses the research instrument and sampling strategy.

Chapter Six covers the findings from the qualitative phase of the research. It presents the research findings and discussion of the results. Starting with the identification of

Sustainability Indicators and key stakeholders, the chapter presents and discusses those stakeholders' perception of sustainability within the gorilla tourism sector.

Chapter Seven covers data analysis and discussion of the results. Starting with the pilot stage, the chapter shows how the researcher built and tested the tool for measuring sustainability. Then the chapter discusses the findings in light of the key research objectives: measuring the intensity and the quality of relationships within the toursm sector. Whilst intensity of relationships relates to visit frequencies stakeholders pay to one another, quality is more about stakeholder appreciation of all the benefits (Sustainability Indicators) shared among stakeholders. For each of the research objectives this chapter discusses the following analysis measures: centrality measure, cluster analysis, brokerage and Reciprocity,

Chapter Eight introduces the process and the tool for measuring sustainability. It thus presents the Sustainability Value Model (SVM) at three different levels: global, Impact domain and Sustainability level. For each level the chapter presents and explains how intensity and quality have been worked out and the actual level attained.

Chapter Nine presents conclusions to the research. It also presents research limitations and recommendations highlighting key implications for theory and mostly for practice.

CHAPTER 2. THE RESEARCH CONTEXT: THE D.R. CONGO TOURISM SECTOR

2.0. INTRODUCTION

In recent years, research has extensively focused on factors behind fast growth of the tourism industry across the globe. From its very beginning, global tourism rapidly grew from only 25 million tourist arrivals in the 1950s, to 278 million in 1980; 674 million in 2000, to reach 935 million in 2010, and 1.3 billion arrivals in 2015 (UNWTO, 2018).

The industry's growth stood at 3% average annual growth rate since 2000 (UNWTO, 2011) and 6.7% in 2015 (UNWTO, 2016). The positive role played by tourism in economic development has gained a great deal of consensus (UNWTO, 2012b). However, there has been little agreement about the effects of tourism growth on both the environment (fauna, flora and related ecosystems) and the socio-cultural life of local communities neighbouring tourist destinations. As an important contributor to economic growth, especially in Less Developed Countries, tourism has seen growing investments both at national and global levels. Its strong forward and backward linkages help it to support economies as it not only creates, but also improves infrastructure and other related economic areas (Lim, 1997a; Oh, 2005).

This international support for tourism has been fuelled by the environmental discourse over the global warming debate and the issues around sustainability of world resources. As one of the major resource users, tourism is said to play a significant role in this respect, whilst contributing to the provision or the increase of household incomes and countries' GDP. It globally generated US$ 2 billion in 1950, US$ 104 in 1980, US$ 495 billion in 2000 and US$ 1.5 trillion in 2015, or US$ 4 billion a day. Its contribution to employment (in 2016) stands at 7% of the overall number of direct and indirect jobs worldwide (UNWTO, 2016). As

evidenced by Cukier (2002, p.165-201), the following are six key facts about employment in Less Developed Countries:

a. *There is a positive correlation between income and employment generation with tourism development.*

b. *Generation of employment depends on the type of tourism product. Some types of works in this industry are labour intensive while some others are capital intensive.*

c. *Early stages of the development of tourism created more jobs for unskilled or semi-skilled workers.*

d. *Although managerial positions often go to expatriates, employment in the tourism industry is attractive to locals due to low pay in other sectors of the economy.*

e. *Although most of the employment in tourism may be seasonal or part-time, workers may earn enough money during the peak season, which compensates their low income during the low season.*

f. *Development of tourism creates employment opportunities for women who previously may not have had the opportunity to work within a formal sector.*

Several types and forms of tourism products have been developed, as highlighted by Medlik (2001, p.6) in *Error! Reference source not found.*:

Common interest tourism	Group travel by people with the same interests	Group visits between 'twinned' towns only	A synonym for visits to friends and relatives	Visits with a purpose significantly shared by the visitor and the visited
Cultural tourism means trips and visits	Concerned with soil utilisation	By the educated and discerning	Motivated by cultural interests	In pursuit of learning and scholarship
Domestic tourism	Travel by indigenous population of a country	Journeys with stays in private households	Travel within one's own country	Coastal travel between ports of a country
Ethnic tourism	Travel by particular racial groups	Visiting particular racial groups	Travel by indigenous people	Visits for ethnic reunion
Health tourism	Treatment of travel-related diseases	Quarantines imposed by health authorities	Visits to health resorts and establishments	Travel by medical and nursing personnel
Incentive tourism	Travel rewarded by commissions	Travel that has been paid for by a firm as a reward to employees	Travel stimulated by inducements	Travel using vouchers to cover spending *en route*

Table 2: Different types and forms of tourism (adapted by the author).

While the categorisation (*Error! Reference source not found.*) seems to provide some tourism nomenclature, it is worth noting that categorising tourism is complex, as more than one concept needs to be considered to convey its essence (Page & Connell, 2009). These

concepts include: the tourist's nationality and distance to the touristic attraction (local, national, international), the purpose of travel, the time spent out, and other situations that may not be considered as tourist environment (e.g. cruise ships). Out of the named forms of tourism, one has grown in importance to be described as responsible tourism. It is also referred to as sustainable tourism, ecotourism, or nature tourism, and has grown in popularity for various reasons, especially within Less Developed Countries (LDCs) and in Africa in particular (Mowforth & Munt, 2016).

Henceforth, several Less Developed Countries started incorporating sustainable tourism into their plans for growth and for development strategies. Tourism is reported to improve countries' balance of payments as it stands as the main foreign exchange generator, creating jobs (direct and indirect) and bringing technical assistance to many a developing country (Dieke & Peter, 2004; Sinclair, 1998). While it is easier to assess tourism on its economic impacts owing to the quantitative weight of its measurability, it is not so with socio-cultural impacts on host countries. This explains the reason why research focusing on the economic benefits has drawn the most funding from organisations (Sharpley, 2000). The author warns about overemphasising the economic successes of tourism as it is still unclear how this generated wealth will actually contribute to sustaining the livelihoods of those very communities, which directly or indirectly support the tourism industry in Less Developed Countries (LDCs) in general and in the D.R. Congo in particular. Furthermore, if it did, which we posit it does to some extent, there is still uncertainty as to how those contributions are measured. In order to better understand issues within the Congolese tourism industry, a country profile is presented.

2.1. TOURISM IN LESS DEVELOPED COUNTRIES

In spite of its proven contribution to the global economy and to Less Developed Countries' development, the tourism sector in LDCs still lacks the political and economic recognition required to fully harness its potential (CIA, 2018). It therefore appears that government

support can further boost the economic growth derived from tourism and hence improve the standard of living of local communities (Reuters, 2010). As a growing sector, particularly in emerging economies, tourism represents a third of the services exports and up to 7% of employment worldwide. The UNWTO (Sharpley, 2009) reports that Africa performed very well in 2011 despite the unrest in North Africa, thus achieving a 7.1% growth rate, as compared to the previous year, with international tourist arrivals reaching 50 million (7% of world total).

Several forms of tourism were put in place in the period from 1985 as a result of tourists' growing need for diversification of offers. The following types of tourism are the most in-demand tourism products throughout the world.

- *Resort-based tourism: most popular in small-island and coastal areas*

- *Business and conference-based tourism*

- *Ecotourism and wildlife tourism, especially in Africa*

- *VFR (Visiting Friends and Relatives), which is most common for migrants living in Western countries to travel for visits in Asia (UNWTO, 2012).*

In addition, there are several participants in the travel and tourism industry: travel agents, transportation, tour *operators*, attractions, tourist information and guiding services, accommodation and catering. All these agents' primary goal is to maximise revenue and profits, which stands in opposition to sustainable tourism. They not only impose constraints on the environment, they also exert a considerable impact on human, physical and social aspects of the natural environment. However, as stated by Butler (1999, p.14) "*relatively little attention has been paid to date by researchers in determining how sustainability in the context of the human environment could be determined.*"

In order for this research to contribute to this understanding, the next section discusses sustainable tourism.

2.1.1. Tourism Development in Less Developed Countries

Despite the issues posed by tourism, the industry in Less Developed Countries has grown to be an attractive leisure activity, mainly for citizens from the First World. While a 4.4% growth has been observed in international tourism arrivals in 2011 (totaling 980 million tourists), African countries maintained their performance at 50 million arrivals. This is an achievement despite political instability in the North African region. The overall stable performance was achieved thanks to positive performance in Sub-Saharan Africa (+7.1%). Kenya's recovery has been noted, with a double-digit increase (visitor arrivals +24%), Angola also recorded 24% growth, Swaziland 20% and Ghana 15%. South Africa reaped the post-2010 FIFA World Cup benefits with international arrivals increasing by 4%. In North Africa, however, Morocco maintained its positive trend (+6%). The country is reported to be amongst the top performers of 2009, supported by *'state-of-the-art product development and active and imaginative promotion'* (UNWTO, 2016).

The demand for ecotourism does not come from the industrialised nations exclusively, as was true until the last decade. The world is constantly reshaped by the rapid emergence of India and China's middle-class consumers since they start adopting post-modernist consumption modes. This prompts a significant rise in tourist numbers (UNWTO, 2012) as this new class tries to emulate Western tourists. Less Developed Countries have seen a growing trend in domestic consumption of tourism (Martin, 2005). Tourism activity has deprived LDC citizens of their rights to own and access these natural resources by turning most sites into touristic attractions (Ghimire & Parajuli, 2001), causing new issues both at local and national levels. Mowforth & Munt (2009, p.62) have identified the following as key issues prevalent within tourism in LDCs:

a. *Development of 'islands of affluence' in a poor society*

b. *Use of scarce national resources for tourist enjoyment*

c. *The consequences of the demonstration effect*

    d. Unreliable means of measuring the true economic benefit

    e. Commercialisation of culture and lifestyle

    f. Beneficiaries likely to be foreign companies or already wealthy local people

    g. External control – tourism often in the hands of transnational corporations

These islands of affluence have been created by resort-based tourism, creating high levels of leakage. Leakage in tourism describes income that is invested out the local area. There are three main types of leakages:

1. Export leakages occur when foreign investors in hotels take their profits back to their home countries

2. Import leakages happen when revenues are lost to imports of goods unavailable in the country. This is mostly driven by tourists' high demands in quality standards of skill, food, transport, etc.

3. Invisible leakages relate all financial gaps: foreign exchange, tax and offshore savings and investments.

As a consequence, it has been argued whether tourism is capable of reducing poverty in LDCs (Page & Connelle, 2009, p.466), despite the Pro-Poor Tourism (PPT) and the UN's Sustainable Tourism for Eliminating Poverty (ST-EP) approaches to poverty reduction.

As highlighted by the World Bank (2010), issues with the tourism industry include mainly the following constraints: unpredictable business environments, institutional weaknesses, inadequate access, low level of linkages and price/value mismatch. However, a great deal of success or opportunities have been identified within the African tourism industry. They include: policy reforms, capacity building, private sector linkages and product competitiveness.

Several authors (Peeters & Van Der Sterren, 2008) argue that a causality relationship between tourism and development has not yet been established. Both concepts were triggered by the globalisation of capitalism and sustainability. Sustainability, which is linked

to development, came as a way to mitigate the corollaries of the issues thus created by the growth of tourism (Reid, 2003; Telfer, 2002; Wall, 1997) and with sustainability, they stand as an oxymoron.

Like sustainable development, sustainable tourism finds its first meaning in addressing the needs of all its stakeholders. It should thus incorporate all aspects of human life: financial, social and environmental (Allen & Massey, 1995; Daniels et al., 2001; Smith, 1984), for current and future generations. Tourism development has shaped the world views of First World citizens, views derived not only from people's memories from holidays but also from advertisements sent out by tourist destinations in order to improve perceptions about themselves (Topal, 2005). This echoes Harvey's (1985) statement that the eye is never neutral.

A good match between the destinations' marketing campaigns and tourists' response has led to the rapid development of tourism. Four elements have been identified as factors of tourism development in Less Developed Countries: intervention and commodification, subservience (dominance and control), fetishism and aestheticisation of local people's day to day objects, feelings and experiences, turning them into objects of beauty and desire.

The large majority of international tourists (60%) going to Africa are mainly motivated by leisure tourism. These include people coming for holidays, leisure and recreation. While business tourists account for 15% of total arrivals, people visiting relatives and friends (as well as for religious purposes, health, or other reasons, account for 25% of total arrivals (Harvey, 1989). The main products sought after by international tourism are resort tourism (sea, sun and sand). This type of tourism, part of the traditional tourism, has fuelled the development of countries in the Northern Africa and the Indian Ocean islands. Adventure tourism is the second most popular tourism product (best known for safaris, popular in Eastern and Southern Africa). Finally, demand is growing for other products, such as

ecotourism (nature tourism), business tourism, cultural (and volunteering), cruises, the 'African roots', visiting friends and relatives, as well as dark tourism.

It is worth mentioning that of all these products, ecotourism is growing at a faster pace than of all other tourism sectors. As Gerosa (2003) argues, this is due to the continent's

> *"cultural and environmental resources, and in the diversity and authenticity of its products. Ancient cultures, unique natural parks, unspoiled beaches, and the fascination that the African continent still exerts on the imagination of tourists, are the elements on which the competitive advantage of African tourism is based"* (Gerosa, 2003, p.5)

Owing to the cross-sectorial nature of tourism, as stated by the same author (*Ibid*), LDCs will see their tourism industry develop sustainably *"if it is integrated into the country's overall policies and economic and physical planning mechanisms and if linkages are created across the many sectors spanned by tourism"* (Gerosa, 2003, p.5). In this way, tourism will consolidate its position as a development tool in these countries provided it generates economic benefits for a large majority of the population, ensuring stakeholder inclusion in decision-making about sector development, whilst preserving locals' natural and cultural resources on which tourism is based. To achieve this, governments need to walk the talk,i.e. put in place a favourable policy frameworks that will encourage investments, formulate the incentives and design enforcement mechanisms for regulatory frameworks that will protect the natural resource base, and further stimulate private investments. This is of particular relevance to governments in LDCs in general, and in the D.R. Congo in particular.

2.1.2. Tourism Policy and Strategy Development in Less Developed Countries

Policies could be defined as action plans adopted or pursued by governments, strategies or steps to achieve them (Honey, 2008). Different stakeholders can influence policy and strategy design and implementation. These would include pressure groups (conservation groups, community groups and leaders, government officials...), academics and consultants

(Fennell & Dowling, 2003). It has been argued that policy-making is a long-term endeavour as it takes time to identify goals and priorities, co-ordinate efforts and implement plans (Hall et al., 1997). The critical question here is whether the tourism industry should be left to self-regulate or be regulated by a specific branch of the government (Akehurts, 1992; Fennell, 2003). The United Nations' World Tourism Organisation (UNWTO) set itself the mission to

> *"promote and develop tourism as a significant means of fostering international peace and understanding, economic development and international trade"* (Mowforth & Munt, 2009, p.112).

Whilst voluntary codes of conduct tend to portray organisations as good corporate citizens, regulation imposed on industry is known to be more effective at preventing illegal and unethical practices. However, measures or compliance indicators need to be clearly laid out for the regulation to work. This also applies to the tourism industry, as pointed out by Butler (1991)

> *"It has to be appreciated that tourism is an industry and, as such, is much like any other industry ... There is no reason to expect tourism on its own accord to be 'responsible', than there is to expect the beer industry to discourage drinking or the tobacco industry to discourage smoking – even though many agree that such steps would be socially desirable"* (Buttler, 1991, p.208).

The lack of regulation has led organisations to edict their own voluntary codes of conduct that arguably are nothing but a marketing tool under the guise of corporate responsibility. Tourism can develop in different directions if not regulated. This is commonly evident in Less Developed Countries (LDCs) because of little consistency in their policy-making and management processes, as some of these countries have put individuals' personal interests before public interests, thus jeopardising the national economic growth.

This inconsistency in policy and strategic management has been presented with Thailand's tourism industry as an example. It is presented in three destructive stages:

"Stage 1: Start with a place of outstanding beauty ... Impose absolutely no controls.

Stage 2: The resort is now popular but rapidly losing its natural charm. Add large quantities of sex and comfort. Build large, luxurious hotels. Import lots of girls.

Stage 3: Develop the remains of a male fantasy theme park. Bring in more and more girls (and boys)" (Chang, 2001, p.6).

We concur with the author that the stages he has mentioned epitomise the short-termism tourism could take if national development policies are not sustainably planned, implemented and monitored. LDCs in general and the D.R. Congo in particular have been inconsistent in regulating and enforcing the tourism industry despite the fact that they wholeheartedly embraced it, especially ecotourism, as a key foreign exchange contributor. These countries found the activity to yield higher returns than logging, oil extraction, cattle, bananas, commercial fishing, or conventional mass tourism.

As relating to businesses, McKercher (1993) argues that strategies do not need to be, among other criteria, very complex and involve many stakeholders. The same author asserts that tourism, over any other business, is the most appropriate to adopt sustainability as a guiding philosophy for the following reasons:

a. *Apart from transport, tourism does not consume additional non-renewal resources*
b. *A* community's *resources, its culture, traditions, shops, leisure facilities, etc, represent the core resources base for tourism*
c. *Tourism's use of resources, both natural and cultural, should be non-consumptive, making them renewable*
d. *Tourism represents one of the few economic opportunities available to remote* communities
e. *Tourism provides a real opportunity to reduce poverty, create employment for disadvantaged people and stimulate regional development*
f. *Tourism has proven to revitalise cultures and traditions*
g. *Tourism can provide an economic incentive to conserve natural and cultural assets*

h. Tourism has been shown to foster greater understanding between peoples and a greater global consciousness (McKercher, 2003, p.3)

However, the same author (2003) recognised that historically, little sustainability has been evidenced for the reasons below:

1. *Tourism is a fierce competitor for resources - the provision of cultural and ecotourism opportunities for tourists may mean that local residents are displaced*
2. *The needs of tourists are different than those of local residents and, thus, serving tourists may again not suit the needs of local residents*
3. *Few people understand tourism and what is required to develop successful tourism products, meaning that a lot of countries have made unwise investments in tourism*
4. *Tourism is often imposed on local communities, especially rural and minority* communitie*s, at level and speed that causes great social disruption* (*Ibid.*)

Therefore, sustainable tourism brings about the dilemma of how to best develop tourism and remain 'kind to nature' whilst enforcing regulation. Moreover, it poses the quintessential issue about the ultimate benefits derived from sustainable practices, and finally, it raises the question around the level of local participation in strategy development for a given touristic site.

2.1.3. Sustainable tourism

Several terminologies describe sustainable tourism, wrongly equating it with ecotourism or ecological tourism. From Hector Ceballos-Lascurain, who came up with the word (in Mexico City in 1983), sustainable tourism is defined differently according to the roles of those defining it. However, a common denominator is that the various definitions include "*sustainable, no-impact, responsible, low impact, environmentally friendly*" (Mowforth & Munt, 2016, p.101). In the same vein, Page and Connell (2009) refer to sustainable tourism as travelling to relatively undisturbed areas with the aim of studying, admiring and enjoying their natural and cultural resources.

While Honey (2008, p.14) perceives sustainable tourism as a version of nature and wildlife tourism, The International Ecotourism Society (TIES) defines it as "*responsible travel to natural areas that conserves the environment and improves the well-being of local people* ". This people-centred perspective could be the reason why many Less Developed Countries have set it as the main driver for their economic development strategies and conservation efforts (Sri-Lanka, Kenya…). But not every form of tourism is ecotourism. TIES sets out the six principles any form of tourism should fulfil:

a. *Minimise impact*
b. *Build environmental and cultural awareness and respect*
c. *Provide positive experiences for both visitors and hosts*
d. *Provide direct financial benefits for conservation*
e. *Provide financial benefits and empowerment for local people*
f. *Raise sensitivity to host countries' political, environmental, and social climate.* (TIES, 1990).

Indeed, these principles are to ecotourism what the Triple Bottom Line (TBL) considers to be the central performance criteria for assessing an organisation's effectiveness. While Honey (1999) relates some of the principles for educational purposes, Elkington (1994) associates them with economic, social and environmental impacts of the Triple Bottom Line (TBL), both present and future.

It is interesting to note the human-centred perspective expressed through these impacts, which are meant to address the needs of several stakeholders: the visitors, the industry, the environment, host communities and institutions. As argued by Honey (2008a), ecotourism, one of the various types of tourism, is still in its adolescence and is "*indeed rare, often misdefined, and frequently imperfect*" (TIES, 1990). It has, henceforth, been difficult to measure the actual size of this sector, in a distinct manner from nature, wildlife and adventure tourism (Error! Reference source not found.), which ecotourism is usually mistaken for.
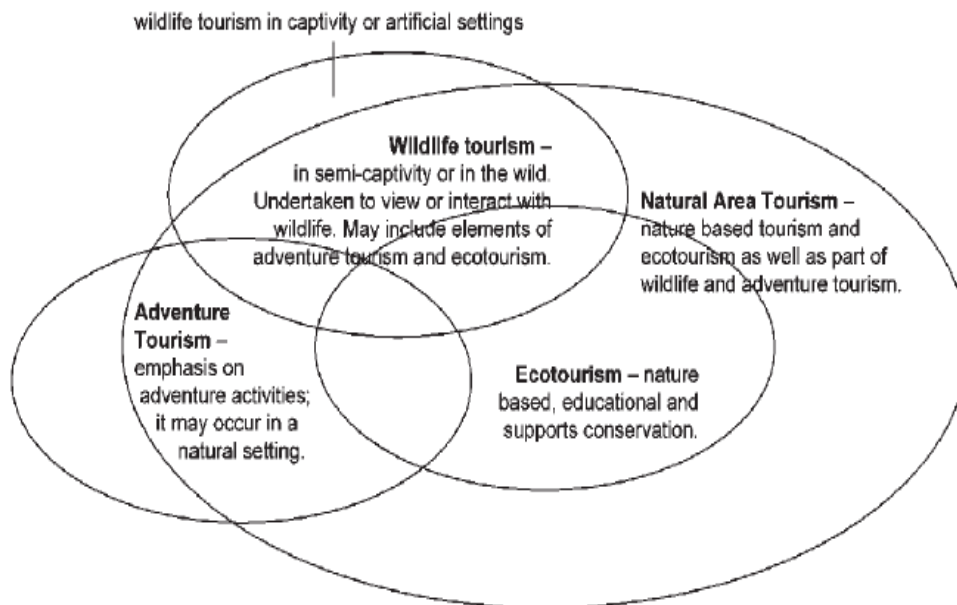
Figure 1: Relationship of ecotourism to other forms of tourism (Honey, 2008, p.33).

Ecotourism has developed over the last decades, and this growth is expected to gain momentum over the years to come. It is said to be amongst the top sectors of the global tourism industry with the highest growth rate (Gale & Hil, 2009, p.15). The UN World Tourism Organisation reports that in contrast with other forms of tourism, ecotourism, together with both cruise tourism and 'experiential tourism' which encompasses ecotourism, nature heritage, cultural, soft adventure tourism, rural and community tourism "*were among the sectors expected to grow most quickly during the coming two decades*" (Buckley, 2000; Kuo, 2002; Ryan et al., 2000; Wight, 2001), as it actually did well beyond the two stated years. It has presented itself as a reaction to mass tourism, with its corollary problems outlined by Mowforth & Munt (2009) as "*environmental, social and cultural degradation, unequal distribution of financial benefits, the promotion of paternalistic attitudes, and even the spread of disease*" (Mowforth and Munt, 2009, p.94). Ecotourism could thus be seen as resulting from the heart cry of local communities to preserve their spoiled environments, as encapsulated in the words of Reverend Kaleo Paterson from Kauia in Hawaii: "*I have seen*

the oppression and the exploitation of an 'out-of-control' global industry that has no understanding of limits or responsibility or concern for the host people of a land" (Ibid.).

Other factors have led to the development of ecotourism as an alternative for tourism: the rise of tourist populations who are becoming increasingly more knowledgeable and more sophisticated in their leisure pursuits, as well as their socio-economic trends in northern countries (Ibid.) and increasingly in Asian countries (Krippenhorf, 1987). Additionally, ecotourism appears to be a replacement of the work ethic for leisure ethic (Ghimire & Parajuli, 2001); it has become the post-Fordist production and a postmodern cultural trend.

However, ecotourism still needs to mature and grow even faster than it does at the current trend. As per available estimates the global ecotourism annual growth was 5% in 2005 (The Tourism Network, 2006).

Other factors for this rapid growth include globalisation, higher disposable income leading to changing lifestyles and technological advances, of which various forms of transport (very affordable holiday packages), and tourists' growing ethical concerns about the long-term effects of their activities on the host countries. Hence the World Tourism Organisation's warning that any future tourism development should be wary of

> "*the needs of the present tourists and host regions while protecting and enhancing the opportunity for the future"* (in Mowforth & Munt, 2009, p.95).

As there is a limit to what the environment can take, it is only by setting various limits (carrying capacities) that regulators can effectively assess the real impact of an ecotourism site. Various carrying capacities have been proposed by O'Reilly (1986). These are mostly in line with the Triple Bottom Line as they encompass:

a. *Physical carrying capacity – the limit of a site beyond which wear and tear will start taking place or environmental problems will arise.*

b. *Psychological (or perceptual) carrying capacity – the lowest degree of enjoyment tourists are prepared to accept before they start seeking alternative destinations.*

c. *Social carrying capacity – the level of tolerance of the host population for the presence and behaviour of tourists in the destination area, and/or the degree of crowding users (tourists) are prepared to accept by others (other tourists).*

d. *Economic carrying capacity – the ability to absorb tourism activities without displacing or disrupting desirable local activities* (Hunter, 1995, p.67).

These carrying capacities that characterise ecotourism would arguably contribute to achieving sustainable tourism, if applied properly, especially in Less Developed Countries as they would set boundaries.

2.1.4. Sustainable Tourism in Less Developed Countries

The social aspects often take precedence over the economic aspects with all strategies being drawn up by local governments often without consultation of the local business communities and other stakeholders. As a result, most of these strategies do not generate the expected results in terms of economic growth and job creation (Rodriguez-Pose & Tijm-stra, 2007; Hinderson, 2003)

From the Triple Bottom Line (TBL) approach to sustainability accounting, it appears that there is a need for a holistic approach to the planning and the development of destinations for sustainable tourism, both in terms of providing a quality experience for visitors and addressing all the negative impacts created by tourism. The important role of local authorities in supporting the development and management of sustainable tourism is not well understood in most Less Developed Countries (UNWTO & WTTC, 1996). This is due to the lack of well-established democratic structures, effective land use planning and

development control processes. As reported by the Pro Poor organisation, Zimbabwe's tourism has been declining since 1999, dropping by 44% in tourism receipts from 2001 and 2002. In the same vein, Kenya's tourism industry is no longer the main foreign exchange earner. These poor performing countries are thus characterised by the lack of political stability and good governance, which are two key prerequisite factors for a thriving tourism industry (ICLEI, 1999).

Political instability, wars, and ethnic violence have afflicted many African countries during the last decades and have slowed or disrupted their tourism industry. Angola, Mozambique and the D.R. Congo are only now beginning to exploit their territories for tourism. Moreover, it has been argued that poor or inexistent physical infrastructures have caused some natural touristic sites to be less attractive to potential investors and tourists (Gerosa, 2003).

Ecotourism has been advocated over other forms of tourisms as the best route LDC's tourism industry needs to engage in, as it encapsulates the very essence of sustainability (Kimbu, 2011). This holds true as ecotourism is understood as opposed to mass tourism, and it would therefore aim at protecting the natural capital it depends on.

Some Less Developed Countries, in general, and African countries, in particular, have pioneered ecotourism since the 1970s with Africa's Masai Mara Game Reserve and Amboseli National Park in Kenya. In the 1980s, the practice grew across the eastern and southern parts of Africa, with individual countries hosting conferences to boost their economy. Tanzania has thus organised such a conference on nature-based tourism or eco-tourism. The organisers argue that the product is large in size and growing, mainly due to natural endowments (Gale & Hill, 2000).

Yet, despite the positive associations with this form of tourism, it brings about issues related to carrying capacity. While the environment can be affected by the tourism activity itself, other human activities affect the environment. Latin America and the Congo Basin are concerned about the threat posed by illegal logging, ranching, oil drilling, mining and human

settlement to the world's remaining tropical forests (UNWTO, 2012). This begs for adequate policies to be put in place and to be enforced on a continuous basis.

2.2.   THE DEMOCRATIC REPUBLIC OF CONGO

Located in the centre of Africa, the Democratic Republic of Congo (DRC) is the second largest country on the continent and eleventh in the world. It spans across 2.3 million km2 over half of which is covered by dense rainforest (nearly five times the size of the United Kingdom). This represents over 60% of the Congo basin, the world's second largest rainforest, after the Amazon. The country is dominated by the vast central plateau and mountain with volcanoes in the East, and several rivers, of which the River Congo (the world's second biggest by its output: 80 832 m³/s maximum, and fifth in length) (ThinkQuest, 1998). Its climate is hot and humid in the central region, cooler and drier in the southern highlands and cooler and wetter in the eastern mountain areas.

The Congolese population is currently estimated at around 71 million (latest census dating back in 1981) of which 46.9% are up to 14 years of age. The country is home to over 200 ethnic groups, the majority of which are of Bantu origin. Nearly half of the population is made up of the Mongo, Luba, Kongo and Mangbetu-Azande people. No breakdown of these ethnic groups exists for lack of census.

Around 400 languages and dialects are spoken in the country. However, four lingua Franca are used throughout the country and by national media: Swahili, Kikongo, Tshiluba and Lingala. Although French is the official language, English is gaining ground, especially amongst the young urban population.

Illiteracy remains as high as 32.8% (45.9% among women) despite the fact that 67.2% of the population are said to have attended some form of education (CIA, 2011). This is mainly due to lack or poor investment into the public educational system for decades, and widespread poverty. This makes the majority of children to leave school with very little

practical training; thus perpetuating the vicious circle of poverty. Back to basic policy reforms and very large investments are required to turn the educational system into an engine for change.

2.2.1. Political Situation

The Congolese people have known long periods of unrest: the Belgian colonisation period brought over 10 million deaths, while the recent war brought well over 5 millions deaths. The country gained its independence from Belgium in 1960. Since then, the country has experienced unrest due to its geo-strategic position within Africa and economic untapped resources. During the 32-year dictatorship by Mobutu Sese Seko, the country's name, currency and river all changed from Congo to Zaire.

In 1997, the country's name turned back to Congo as Laurent-Desire Kabila took power, with help of the international community through the Rwanda-Uganda coalition. However, due to unmet expectations, these allies challenged Kabila's power. This resulted into troops from several African countries (Angola, Chad, Namibia, Sudan and Zimbabwe) intervening to support Kabila's regime. Despite the July 1999 cease-fire, sporadic fighting carried on, mainly in Eastern Congo. In January 2001, L.D. Kabila was assassinated, and his son Joseph Kabila became president, *de facto*. The year 2003 saw the establishment of the first post-war government of national unity, leading to the democratic elections in 2006, the first of their kind, with very substantial financial and logistical support from the international community. Since then all the country's institutions have been in place and operational, yet the following 2011 elections kept the same president in power up until now planned December 2018, skipping the 2016 elections (CIA, 2018).

The D.R. Congo has since faced several post-conflict challenges caused mainly by poor governance, corruption, lack of transparency and accountability. These have led to obsolete, corrupt and inconsistent laws being enforced, causing the vast majority of the economy to operate in the informal sector. Little democratic practices have since been enforced to bear

positive results. It takes more than just a democratic regime to boost a country's development. This idea has been encapsulated by the pace of the early growth in all these non-democratic countries: South Korea, Taiwan, Singapore and Hong Kong, as highlighted by Singapore's leader, Lee Kuan Yew, in 1992 arguing that

> "*a country needs to develop discipline more than democracy. The exuberance of democracy leads to undisciplined and disorderly conduct which is inimical to development*" (Hill, 2001, p.61).

Yet, the author acknowledges that economic development, coupled with education, can lead to the emergence of a free market and development.

2.2.2. Economic Situation

The Country Profile by the Foreign and Commonwealth Office (FCO, 2008) states that the "*DRC could be one of the wealthiest countries in Africa, with some of the most valuable and diverse natural resources in the world*,"

These include rich mineral resources in large quantities: cobalt (First World producer), copper and industrial diamonds (major world producer), jewellery diamonds (more than 30% of world reserves), coltan (more than 70%), gold, timber and extensive energy resources in hydro-electric power. This country's economy was second in Africa (after South Africa) in the 1960s (TheSouthernTimes, 2010). However, due to war and decades of misrule and mismanagement, the population is one of the poorest (CIA, 2018) with real GDP per capita standing at USD $800 as of 2016 ($380 in 1960) compared to USD 2 100 in neighbouring Rwanda (CIA, 2018). The country over relies on mineral exploitation, and has neglected all other areas of economic productivity. As highlighted by the US Office, there are three long-term problems that have crippled the Congolese mining sector and the economy as a whole, namely an uncertain legal framework, corruption and lack of transparency in government policy. As reported by CIA (2018)

"progress on implementing substantive economic reforms remains slow because of political instability, bureaucratic inefficiency, corruption, and patronage, which also dampen international investment prospects".

This leads to complete lack of accountability at all layers of authority. Corruption and misguided economic policy have created a dual economy in the DRC, causing most businesses to operate informally. External and internal pressures have brought about this situation. Several countries, institutions and organisations have tried to help the country break its under-development curse. Among others, the UN Panel on the Illegal Exploitation of Mineral Resources (October 2003) argued that reasons for the curse were political unrest, corruption and smuggling. The country is severely constrained in attracting investors due to poor governance (IMF, 2013). As a corollary, virtually all sectors of the economy received little capital investments, including the mining sector, which the country had, for so long, depended upon. In 2005, the country signed up to the Extractive Industries Transparency Initiative (EITI) and is now a member of the Kimberley Process. However, the D.R. Congo mining industry still remains a high-risk investment sector for private companies.

With regards to the International Monetary Fund (IMF) World Bank's Heavily Indebted Poor Countries (HIPC), the D.R. Congo benefited from a large cancellation of as much as US $12bn of its external debt in 2010. In addition, the country initiated a US $9bn controversial bilateral co-operation with China. It is mainly about an exchange of natural resources for the very much needed infrastructure investment by the D.R. Congo. Additionally, the D.R. Congo put in place new measures to improve its overall business environment in 2009, and thus enlarge the pool of foreign investors. However, the effort saw little positive outcome due to governance-related issues. The IMF contends that in order for the country to be attractive to all investors, the government needs to strengthen governance and ensure contract stability (IMF, 2013) in the mining sector in particular, and in all business sectors in general. These measures include a new investment code, a new mining code and a new

commercial court. Other major structural reforms include the restructuring of the country's large parastatal sector, including Gecamines the copper company, CNCC the railway network and the Inga dam hydroelectric system (that allows the country to export electricity to several African countries).

However, following a short-lived successful period (2006-2011) the country saw its economy start losing the momentum consecutive to the first-ever democratic elections in the country in 2006. During the mentioned period, the government had put in place reforms that started to yield positive results. The economy saw some growth over the first three years (2006-2009) but the dropped started soon after, with a current growth rate standing at 2.4%, and a GDP of USD $35.4bn (World Bank, 2017). To further reassure its bilateral partners and their efforts to improve its ranking on the 'Doing Business' indicators, the country joined a number of regional trade organisations, including the SADEC (Southern African Development Community) and the OHADA (Organisation for the Harmonization of Business Law in Africa), whilst reviving the ECLG (Economic Community of Great Lakes) and finally joined the OHADA in 2012 to further reassure investors and increase the economic activity (IMF, 2013).

Furthermore, on the internal front, and to ensure local entities develop thoroughly, the government has issued a policy, yet to be implemented, to return 40% of the provincial revenues back to each province. Although the country's balance of payments is ensured by the mining sector, 75% of the Congolese population make their living from agriculture. Yet, these very small scale farmers find it hard to sell their crops to city centres, due to poor transport infrastructures.

The Congolese transport network includes all types of travel. As many as 229 airports exist, of which four are international and only 24 have paved runways. The country's railway network has been neglected for long years and is at stand still to date. The roads network has benefited the lion's share of the China-Congo minerals for infrastructure accord, yet only

some of the country's roads are have been revamped. The 11 ports and harbours in Kinshasa, Boma, Matadi, Kisangani, Kindu, Kalemie and Goma are also a focus for the government's efforts to ensure the country becomes more appealing to foreign investors and to tourists.

As for telecommunications, while the fibre optic is at its early beginning, it is expected that telecommunication will be faster and reliable, and prices more affordable as compared to currently dominated mobile phone communication systems. While four main players dominate the telephony market (17% penetration rate), the country's audio-visual sector is quite dynamic with over 30 free-to-watch television stations and over 150 FM radio stations, including Radio France Internationale. The BBC can be tuned into from the neighbouring Congo-Brazzaville.

As for other utilities, the country is endowed with large water and electricity resources, but supply and quality are still below standard, more so in rural areas, leaving local populations in advanced destitution and exposed to various types of illnesses.

2.2.3. Socio-cultural Situation

The D.R. Congo is home to a rich and diverse array of thriving cultural wealth. This has earned the country a high profile – post independence - in several domains, such as fine cuisine, music, sculpture and dance, to name but a few. However, like several other Less Developed Countries, the D.R. Congo has striking social disparities. While the rich are very rich, the poor are amongst the poorest on the planet. The great majority of the Congolese population live below the poverty line, i.e. on less than $1 a day. As the main employer, the public service provides salaries that are below the cost of travelling to work. As an example, a university professor earns no more than $1,000 a month, while a primary school teacher earns $80 a month, and the top public service officer's monthly wages are around $1,000. Likewise, while a government minister earns $180,000 annually, an army soldier earns $600, or 0.33% of the former (Teuwen, 2011).

Finally, unemployment is as high as 80% of the available labour force. This is exacerbated by the urban-rural split in terms of job opportunities, rural areas being primarily agricultural. Yet, agricultural activity is not incentivising enough as urban markets are not easily accessible due to poor infrastructures. Opportunities are even limited in terms of education. While illiteracy levels amounts to about 32.8% of the population with 45.9% the female population being illiterate (Teuwen, 2011), very little available published data exists about the country's (un) employment level, and even less in the tourism sector.

2.3.   TOURISM IN THE D.R. Congo

While data on tourism abound about First World Countries and many other parts of the world, little is known about the D.R. Congo, particularly for the period post 1996. Christie and Crompton (2001) report that D.R. Congo tourism is not mentioned as an existing activity in the Poverty Reduction Strategy Papers (PRSPs), Interim-PRSPs, and Annual PRSPs Progress Reports. The following map indicates the lack of data on the D.R. Congo tourism.

Figure 2: Yearbook of Tourism Statistic (2018 Edition)

Several reasons have contributed to the country's absence from tourism forums. As Mowforth et al. (2009) argue, Eastern Africa has enjoyed steady growth both numerically and financially, despite political tensions and violence in Burundi and Rwanda, which overspilled into neighbouring countries. It is interesting to note that the focal point of unrest in the region, the D.R. Congo, has been played down by the author, but this could be due to the rampant insecurity in the country. This further emphasises the relevance of the present research for data collection. This shaky political, economic and social environment has encouraged little research about the country's economic sector. It has been exacerbated by

poor governance post conflict, over reliance on the trade of minerals with all other sectors are being neglected, as a consequence. Over the last 50 years, very little investment effort has been noticed in the tourism industry, as the country's wealth has been used up by the political elite and personal interests overtook public interests and initiative. However, evidence exists of the importance of the potentiality of this region in the field of tourism, as was the case in the pre-1994 period. Nature tourism (or ecotourism, also called sustainable tourism) remains the main type of tourism still operated in the country, particularly visiting the two gorilla national parks in East Congo. Other forms of tourism are business tourism and visiting families and relatives (VFR).

2.3.1. Tourism and Conservation

While tourism has not fully been restored across the country, conservation has been active even during the period of high insecurity with a very high number of park workers deaths. More than 210 named park rangers, guides, porters, trackers and camp staff lost their lives in Eastern Congo to protect animals and their habitat in general, but mountain and lowland gorillas in particular (Maekawa et al., 2015). To date, local communities, with the help of UCCN officials (conservation authority), local rangers and non-governmental organisations, still strive to protect the great potential for tourism and conservation that the D.R. Congo presents.

This country's efforts for a systemic and participatory approach towards conservation or sustainable conservation are bearing fruit, as evidenced by recently (2017) recorded growth of mountain gorilla numbers. In order for Congolese tourism to succeed as much as conservation has, all stakeholders need to think and discuss in a systemic manner all issues related to levels of consciousness, connectedness and processes (Eckhart & Lanjouw, 2008); thus ensuring tourism supports conservation as much as the latter has supported the former. In so doing, both will reap the benefits of the vast potential this country holds.

The country's touristic wealth accounts for 60% of all the Congo Basin forests with their incredible array of biodiversity (Topal, 2005). Conservation International states that the D.R. Congo is one of the African countries with the richest and the most diversified wildlife, as its forests occupy two thirds (over 1.2 million Km2, five times the size of the entire United Kingdom) of the country's total area. Several of the D.R. Congo's protected areas and wetlands are internationally recognised and protected as UNESCO World Heritage sites.

These parks are home to the great apes, the mountain gorillas or Gorilla Beringei-Beringei, the lowland gorillas or the Grauer gorilla and the white rhinoceros, and the bonobos, to mention but a few. These species, and some others, like the Okapi (exclusive to the D.R. Congo), have experienced danger of extinction, throughout the ten years' unrest (1996-2005) in the DRC. Conservation International's headcount estimate was of around 16,000 Eastern Gorillas (in 1995) as compared to around 700 individuals in 2008. However, the recent (2010) census indicates an increase in the Kahuzi-Biega Eastern gorilla numbers: from 168 to 181 individuals in 2004 and 210 respectively. A slight increase has been noticed for the Virunga mountain gorillas: from 380 to 480 in 2011 from the previous census in 2003 (CInternational, 2008b). It is worth noting that the censuses were carried out by both the UCCN and international partners, despite the prevailing insecurity within and around the parks.

Gorilla park issues have been best summed up by Jenkins (2008)

> *"The 2007 killing of seven gorillas has been a testimony to the extent of heavily armed militias shattering the stillness in this central African park. Desperate refugees crowd park boundaries. Charcoal producers strip forests. Then, last summer, someone killed seven of these magnificent creatures in cold blood"* (mediacongo.net, accessed on November 5, 2012)

Currently, two main issues are said to affect the Congolese conservation efforts: animal killing and deforestation. Gorilla populations *"have been reduced, fragmented, or completely lost as result of targeted poaching for bush meat and deforestation"* (D.R.

Congo.mediacongo, accessed, November 5, 2012). However, there are more reasons than bush meat prompting villagers to kill. These are mainly crop protection against animal invasion, and the trophy market. Thanks to local conservation efforts with support from the international community, animal killing for trophies (specifically) has decreased significantly, hence the recent increase in gorilla numbers. Still, the two main threats persist: animal killing for bush meat as well as deforestation for firewood and charcoal sales.

On the one hand, animals raiding villagers' crops is a top issue affecting co-existence between animals and local communities surrounding the parks (within 5 square miles). It is said to account for 50% of the reasons why locals engage into animal killing (CInternational, 2008). Despite this high rate of animal raiding the Virunga National Park (VNP) villagers' crops, only 6% of households are reportedly nowadays involved in animal killing for the aforementioned reason. However, it is reported that nearly an equal proportion of households (6.5%) still go to the forest for bush meat (Eckhaert & Lanjouw, 2008).

On the other hand, deforestation has resulted from villager communities' search for better livelihoods. These communities rely exclusively on the forest for all their needs, be they food, medicine or any other purpose. Yet, enlarging the size of their fields for cultivation implies reducing animal habitat. Animals now live on 25% less land than they did just a few decades ago. Clare Richardson, President of the Diane Fossey Gorilla Foundation International (DFGFI), acknowledges that the biggest threat to the conservation of the Congolese biodiversity is poverty (Eckart & Lanjouw, 2008). In addition to the profitable charcoal business, human migrations following the long war and insecurity (since 1990) have exacerbated the already high population density in the area. Yet, it is said that these local communities have for a long time peacefully cohabitated with gorillas, which have been sacred or taboo for generations. Decision-makers are thus faced with serious decisions to make through legislation and policy-making.

2.3.2. D.R. Congo National Parks

The Congolese national tourism authority was created before the independence (1960). However, owing to unstable structures and policies, the country's National Tourism Organisation (NTO) missed several early bird opportunities to establish the country as a tourism giant on the continent scene. On 12 July 1986 the NTO, in its current form, came to being. However, the country's tourism board (created in 1991) oversees the tourism industry. It was assigned the following objectives, which, on paper, meet sustainable tourism criteria:

a. To manage, protect and develop the tourism infrastructures. More specifically, it aims at improving its marketing campaigns, capacity building, defining the legal framework for modifying the ministerial white paper n° 018 that should regulate all touristic sites in the D.R. Congo.

b. To encourage public-private partnerships for the touristic site management, while bringing in more private investments, both national and international. In addition to the legal aspects, one of its main achievements is the finalisation of the interdepartmental decision to give back to local tourism organisations 5% of income related to tourism. It thus appears that the national parks have an important role to play in the attainment of sustainability in the D.R. Congo, through its eight national parks, as detailed in *Table 3*.

Park	Area Province	Year established	Highlights
Salonga National Park: Spreads across four provinces: Equateur, Bandundu and the 2 Kasais	*36 000 km2*	*1970*	*Monkey, bonobo, chimpanzee and hippopotamus, peafowl and the forest elephant*
Upemba National Park	*17 730 km2 Katanga*	*1939*	*Lion, leopard, elephant and zebra*
The Virunga National Park	*7 900 km2 North-Kivu*	*1925*	*Oldest national park in Africa.* *Savana hippopotamus, hyena, warthog, a large variety of birds, **mountain gorillas** (**Gorilla Berengei Berengei**: 480 by 2011 census), elephants and okapi*
Kahuzi-Biega National Park	*6 000 km2 South-Kivu*		***Lowland Gorilla** (**Gorilla Beringei Grauer**: 181 by 2010 census), forest elephant, chimpanzee, monkey and leopard.*
Garamba National Park	*4 920 km2 Orientale*	*1938*	*Domestication Centre of the African Elephant (in Gangala-na-Bodio), hippopotamus, the north white rhinoceros, giraffe*
Kundelungu National Park	*7 600 km2 Katanga*	*1970*	*Antelope, chimpanzee, zebra, cheetah and the Lofoi falls (384m high)*
Maiko National Park	*10 830 km2 Orientale*	*1970*	*Antelope, okapi, paon and forest elephant*
Mangrove National Park	*768 km2 Bas-Congo*	*1992*	*Lamatin, mangroves, paletuviers, aquatic tortoises*

*Table **3: National Parks of the D.R. Congo***

Furthermore, Error! Reference source not found. indicates that the parks are mostly concentrated in the Eastern part of the country, except for Salonga and the Mangrove National Parks, which are situated in Western Congo. Two of these Congolese parks have

drawn world interest. This is due to their inhabitants, the mountain gorillas, which today's Congolese tourism is most closely associated with. The Virunga and the Kahuzi-Biega are both located in the Eastern part of the country, respectively in the provinces of North Kivu (Capital city: Goma) and South Kivu (Capital city: Bukavu).
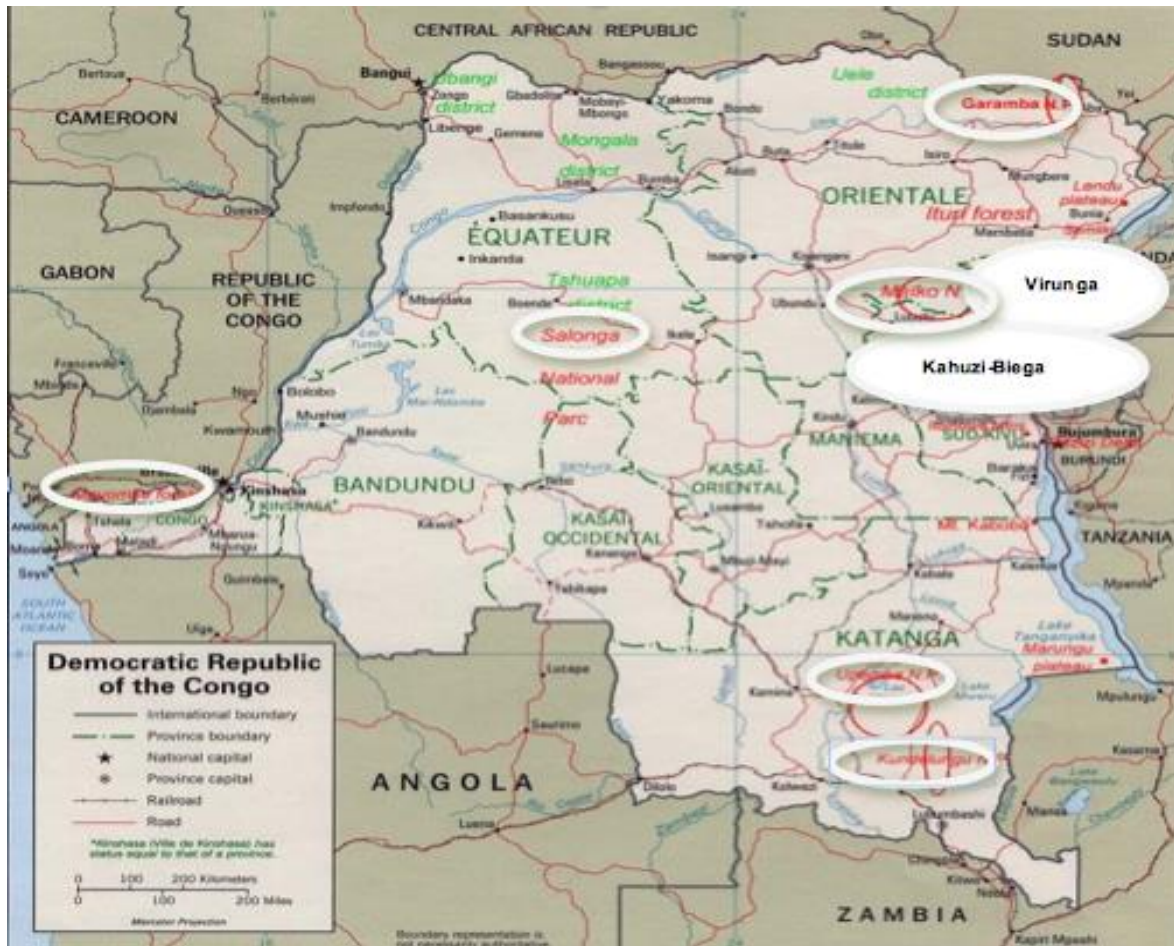
Figure 3: Map of the D.R. Congo: National Parks

2.3.3. Income Generated by National Parks

Very little data exists on Congolese tourism. This is due to lack or embryonic-stage reporting systems following resumption of the gorilla tourism in 2003 after nearly ten years of insecurity caused by wars. The rest of the national parks have received very little attention since the war ceased. This could be due to two internal factors: lingering insecurity and overall dropping interest by tourists. However, some external causes have affected tourism

and its income generation: terrorist attacks or financial crisis/recession in some Western countries with their ripple effect on all parts of the world and sectors.

Apart from tourism, agriculture is the only income-generator for local communities surrounding national parks. Hatfield & Malleret-King ((2003) report that around the Virunga National Park alone, 91% of all working age children grow up to become farmers for lack of livelihood opportunities.

The main source of income to Congolese tourism officials is the money from permits for viewing gorillas. There is a deplorable lack of official figures about the country's tourism performance (e.g. visitor numbers and generated income). Yet, the figures provided by the WTTC (2012) can only indicate that the country still has a long way to go before it starts competing at international level. The country ranks bottom or close to bottom (out of 181 countries) on most Travel and Tourism performance indicators, as summarised in **Error! Reference source not found.**.

Indicators	D.R. Congo	Rwanda	World average	Position	
	%	%	%	D.R. Congo	Rwanda
1. Total contribution to GDP	2.3	8.4	14	181	100
2.Total contribution to employment	1.9	8.4	13.6	181	114
3. Investment contribution to total capital investment	3.4	7.8	8.3	130	64
4. Visitor exports contribution to total exports	0.3	29	15.9	178	34
5. Foreign visitor spending	7.1	69.8			
6. Leisure vs. business spending	37.9 62.1	53.2 46.8			

Table 4: Country ranking – a comparative table of relative contribution 2011 (CI & IUCN, 2008).

Error! Reference source not found.Error! Reference source not found. shows that the D.R. Congo performed very poorly on all indicators in comparison to its closest geographical neighbour in the sector (Rwanda). The Congolese tourism sector is very fragile, as it does not deliver much of the advocated benefits tourism is known to bring to a country. Its foreign visitor spending is very low (7.1%) and so are visitor exports contributions to total exports (0.3%).

The D.R. Congo increased prices for gorilla viewing to US$450 per single permit, from $25 only a few years ago, making the sector the third foreign exchange generator in the country (Maekawa et al., 2015). Some additional fees, sources of direct and indirect income with their multiplier effect include: entry fees, tips for national park guides and porters (both public and private), souvenirs, transportation and accommodation. These financial benefits, coupled with legislation enforcement, have made hunting a less attractive business not worth the risk, and have thus further contributed to tourism development in the country. This encapsulates the participation of local communities that is a *sine qua non* prerequisite for sustainability which, as Mowforth and Munt (2016) argue, lies more in its practice than in its definition. The international community is the major beneficiary of the forest protection as local communities receive the least amount of benefit generated from mountain gorilla tourism due to various governance–related issues. As shown in the graph in ***Figure 4*** *Error! Reference source not found.*, local communities receive as little as 2% from gorilla tourism.
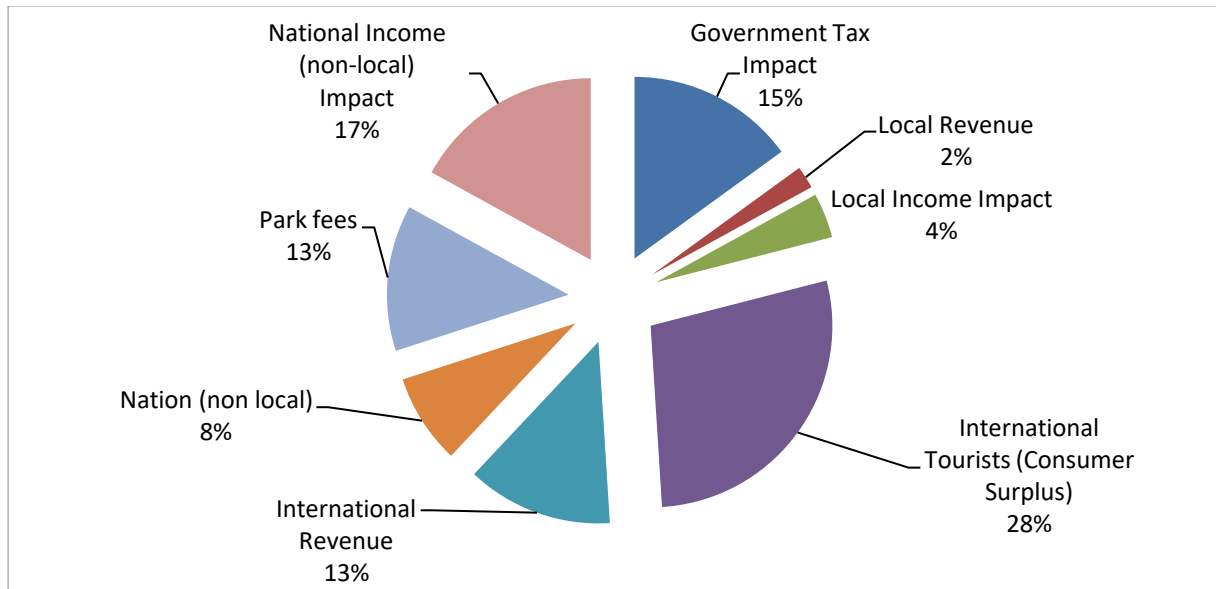
Figure 4: Distribution of benefits from gorilla tourism **(Eckhart & Lanjouw, 2008, p.258)**

Local communities pay the price for providing tourism conditions to international visitors. They suffer "*high mortality rates, extremely high levels of poverty, and unemployment; lack of infrastructure, proper health, and education*" (Hatfield & Malleret-King, 2003, p.37). International Tourists (consumer surplus) represent 28% of benefits accrued by the Congolese tourism industry, which stands for the leakage amount in the sector. These authors see the lack of education in the Twa communities (pygmies – the natural heirs of the forests) as posing a further complication as to their ability to qualify for active participative consultations.

Two ways have been identified as means of developing tourism by diverting local communities from negatively impacting the forest and its inhabitants: income substitution (generating income with non-park related activities) and collaborative management of the park resources (job creation such as guide, porter, etc.). Additionally, spreading the benefits in an even manner across all the communities bordering national parks would be key to further promoting tourism. To date, only some members of the communities bordering the

park headquarters receive some returns through employment. Benefits received by local communities, as argued by Eckhart & Lanjouw, (2008, p.259)

> *"will be key to levelling the playing field and improving the conditions of local people, their attitudes, and perceptions towards the protected areas, the authorities, and the gorillas"*

The D.R. Congo, with its diversified tourism potential, would make even higher income than that currently achieved, provided transparency and accountability measures are effectively put in place. However, lack of data is a major concern for the Congolese tourism industry. To address this lack of information within literature, this research, among other objectives, aims to gather secondary data (including current initiatives) from the Congolese Tourism Departments.

2.3.4. Current Initiatives

Although tourism suffered from nearly ten years of insecurity, the current government has set itself stringent measures to overturn the situation and make tourism a priority (D.R. Congo NTO). The country is committed to wildlife conservation. Increasingly, international co-operation is taking place between the government and non-governmental organisations (GTZ, WWF, WCS…) to further boost fauna and flora protection, to design new touristic products, and ease up legislation in order to encourage tourism.

While five of the Congo's eight national parks are now international conservation areas (The Virunga and the Kahuzi-Biega included), informal transnational partnerships that have protected the parks during the unsettled period have now been formalised. A trilateral Memorandum of Understanding (MoU) was signed in 2004 by the park authorities of the three countries that make up the economic community of Great Lakes countries (ECGLCs

comprising the D.R. Congo, Rwanda and Burundi) (Maekawa et al., 2015). While two of the parks are exclusively located in the D.R. Congo, one (the Virunga) shares borders with three parks in two neighbouring countries: the Volcano Park (in Rwanda), the Bwindi and the Mgahinga (in Uganda). This position begs for the three countries to develop concerted conservation strategies as gorillas wander across the national borders.

The Congolese tourism industry, like the country itself, has immense natural potential, as compared to other Less Developed Countries. For the previously mentioned reasons, the industry can only grow. The main tourism attractions in the country encompass nature related destinations, i.e. national parks (as in *Error! Reference source not found.*) and reserves, other types of tourism being in their embryonic stage, except Visiting Friends and Relatives (VFR), as well as business purposes. However, owing to the visible commitment to diversifying its revenue sources, the government is putting in place some key initiatives to make tourism a contributor to the national economy.

2.3.4.1. Legislation and Policies

Owing to poor governance and incoherent tourism policies, these communities are now pressured by famine as they are driven away from their arable land and have - so to speak - become victims of their long stewardship of these forests and animals.

Literature on Congolese tourism policies is very scarce. However, the country has been setting up policy frameworks since 2006 to kick-start its tourism industry. For poor governance reasons, the tourism sector is seldom subsidised. Furthermore, the tourism industry suffers from lack of transparent and up-to-date legislation. Obsolete policies are enforced on tourism stakeholders by poorly paid officials. Yet conservation, mostly funded by the international community, operates very adequately, but not necessarily in a sustainable manner. This situation has created tension, as local communities feel less valued than the wildlife they had been the guardians of in the past. They would therefore

revert to poaching both for their livelihoods and other needs, such as children's education, healthcare, etc.

Operations in tourism are liberalised. However, due to the poor or inexistent infrastructures (roads, accommodation, water, electricity), only opportunistic investors venture into the neighbourhoods of the parks. The transport sector (air, road and sea), to pick only one, sees very little enforcement of existing legislation, making (tourist) transport in the D.R. Congo very hazardous.

Corruption is another barrier to tourism development in the D.R. Congo. All tourism operators in the hospitality and transport sectors are imposed high taxes based on obsolete legislation. Two compounded factors are the root cause of the situation: the tourism industry has never been a priority for the government, and limited skills are applicable to the tourism industry. The following threats (*Error! Reference source not found.*) applicable to the D.R. Congo have been identified by Okello & Keringe (2004, p.59-60) as threats to conservation, and therefore to tourism across the whole of sub-Sahara African countries.

The Threat Factors that Operate against Biodiversity in Protected Areas

- *Illegal killing of wildlife for their bush meat for the local or regional markets*

- *Danger to biodiversity arising from the nature and intensity of human-wildlife conflicts*

- *Large mammal poaching for international commercial purposes*

- *Human encroachment in terms of density and distribution of the human population around protected areas*

- *Loss, conversion and degradation of wildlife migration and dispersal corridors important for the protected area*

- *Unsustainable use of, demand for, and over-exploitation of natural resources (water, plant resources and minerals) by local communities*

- *Agricultural expansion and other land use changes incompatible to biodiversity requirements*

- *Pollutants from sources external to the protected area that harm biodiversity directly or indirectly*

- *Negative tourism impacts on the welfare of biodiversity and their habitats*

- *Fencing of an entire protected area or part of it, and its interface in wildlife movements*

Table 5: Adapted from Okello & Keringe (2004, p.59-60).

It could be argued that the threats mentioned in **Error! Reference source not found.** are the consequence of the exclusion of local communities in the process of planning and implementing tourism, jeopardising the chances for sustainable tourism in this part of the world.

2.3.4.2. Developing Private-Public Partnerships

Kernagham (1993, p.258) defines partnership as a relationship that *"involves the sharing of power, work, support and/or information with others, to achieve common goals or mutual benefits".* Public-Private Partnerships (PPPs) create a strategic platform for co-operation between stakeholders, with resulting outcomes such as policies that further shape the relationship. Partnerships could be perceived as multi-faceted co-operative alliance between the public and private sectors. Its field of application covers different public sector areas and stretches to the private sector (Kernagham, 1993). PPPs have developed following the need for efficiency both by public sector decision-makers and commercial sector managers. As Francol & Estevão (2009) argue, this urge has led some competitors to engage in partnerships. However, several cases of failed PPPs have been registered to date. Those failures can be attributed to partners overlooking the very reasons that led to the creation of those partnerships in the first place. Riege et al. (2001) have suggested the following reasons as main determinants for partnership creation:

1. *The reduction of risk and costs of accessing new markets, through reinforcement of financial resources and share of human resources*

2. *Extending the scope of operational actions, taking as an example small companies that reach international markets by affiliating with companies or groups with a larger scale*

3. *Acquiring capacities and knowledge, and thus directing customers through more effective distribution channels*

4. *the creation of new products or services and achieving higher levels of efficiency and economies of scale.*

Building strong and lasting partnerships, the following elements

Error! Reference source not found. shows that constant interaction needs to sustain partners' exchanges.
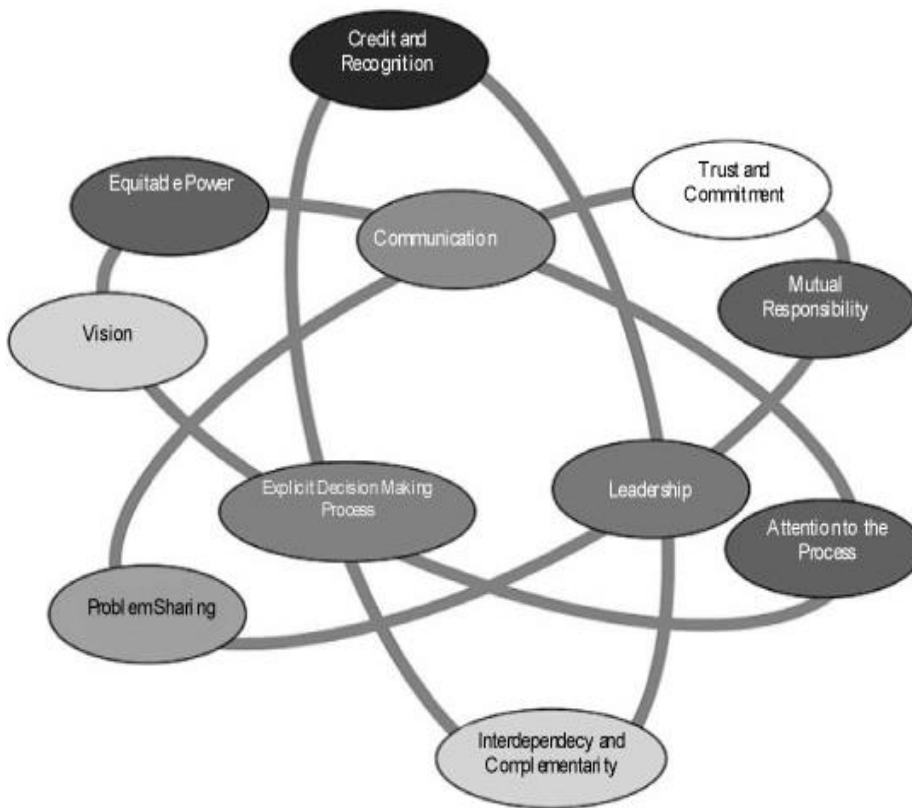
Figure 5: Elements for a successful partnership

Although good relationships are defined by trust, partners need to agree about critical success factors that should serve as terms of reference for managing their partnership. **Error! Reference source not found.** below establishes multi-relational links that tourism stakeholders in the D.R. Congo need to initiate and/or strengthen, in order for their industry to be sustainable.
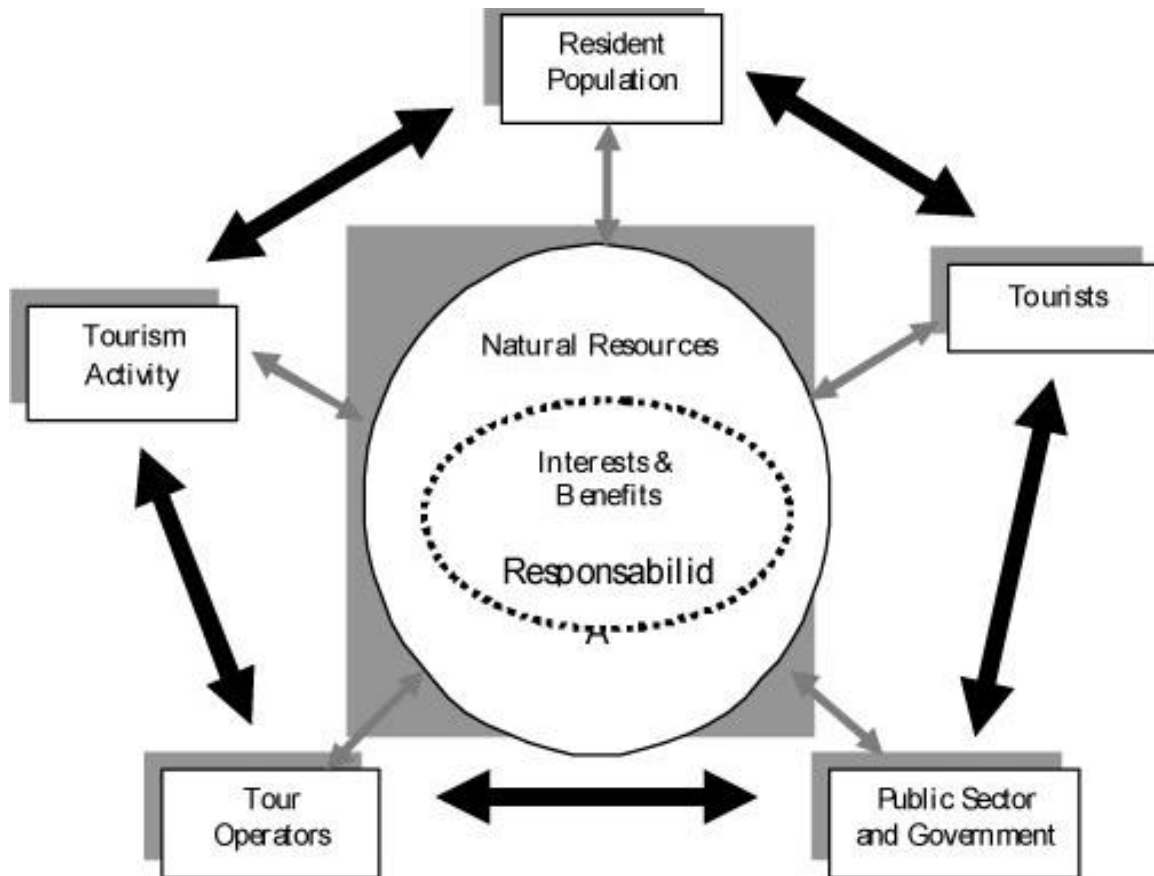
Figure 6: Relationships between stakeholders in tourism (Francol & Estevão, 2009)

2.3.4.3. Linkages within the Tourism Industry

Several players (as in Error! Reference source not found.) sustain the Congolese tourism industry: the hospitality industry with all its linkages, inbound and outbound travel agencies, tour operators, as well as the transportation network. Although international firms own top hotels, these collaborate with local operators. However, due to insecurity, there has been reduced hospitality activity in the vicinity of national gorilla parks. To date, local operators organise transport from the city to the parks.

Whilst national parks are owned by the state through its national conservation body, the ICCN, they are managed by the national tourism organisation (NTO) for tourism purposes, with branches across the country; and create some synergies, with local business organisations, wherever they operate. The diagram in *Figure 7* shows various levels of synergies that tourism can create with local businesses.

The Business Operation

Tourist shopping and eating
$ ⑤ ⑤ $

Excursions and activities

Accommodation

Tour Operators
Ground Handlers
The channel

Staff

Supply Chain

Local Linkages

Local restaurants, bars, crafts, retail outlets

Local cultural and heritage products, tourism SMMEs

Local partnerships + operational agreements
•equity partners
•residents
•SMMEs

Local entrepreneurs
Supply of goods and services

Training, recruitment and promotion of local staff

Figure 7: Linkages between tourism and businesses (Francol & Estevao, 2009).

In the same vein, the D.R. Congo has a thriving hospitality industry. It includes over 400 hotels in the capital city alone, with four 5-star hotels and several lower-class ones, very affordable for any category of tourist. The five-star hotels include the Kempiski Hotel, Arjaan by Rotana Hotel, the Grand Hotel and the Memling Hotel. Three and four-star hotels meet most international standards for tourists. However, little transparency exists in hotel classification, leaving each operator, or guests, to assign a star level to a visited hotel. The hospitality industry in Eastern Congo, home to the mountain gorilla parks, has thrived since the end of the war. It is meant to start competing with its neighbouring Rwandan thriving counterparts. However, due to recent unrest in and around gorilla parks in the D.R. Congo, Virunga Park closed in May 2018, following killings of 6 park rangers and the kindapping two British tourists (BBC, May 2018).

Despite the country's widely acknowledged high touristic resources and potential for growth, there is lack of information and data on its tourism industry. However, owing to the fact that the Congolese Virunga Park shares borders with two other parks in neighbouring countries, Rwanda and Uganda, some information, exists albeit too little comparatively to the other parks (Maekawa et al., 2015). However, international funding for LDCs is currently dependent upon these countries' commitment to embrace the practice of sustainability in all their sectors, including tourism.

2.4. SUMMARY

This chapter has discussed tourism development both at international level, Less Developed Countries level as well as at the D.R. Congo level. While tourism development sounds like a conundrum, all countries are now designing newer strategies for growing the industry through new touristic products. In so doing, tourism development contributes even more to resource depletion; which leads to unsustainability in the sector.

The type of tourism that has seen the most rapid growth is nature-based tourism, also referred to as responsible tourism or again as ecotourism. Some Less Developed Countries have been harnessing this type of tourism to meet demand from Western countries. Governments have thus tried to put regulations in place in order to preserve the environment for the tourism growth, which has borne fruit in Rwanda and Uganda. These two countries have favoured gorilla tourism as a way to boost their economies. In recent years Rwanda and Uganda have seen very significant growth of their tourism sectors due to political stability over the last two decades whilst their bigger neighbour, the D.R. Congo's tourism industry still is at standstill due to various reasons.

This chapter has evidenced another key gap in the tourism literature within Less Developed Countries, i.e. the lack identified key stakeholders as well as key indicators relevant to this environment. The literature has highlighted key issues inherent to the Congolese tourism

industry, stricken by decades of high-level systemic mismagement at governmental and local levels, related to poor governance and its corollaries, such as lack of transparency and accountability. The country has therefore seen very slow progress comparatively to its neighbours, in key areas lke consultation and synergies between public and private stakeholders, including local communities, who more than anybody else depend on the parks for their livelihood.

Throughout the read literature, stakeholders have emerged as key to sustainability. Only the right stakeholders are knowledgeable about their environment and about the vision they have of it. They can assess what matters to their well-being and henceforth to the future of the sector on which their livelihoods depend. Therefore, identifying the right stakeholders is a major factor to sustainability.

Additionally, stakeholder participation and involvement in decision making are of paramount importance to the identification of Sustainability Indicators. Interactions between Stakeholders would thus bring about mutual exchanges, and benefits accrued from the exchanges would help support the tourism network. These mutual exchanges are key to ascertaining the strength of relations within the tourism industry.

In order to assess the level of sustainability achieved by the Congolese gorilla tourism sector, the next chapter reviews two underpinning theories employed in order to guide and warrant our choice for the appropriate conceptual framework: Stakeholder Theory and Social Exchange Theory.

CHAPTER 3. SUSTAINABILITY AND SUSTAINABILITY MEASUREMENT - A REVIEW OF LITERATURE

The present chapter discusses the concept of sustainability and its measurement as well as the development of tourism in the D.R. Congo. Firstly, the chapter frames the concept in its traditional context of a descriptor of some other concept (e.g. sustainable development), then goes on to discuss its affiliation with Corporate Social Responsibility (CSR) before discussing its relationship with Ethics. Finally, and before reviewing literature on tourism development, the chapter critically reviews various frameworks employed for measuring sustainability.

The present research seeks to assess the sustainability level of the Congolese gorilla tourism sector. It thus needs to ascertain whether stakeholders in this sector would work for a common goal, and actively sustain the tourism industry in order to achieve its sustainability. Yet, as Mowforth & Munt (2016) argue, policy and decision-makers in Less Developed Countries seek private benefits over public good they would hardly engage in a transparent perspective of managing tourism sustainably. One of the main reasons for this is poor governance and corruption, as Sachs (2005, p.312) argues: *"Africa's governance is poor because Africa is poor"* or Africa's poverty is caused by poor governance. Corruption is thus the most common issue in Less Developed Countries, as depicted by Transparency International when they stated that:

> "*Corruption creates and increases poverty and exclusion. While corrupt individuals with political power enjoy a lavish life, millions of Africans are deprived of their basic needs like food, health, education, housing, access to clean water and sanitation.*" (Transparency International, 2016).

Less Developed Countries would henceforth find it hard to integrate sustainability policies and practices due to rampant corruption level. These countries are among the most corrupt in the world, the D.R. Congo featuring among the 20 most corrupt countries in the world, over the last five consecutive years, as shown in *Table 9*.

3.1. SUSTAINABILITY

Sustainability is increasingly related to the concept of Corporate Social Responsibility (CSR), which in turn, is broadly derived from Business Ethics. Jallow (2008) perceives CSR as" a *mechanism by which businesses engage with sustainability by developing strategies which go beyond traditional business operations"* (Jallow, 2008, p.28). More specifically, Crowther (2008) argues that these business strategies and operations should take into account future members of society as well as the environment, hence hinting to sustainability.

Table 6: Definitions of Sustainability provides a summary of definitions of sustainability used in the present research.

Nr	DEFINITION	AUTHOR	YEAR
1	*A way to understand the world as a complex interaction of economic, social, environmental and political systems"*	Sacks	2015
2	A framework of change management, a whole whose elements affect each other over time, yet aim at one common purpose	Senge et al.	1994
3	*The capacity of a system to maintain output at a level approximately equal to or greater than its historical average, with the approximation determined by the historical level of variability*	Lynam and Herdt	1989
5	*Maximising the net benefits of economic development, subject to maintaining the services and quality of natural resources over time*	Pearce	1990
6	*The dynamic equilibrium between natural inputs and outputs, modified by external events such as climatic change and natural disasters*	Fresco and Kroonenberg	1992
7	Closely related to systems-thinking as it encourages reflecting about cause and effect and inter-relationships	Bell & Morse	2003
8	*A duty for a legacy to our children and theirs, to leave the world as we found it*	Gray & Bebbington	2001
9	T*he field of thinking and practice by means of which companies and other business organisations work to extend the life expectancy of: ecosystems; societies, and economies*	Sabapathy	2007
10	*The capacity of a system to maintain output at a level approximately equal to or greater than its historical average, with the approximation determined by the historical level of variability*	Lynam and Herdt	1989
11	*Concerned with the effect which action taken at the present has upon the options available in the future*)	Crowther	2008
12	The chance for networks to endure and develop by continually learning and adapting to new contexts	Ramalingam	2002
13	A mechanism allowing an organisation's stakeholders to develop strategies which should endure the test of time	Jallow	2008

Table 6: Definitions of Sustainability

The definitions (*Table 6*) build one onto the other. From output optimisation,

sustainability is said to aim at maximising net benefits, maintaining natural resources

over time and also keep natural inputs and outputs in a dynamic equilibrium. Although the present research is grounded on sustainability measurement, its framework differs from the developmental approach. The most relevant definition of sustainability, appropriate to the present research, is the one linked to systems thinking (Bakkes, 1997; Baker, 2002; Bell & Morse, 2003). In this perspective, sustainability is perceived as a framework of change management. It would be understood as a whole whose elements affect each other over time, yet aim at one common purpose (Senge et al., 1994). Thus, systems-thinking encourages reflecting about cause and effect and inter-relationships between elements. A 'system', as Darzentas and Darzentas (2014) argue, is a complex concept, high in interconnectedness and synergies. The authors even contend that by its very nature, systems-thinking "welcomes and exhibits a high degree of complexity due to its human-centric focus" (Ibid. p.3). The named authors further argue that system-thinking is also concerned with sustainability, which in turn, requires a holistic approach for assessment. They thus concur with Ko (2001) that "sustainability is not determined by single components" (Ko, 2001, p.819).

Henceforth, the working definition of Sustainability to be used by the present research is based on Jallow's (2008) understanding that Sustainability depends on stakeholders' ability to design their own strategies to help their organisation to thrive and endure the test of time. These stakeholders' strategies will consist of continually exchanging and appraising identified mutual benefits (Sustainability Indicators) in order to further strengthen their organisation, the tourism sector.

Sustainability, as a concept, stems from the United Nations' conference on human environment and has been followed by other key meetings that have shaped the concept to its current state. *Table 7* highlights the key meetings:

Nr	Meeting	Place	Year
1	UN Conference on the 'human environment'	Stockholm	1972
2	International Conference on reducing the use of ozone- depleting aerosols	Montreal	1987
3	UN Earth Summit	Rio de Janeiro	1992
4	Global gathering on reducing greenhouse gas emissions	Kyoto	1997
5	Copenhagen Summit on reducing greenhouse gas emissions	Copenhagen	2009
6	Rio+20 UN Earth Summit	Rio de Janeiro	2012

Table 7: Significant Global Gatherings for Sustainable Development (Mulligan et al., 2015, p.19).

The meetings (*Table 7*) are a testimony to the will of world leaders to maintain the world equilibrium betweeen natural inputs and outputs. The word 'sustainability' has gained importance and popularity among academia and practitioners. It is said to have

"become the watchword for international aid agencies, the jargon of development planners, the theme of conferences and learned papers, and the slogan of developmental and environmental activists" (Lele, 1991, pp 607-621).

Yet sustainability can only materialise through its practice. We concur with Jallow (2008) that sustainability would best relate to concepts while sustainable development materialises it by putting it into practice through the use of its mechanisms, tools and processes. The concept also relates to the future as sustainability *"requires that we remember the legacy that we owe to our children and theirs, to leave the world as we found it"* (Gray & Bebbington, 2001, p.557), with all its interrelated elements, as shown in *Figure 8*
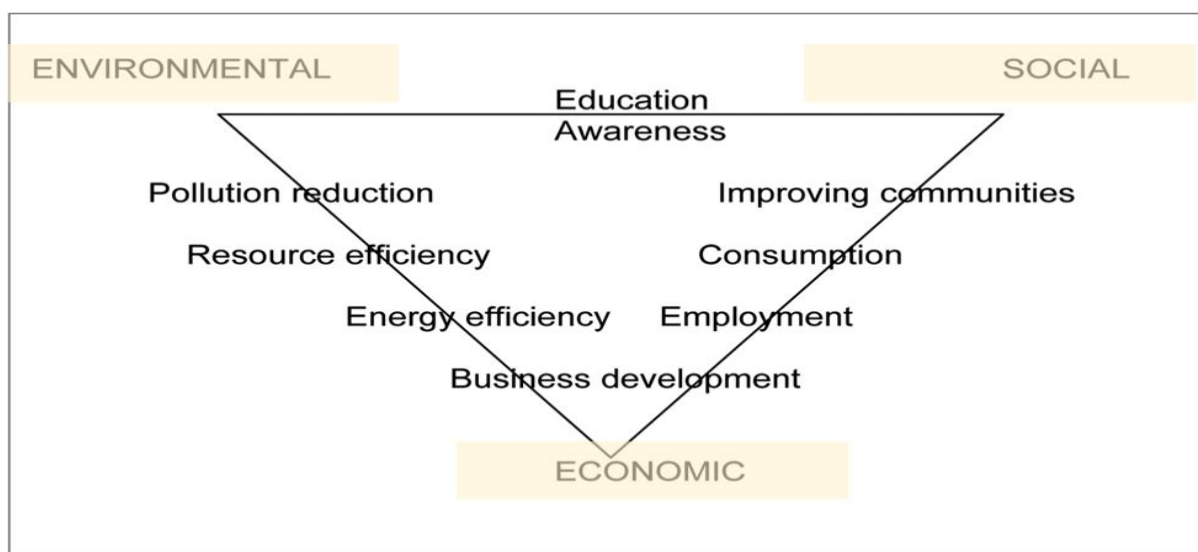
***Figure 8: Elements of Sustainability,* Jallow, 2008**

Further definitions below, as compiled by Earthscan (2008, p.10), provide specific contexts to the concept of sustainability:

a. *The capacity of a system to maintain output at a level approximately equal to or greater than its historical average, with the approximation determined by the historical level of variability* (Lynam and Herdt, 1989).

b. *Maximising the net benefits of economic development, subject to maintaining the services and quality of natural resources over time"* (Turner and Pearce, 1990).

c. *The dynamic equilibrium between natural inputs and outputs, modified by external events such as climatic change and natural disasters" (*Fresco and Kroonenberg, 1992).

The definitions relate to various facets of sustainability, which highlight concepts of integration of elements and processes to deliver a balanced system as a whole. The present research adopts this understanding of sustainability in its holistic and systemic approach. It thus relates to systems-thinking, where all stakeholders continually interact and assess the value they receive from a system as the benefits versus the

costs, and henceforth commit to sustaining the said system which generated the benefits, when deemed higher than costs.

Yet there is no consensus on one single methodology that establishes a cause and effect link in complex systems (Jallow, 2008). This renders measuring sustainability an even more arduous task to achieve, especially in sectors like tourism, especially in such volatile environments as Less Developed Countries (LDCs).

While definitions of sustainability and Corporate Social Responsibility (CSR) abound, no general agreement over the term exists (Topal, 2005). However, three overarching principles encapsulate all CSR activity: Sustainability, Accountability and Transparency (Crowther, 2008). The author argues that CSR develops in stages within organisations, and that the three named factors corroborate maturity of the concept, which started as window-dressing and is now addressed as accountability, as detailed in *Table 8*:

Stage of development	Dominant feature	Typical activity	Examples
1	Window dressing	Redesigning corporate reporting	Changed wording and sections to reflect CSR language
2	Cost containment	Re-engineering business processes	Energy efficiency programmes
3	Stakeholder engagement	Balanced scorecard development	Customer/employee satisfaction surveys
4	Measurement and reporting	Sophisticated tailored measures	CSR reporting
5	Sustainability	Defining sustainability: re-engineering processes	Sustainability reporting
6	Transparency	Concern for the supply chain: requiring CSR from suppliers	Human rights enforcement, e.g. child labour
7	Accountability	Reconfiguration of the value chain	Relocating high value-added activity in Less Developed Countries

Table 8: Stages of Maturity of CSR Activity **(Crowther, 2008, p. 28).**

Accountability and transparency give meaning to sustainability, as the transparency is not a stand-alone concept. Sustainability is best achieved in an environment where transparency and accountability prevail. While these concepts are concerned with openly reporting about major organisational dealings affecting society, they also suggest that an organisation takes responsibility for its actions towards its various stakeholders. An accountable organisation would carefully weigh up the consequences of its decisions before implementing them, as the cost of its actions could end up being

higher than its benefits both for itself and for its stakeholders (Crowther, 2008). The following sections will discuss each of the three concepts (Corporate Social Responsibility, transparency and accountability), with particular focus on sustainability, for the sake of the present research.

3.1.2. Corporate Social Responsibility

Research on the definition of Corporate Social Responsibility (CSR) has remained limited (Isa, 2012). Therefore, available definitions are as diverse as the contentious meanings attached to the concept itself (Oury, 2007). CSR is also called corporate conscience, corporate citizenship, social performance or sustainable responsible business (Wood, 1991). Its principles, however, are concerned with an organisation "*considering its responsible involvement within the wider network*" (Oury, 2007, p.21), which would be referred to as corporate citizenship. It deals with the relationship between various stakeholders. These range from global, international and national to local organisations and citizens (Crowther & Raymaan-Bacchus, 2004). Beyond present stakeholders, CSR also looks at future generations as stakeholders, and aims at wisely using current exhaustible resources, which should sustain the organisation's growth. It is good to see that all other definitions of CSR show that the concept goes beyond the profit-making obligation organisations have towards their owners or shareholders, to include both social and environmental aspects. The following are some definitions of CSR:

a. *Conducting the business in accordance with owners' or shareholders' desires, which generally will be to make as much money as possible while conforming to the basic rules of society, both those embodied in law and those embodied in ethical custom* (Friedman, 1970).

b. *CSR is the integration of social and environmental values within a company's core business operations and the engagement with stakeholders to improve the well-being of society (WBCSD, 2002).*

c. *The European Union (EU) describes CSR as a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis* (EU, 2002).

While corporations prefer to approach CSR in a voluntary manner instead of having it enforced, they are mostly concerned with optimising shareholders' returns. As key stakeholders, shareholders have the most influence on organisational strategy and operations. Yet these organisations would claim they care about all of their stakeholders, which Crowther & Raymaan-Bacchus (2004) argue is very different from actually exhibiting the concerns through actions taken.

CSR principles closely relate to tourism, as the industry's main goal is to ensure host countries benefit from the current environmental resources. Beyond profits, tourism operators need to ensure that tourism

> *"truly benefits those who are on the receiving end, and that it does not exploit and degrade the environment in which they live and from which they must earn a living after the last tourist has flown back home"* (Koeman, 1989, p.1).

Yet, like most concepts, unless it is applied to a context, CSR will remain but an empty concept.

While Ethics is concerned with legally binding principles applicable to all, businesses included, Corporate Social Responsibility goes beyond these legal precepts and compels businesses to work towards meeting stakeholders' best interests. However, like sustainability, ethics is not a straightforward concept to comprehend. Topal (2005)

distinguishes four approaches to ethics: *"business ethics, government ethics, codes of professional ethics and environmental ethics"* (Topal, 2005, p.114). Irrespective of the way these types of applied ethics are perceived, five guiding principles lie at the centre of their concept and practice: *"shared purpose, informed choice, responsibility, learning and growth"* (Das Gupta, 2008, p.104).

Accounting for Corporate Social Responsibility is reportedly carried out through the Triple Bottom Line, TBL or the 3Ps: People, Planet, Profits (Elkington, 2004). TBL assesses how an organisation's responsibility is evidenced through the economic, environmental and socio-cultural domains of activity. Beyond the confinement of corporate environments, CSR should consider that local communities have rights, which need to be turned into every corporate organisation's responsibility. Oury (2007) has associated these rights with the tourism sector, and linked them to Elkington's (2004) TBL also called Three Ps as highlighted by the following social, environmental and economic responsibilities:

1. *Social responsibility (People) would be about acknowledging people's right to education, to health, to freedom of speech, information, to easy access and fair distribution of resources such as food, water, clothing, housing, social security, leisure, etc.*

2. *Environmental responsibility (Planet) would seek to minimise overcrowding by visitors (carrying capacity), tree logging, waste dumping, water consumption, leakages, etc.*

3. *Economic responsibility (Profit) would involve dealing with business ethics, corruption and bribery, direct and indirect economic impact on networks through: spending power, suppliers, consumers, investors, tax payments, social investments in employees, knowledge and innovation, as well as the overall geographic economic impact* (Elkington, 2004, p.5).

The Triple Bottom Line is thus seen as a way for an organisation to materialise its ethical duty towards both individuals and local communities, within the corporate environment and in the wider community. The next section discusses Ethics.

3.1.3. Ethics

Definitions of Ethics are reportedly hard to find consensus (Velasquez et al., 2010). This is due to the very nature of the subjective interpretation of notions of good and bad or right and wrong that underpin the concept of 'Ethics'. Singer (2011, p.1) defines Ethics as

> *"a branch of philosophy that seeks to determine the correct application of moral notions such as good and bad and right and wrong or a theory of the application or nature of such notions".*

This difficulty in agreeing on what is right or wrong would make it hard for any individuals to find agreement amongst themselves or any organisation among its stakeholders about their behaviour. In addition, there is agreement today that Socrates' thinking does not hold true, as the knowledge of moral notions (ethics) does not necessarily lead to possessing or applying those moral values. As will be discussed in this thesis, decision makers in Less Developed Countries do not always enforce sustainable best practices as they seldom turn them into law, nor do they enforce those practices amongst stakeholders.

Three main schools of thought have guided the definition of Ethics. While Aristotle (384-322 BC) links Ethics with theories of Justice, charity, and generosity, Kant (1724-1804) regards Ethics as duty related to morality. He asserts that all rational beings must abide by the knowledge of their duty, that knowledge (reason) should be united with experience (behaviour). The question with Kant's position is, as said earlier, the

lack of clarity as to what extent knowledge leads to behavioural change. This particular point is of interest in the present research, as we anticipate it will highlight the dichotomy between knowledge of sustainability and policy change. It will also help our understanding of whether or not tourists' knowledge of their obligations in destinations would lead them to behaving responsibly. Finally, the utilitarianism school asserts that the guiding principle of conduct should be the greatest benefit of the greatest number. Applying this overarching moral rule would thus lead policy makers in Less Developed Countries to seek the well-being of local communities who would benefit, for their livelihood, from returns generated by the tourism industry in general and local business, in particular.

Business Ethics are derived from the 'utilitarianism' school , which is concerned with applied ethics. It tends to apply guiding principles of ethics, i.e. justice, charity and generosity, to the field of business, thus linking all the three schools of thought of Ethics related to Justice, charity, and generosity (Aristotle), the knowledge of duty (Kant), and the greatest good of the greatest number (Utilitarianism). However, it is arguable that these virtues should be linked with businesses as business ethics could sound like an oxymoron. Business ethics, however, could be understood as the application of these principles to the commercial environment. It implies that governments influence individuals and organisations to achieve societal good. It thus offers an opportunity for corporations to build their reputation around

> *"intangibles such as trust, reliability, quality, consistency, credibility, relationships and transparency, and tangibles such as investment in people, diversity and the environment"* (Topal, 2005, p.114).

However, it is yet to be established that businesses can self regulate. Most organisations have tried building their reputation through self-regulation or Voluntary

codes of conduct. These codes have been driven by internal and external factors. Internally, corporate citizenship, derived from the growth in complexity of internal corporate structures, a concept that links business profitability with environmental and social performance (Smith, 1957). Externally, however, pressures exerted on corporations have led these to try and pre-empt criticism by stakeholders, for the impact of their operations. These pressures include:

a. *Increasing momentum of NGOs supporting environmental and social issues (EU, 2002; Friedman, 1970; Smith, 1957).*

b. *Development and increasing use of electronic communications by various stakeholders (Choi & Murray, 2009; EU, 2002).*

c. *A number of high profile environmental disasters fostering public mistrust of the mining and oil & gas industries (EU, 2002)* e.g. the Chernobyl nuclear reactor accident (1986) in the former Soviet Union.

Unlike governmental policies and an individual organisation's initiative, a voluntary code of conduct involves a whole industry. It sets voluntary agreed codes of conduct for all member companies to follow (TCBP, 2006). These codes have grown in popularity as they galvanise stakeholders (both internal and external) around their most commonly stated purpose, i.e. the improvement of environmental and social performance. Yet, as indicated by various researches, the true reason for adopting voluntary codes of conduct is more about improving corporate image than performance (TCBP, 2006), which, in turn, would earn the companies the needed positive image to operate freely. Still a recurring issue is the assessment of the returns received by these stakeholders as they allow the companies to freely operate in their environment. This issue relates to the notion of distributive justice.

3.1.4. Distributive Justice

Of all aspects of justice, business ethics are more concerned with distributive justice that relates to fair allocation of resources among members of a network. Fair allocation itself would mean each member of the network is given its fair share of the total amount of produced, or available goods. Business Ethics also looks at the procedures of distributing these goods, and finally the assessment of the result created by this distribution procedure. Utilitarian Ethics are concerned more with outcomes than processes of reaching those results; thus, making the action's value neutral and benefiting the greatest number of society (Choi, 2009). This particular aspect of justice, i.e. distributive justice, will be of key importance to the present research. It will help to assess how the benefits deriving from the tourism industry are shared amongst all stakeholders, especially those given little say and involvement in the policy-making process.

In the same vein, two trends related to distributive justice have emerged in western society: work ethics and leisure ethics. These two sides of the same coin are derived from the need for consumers to comfort themselves in the choices they make both within and outside of their workplace.

Work Ethic, on the one hand, is concerned with aligning people's actions with their pursuit for moral "*rectitude and economic survival*" (Mowforth & Munt, 2009, p.87). However, caution needs to be applied to the underlying philosophical motives behind the economic ideologies upheld. However,

> *"Ethics too can be wrong in its support of ideologies and utopias that have more to do with agendas of a few at the expense of the many"* (Fennell, 2006, p. 55).

This has been evidenced by authoritarian regimes that have delineated conduct for businesses in the Less Developed Countries. They have confined ethics to what they

prescribe, thus tailor-making the utilitarian ethics to their needs. On the other hand, leisure ethics, said to be overtaking work ethics in some developed countries (Fennel, 2006), is perceived by consumers as a hedonistic activity. The Third World, unfortunately, is far from envisaging this as a mode of consumption. People in Less Developed Countries perceive themselves as contributors to the achievement of westerners' leisure ethics (Mowforth and Munt, 2016).

3.1.5. Transparency

Transparency, as seen by Das Gupta (2008, p.89), implies that

> *"decisions taken and their enforcement are done in a manner that follows rules and regulations [and that] actions of the organisation can be ascertained from that organisation's reporting, and pertinent facts are not disguised within that reporting".*

By disclosing not only the results of its operations but also the processes leading to these, an organisation would be behaving responsibly towards its stakeholders, who, in turn, would gratify it with their trust and commitment.

Transparency leads to trust and an emanation of the democratic philosophy of business management. It stems from policy-makers' and managers' belief that decision-making and implementation and monitoring processes have been agreed upon and communicated appropriately to all concerned stakeholders. We concur with the OECD (1998) report that sustained and independent development is relative to the strength and quality of a country's institutions. In the same vein, sustainability of tourism in Less Developed Countries depends on these individual stakeholders' willingness and ability to identify, measure and monitor the progress of the tourism sector in each individual country through participation of all concerned stakeholders, in a transparent manner.

However, corruption seems to be an important barrier to achieving progress. World governments have committed large amounts of money to combat today's global issues

of which climate change and poverty (OECD, 1998). Unfortunately, nearly three quarters of the 176 countries are judged corrupt with the D.R. Congo standing as 20th most corrupt country (corruption **Table 9**) in the world. While the least corrupt country in the world is Denmark, Somalia is listed as the most corrupt country worldwide.

2016 Rank	Country	2016 Score	2015 Score	2014 Score	2013 Score	2012 Score	Region
154	Turkmenistan	22	18	17	17	17	Europe and Central Asia
154	Zimbabwe	22	21	21	21	20	Sub Saharan Africa
156	Cambodia	21	21	21	20	22	Asia Pacific
156	Democratic Republic of Congo	21	22	22	22	21	Sub Saharan Africa
156	Uzbekistan	21	19	18	17	17	Europe and Central Asia
159	Burundi	20	21	20	21	19	Sub Saharan Africa
159	Central African Republic	20	24	24	25	26	Sub Saharan Africa
159	Chad	20	22	22	19	19	Sub Saharan Africa
159	Haiti	20	17	19	19	19	Americas
159	Republic of Congo	20	23	23	22	26	Sub Saharan Africa
164	Angola	18	15	19	23	22	Sub Saharan Africa
164	Eritrea	18	18	18	20	25	Sub Saharan Africa
166	Iraq	17	16	16	16	18	Middle East and North Africa
166	Venezuela	17	17	19	20	19	Americas
168	Guinea-Bissau	16	17	19	19	25	Sub Saharan Africa
169	Afghanistan	15	11	12	8	8	Asia Pacific
170	Libya	14	16	18	15	21	Middle East and North Africa
170	Sudan	14	12	11	11	13	Middle East and North Africa
170	Yemen	14	18	19	18	23	Middle East and North Africa
173	Syria	13	18	20	17	26	Middle East and North Africa
174	Korea (North)	12	8	8	8	8	Asia Pacific
175	South Sudan	11	15	15	14	N/A	Sub Saharan Africa
176	Somalia	10	8	8	8	8	Sub Saharan Africa

Table 9: Corruption Perception Index 2016, Transparency International

However, following first-ever democratic elections in 1996 and in 2011, and the end of the war in 2014, authorities in the D.R. Congo pledged to reverse the trend, but this has failed to succeed for lack of both transparency and accountability in their management practices (Maekawa, 2015).

3.1.6. Accountability

Accountability, in the corporate environment, is about an organisation recognising that its actions *"affect the external environment, and therefore assuming responsibility for the effects of its actions"* (Crowther & Raymaan-Bacchus, p.24). It implies measuring

and reporting those effects both internally and externally for stakeholders to take action on. In order for the reporting to be accepted by the stakeholders, it must fulfill the following criteria, as set out by Crowther & Capaldi (2008, p.24):

Understandability to all parties concerned

a. *Relevance to the users of the information provided*

b. *Reliability in terms of accuracy of measurement, representation of impact and freedom from bias*

c. *Comparability, which implies consistency, both over time and between different organisations*

These criteria would broadly relate to transparency, which materialises accountability and would therefore require that clear measurements be established, agreed upon, and continuously updated. Measuring sustainability would henceforth evidence accountability to all concerned stakeholders. While acknowledging that reporting accountability should be objective and judgment free, Crowther (2008) warns that achieving it would not be an easy task.

Transparency and accountability are both related to good governance, which in turn, deals with formal and informal decision-making processes, the implementation of those decisions, as well as the established structures that overlook the decisions. As a cornerstone of good governance participation of all concerned stakeholders needs to be carried out in an informed and organised manner (Lawrence, 1997). These two factors are "*critical to restoring trust and turning back the tide of corruption*" (Das Gupta, 2008, p.98). With poor governance and all its corollaries such as corruption, LDCs would never contemplate achieving sustainability in the tourism sector, unless, as is reported to be currently happening in Rwanda and Uganda, significant efforts are deployed to reverse the trend (Waekawa, 2015).

However, irrespective of frameworks and tools employed to measure sustainability, indicators have proven to be a useful way of assessing whether and how far things are improving, or not, in a given system. The United Nations' Sustainability Indicators for measuring tourism development are a good basis for assessing sustainability in this sector; yet local understanding and assessment of those indicators are required for the indicators to actually capture the true nature of sustainability in any particular context, sector and country. Following the review of literature on sustainability in its systemic context, the following section will focus on the opportunity and possible ways of measuring tourism.

3.2. MEASURING SUSTAINABILITY

As discussed in the sustainability section (1.0), sustainability is both a complex and controversial concept. It is *"a word that is defined, interpreted and imagined differently between individuals, organisations and social groups"* (Mowforth and Munt, 2016, p.22). This chapter reviews existing frameworks for measuring sustainability and selects the most appropriate one for use in the measurement of sustainability in Less Developed Countries in general, and in the D.R. Congo, in particular. It also reviews existing result presentation methods as these help policy and decision makers identify areas for improvement; and henceforth contribute to sustainability.

3.1. CONTEXT OF SUSTAINABILITY MEASUREMENT

Demand for positive results has led decision-makers to develop systems for assessing projects against set objectives. While sustainability is at centre stage in the global arena, to date little measurement has been carried out (OECD, 2004), more so with regards to tourism (UN, Future We Want, 2012). Does this suggest that measuring sustainability would amount to measuring the immeasurable? (Bell & Morse, 2003). This is further exacerbated in Less Developed Countries as they are still striving to put in place basic infrastructures. It would thus sound that these countries are not ready to engage in this post-modernist race (Bell & Morse, 2008). Yet, international funding towards LDCs is currently dependent upon these countries' commitment to the practice of sustainability in all their sectors (Narain, 2003), including tourism. We agree with Waldron & Williams (2002, p.182) that if sustainability "*is one of the tourism industry's major contemporary objectives, then the industry needs to be able to measure its performance and impacts*".

While elaborate scientific and academic methods of designing Sustainability Indicators exist, there seems to be little expertise to the application of those SIs to policy and investment options (Reid, 1995). The most arduous steps of the SI process are the implementation and monitoring stages. This difficulty could result from complications in identifying the right sustainability indicators. Unless these two stages are properly carried out, there is high risk of the whole process of identifying SIs being considered as mere data collection process, just as there have been many before. It is therefore vital to raise awareness over the cost-benefits of this type of exercise amongst policy-makers. Initial agreement about the outcome of SI identification process should be obtained before embarking on the process. Undoubtedly, there is such an opportunity within Less Developed Countries due to increasing world interest for their ecosystems and biodiversity, expressed through the carbon deals. This particular point will be discussed in chapter 4.

Further questions relate to the epistemological and ontological considerations around the identification and design of SIs. As an evolving paradigm, Sustainability calls for continued effort to raise the level of understanding of current and future requirements for identifying and measuring sustainability Indicators. We concur with Bell and Morse (2003) that those requirements are the only way for SIs to become valid and reliable, and usable for sustainable development of any sector. An evolving paradigm such as sustainability thus requires some form of quantification. Sustainability Indicators, used for this quantification, in turn, *"keep the paradigm alive"* (Bell and Morse, 2000, p.31). Yet, is it possible for SIs to capture all the complexities that lie at the heart of the sustainability debate? The authors warn against oversimplification through quantification, as it would lead to over-reductionism, moving away from the quest for holistic understanding of human activity. The named authors rightly argue that *"there*

is a trade-off between necessary simplification and at the same time having SIs that

are meaningful" (Bell and Morse, 2000, p.31*).*

It is a complex endeavour to try and develop a reliable and useful set of indicators that meet the actual needs of an entity, a country or a region. However, we agree with Ko that

'if sustainable development is one of the tourism industry's major contemporary objectives,

then the industry needs to be able to measure its performance and impacts in this area' (Ko,

2001, p.819).

Therefore, devoting time and effort to identifying a framework and related Sustainability Indicators, and trying to influence policy-makers to act upon the outcomes, is definitely worth the endeavour. Although the economic development approach is sustained by the increase of demand, it stands as a conundrum to sustainable development and does not cover all the facets of sustainability, there is still room for a "*more inclusive sustainable model'* (Jallow, 2008, p.41).

Following the review of literature on sustainability framed in its systemic context, the following chapter will focus on the reasons why and the possible ways of measuring tourism.

3.2. WHY MEASURE SUSTAINABILITY?

Attempting to measure sustainability would amount to measuring the immeasurable (Bell & Morse, 2003). Yet, the growing need for measuring sustainability is dictated by stakeholder demand for organisations to account for their business practices.

Why would then Less Developed Countries engage in the pursuit of a concept that *"lacks substance"*? (Fortune & Hughes, 1997, p.125). However, owing to the need for assessing development, the concept of sustainability has become very appealing to aid agencies, development planners, academics, and even environmental activists

(Lele, 1991). LDCs are, as much as Developed Countries, committed to safeguarding world resources for future generations, on the one hand, and for project funding approval, on the other hand.

Measuring sustainability would thus refer to good governance and management of processes (including technical and managerial resource usage) and materials. They all need to be designed and aligned to a system that will sustain and maintain the *modus operandi* that initially generated them. To be achieved, sustainability should focus on all aspects of the business environment, i.e. economic, socio-cultural and environmental (Elkington, 2004). It thus cannot be operated in isolation either (Freeman, 1984). Rather, it calls for a systemic management of all components of business resources, from design and execution to final disposal. In addition, it requires "*methodological, scientific and analytical rigour to make it effective for managing human activities and resources*" (Adedeji & Olufemi, 2007).

As the saying in modern management goes "*if you can't measure it, you can't manage it*". The only way to know an operation is sustainable is when you can be satisfied it meets sustainability criteria. These criteria have been identified as sustainability indicators; they are the only way to provide some objective and consistent reference to a vague concept that stakeholders could work on (Jansen et al, 1995; Syers et al, 1995; Zinck and Farshad, 1995; Rennings and Wiggering, 1997). Frameworks provide a "*systematic means of structuring the identification and selection of relevant subjects / issues to be monitored*" (Waldron & Williams, 2002, p.182).

Before trying to set up indicators for measuring sustainability of tourism, we first need to understand the concept of indicators as this would help reduce uncertainty. Systems face change continuously and change creates uncertainty. While Crabtree & Bayfield (1998, p.1) think that indicators "*quantify change, identify processes and provide a framework for setting targets and monitoring performance*" Gahin et al. (2003, p.662)

concur by adding that "*Indicators provide critical information about current trends and conditions and help to track progress toward…goals*". In this vein, indicators would be crucial in managing and assessing change, and henceforth minimise uncertainty, which would derive from it.

Although the practice of indicators dates back thousands of years, e.g. gauging soil fertility by farmers, its modern implementation stems from the Bellagio Principles for Sustainable Development (UN, 1996) that gave way to the ten principles for sustainable development. These are summarised below by Bell & Morse (2000, p.17):

1. *Sustainable development should be clearly defined in its specific context*

2. *Sustainability should be viewed in a holistic sense, including economic, social and ecological components*

3. *Notions of equity should be included in any perspective of sustainable development*

4. *Time horizon should span both human and ecosystem timescales, and the spatial scale should include local and long-distance impacts on people and ecosystems*

5. *Progress towards sustainable development should be based on the measurement of a limited number of indicators based on standardised measurement*

6. *Methods and data employed for assessment of progress should be open and accessible to all*

7. *Progress should be effectively communicated to all*

8. *Broad participation is required*

9. *Allowance should be made for repeated measurement in order to determine trends and incorporate results of experience*

10. *Institutional capacity in order to monitor progress towards sustainable development needs to be assured.*

These principles have played a major part in efforts to identify conceptual frameworks for sustainability indicators. It is worth recalling that whilst development is closely associated with sustainability, the two stand as an oxymoron (see section **Error! Reference source not found.**). In addition, they have laid the ground for a more holistic approach to sustainability, i.e. economic, social and environmental factors. However, this does not provide a measurement framework for those factors, particularly the social ones.

3.3. SUSTAINABILITY AND TOURISM

The main question about the discourse of sustainability and tourism is whether all tourism is sustainable. As much as some researchers link sustainable tourism to alternative tourism (Mowforth & Munt, 2016), some others like Murphy (1985) argue that even mass tourism, like Disney World, can be sustainable if well managed. This has lead to Butler's (1993, p.23) definition that sustainable tourism is

> *"tourism which is developed and maintained in an area (network, environment) in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and well-being of other activities and processes"*

In this light, there is conciliation between sustainable tourism and tourism sustainability, the latter to be understood in the holistic sense of the concept. Tourism sustainability has also been linked to development because a well-preserved environment has high potential to generate wealth (Cason & Moulden, 1991) and maintain it whilst meeting the needs of the people living in that environment. One of the major benefits of this wealth generation is job creation, yet there is evidence that

the elite, who mostly promote touristic businesses, also enjoy most of the wealth created, by highly paid jobs (Mowforth & Munt, 2016).

Despite low income and economic leakages created by tourism businesses, it is widely agreed that tourism is an engine for development (UNWTO, 2017). The debate over tourism and sustainability has evolved around the question of whether tourism can be sustainable whilst growing as a business sector. Ecotourism (mostly associated with sustainable tourism) has thus been claimed to be the solution to the dilemma (Mowforth & Munt, 2016) as it calls for all stakeholders within the industry to be accountable for the sustainability of tourism in their respective areas of work: tourism operators, tourists, local communities and governments/regulators as well as the broader international community. However, because of conflicting interests, these stakeholders are not always equally supportive of other tourism stakeholders. For example, the government of South Africa forced people out of their homes to boost its ecotourism industry (Miller, 2007). The same was observed when the Kenyan and Tanzanian Massais (indigenous tribespeople) were displaced for conservation reasons. Likewise, locals in Sri Lanka and India were moved away from their villages following the tsunami (Mowforth & Munt, 2016).

The tourism industry's issue lies with its rapid growth. It achieved a seven-year record high of 7% in 2017 to reach 1,322 million international arrivals (UNWTO, 2017), international arrivals being all individuals travelling beyong their national boundaries. While Europe remains the top touristic destinations and significantly grew by 8% (in 2017 Vs. 2016), Africa maintained its 8% growth rate; Asia-Pacific recorded 6% growth, the Middle East 5% and the Americas 3%. On the African continent, North Africa strongly recovered with 13% growth and Sub-Saharan Africa grew by 5% (UNWTO, 2017).

This is due to the fact that both governments and tourists in Less Developed Countries view international tourism as *"a means of redistributing wealth from north to south"* (UNWTO, 2017); hence the significant investments in sustainable projects in Less Developed Countries, by western governments. This has prompted the UN's growing global carbon market to commit more than USD 20 billion in capital investment for more than 3,200 low carbon energy projects in their meeting in Senegal in 2008, and is expected to further pressure *"potential polluters to reduce their harmful practices"* (Sacks et al., 2015, p.216). However, there is little evidence that these benefits have trickled down to people working in the tourism industry, particularly local communities living in the vicinity of tourist attractions.

Sustainability of tourism demonstrates a dichotomy of purpose between developed countries and Less Developed Countries (Mowforth & Munt, 2016). We would argue that while developed countries would try and achieve conservation of Less Developed Countries' natural capital for future western generations to use (measured by number of arrivals), these Less Developed Countries perceive the practice of sustaining tourism merely as an income generator, to achieve its 'development' agenda (Ibid.). The central challenge for Less Developed Countries is to properly manage this tourism growth by setting up and abiding by clear key performance measures/indicators. Yet the difficulty in measuring tourism efficiency performance is as widely acknowledged as the difficulty in defining and measuring sustainability (Schaller, 1993). This is further exacerbated when trying to measure sustainability in Less Developed Countries, specifically in the Democratic Republic of the Congo (D.R. Congo). Actually, while statistical data abounds on the tourism industry as a whole, little exists about tourism in the D.R. Congo, despite the diversity of its wealth. For various reasons, there is hardly any data in the country about sustainability as, to date, there has not been any

academic paper on sustainability of tourism and its measurement for the D.R. Congo (Maekawa et al., 2015).

3.4.   FRAMEWORKS FOR MEASURING SUSTAINABILITY

Waldron and Williams (2002) argue that it is important to adopt a framework as it provides a consistent way of bringing structure in the identification and selection requiring specifying monitoring. In agreement, Bartelmus (2002, p.116-118) perceives a framework as

> "*a consistently logical way of integrating different data arising from different indicators … and between qualitative and quantitative approach type of measurement*".

This definition of a framework indicates that there is a common understanding of a framework as a platform for structuring ideas through indicators. This brings about debates over the commensurability of different indicators. Several attempts for measuring sustainability have been tried out, and a multitude of diagrams (***Figure* 9**) designed to visually explain how sustainability could be achieved. However, most of the diagrams do not go beyond hard figures resulting from corporate agreement. We will argue that they rather assess *ex-post* sustainability instead of assessing the *ex-ante* sustainability, which measures the causes of actions leading to unsustainable behaviour, and by the same token, to unsustainability. Ex-ante measurement assesses what actually matters the most to the very people meant to take action on sustainability attainment.

Sustainability has mostly been conceptualised through diagrams with various components standing as agents of sustainability attainment. *Figure 9* indicates the multiplicity of those diagrams.
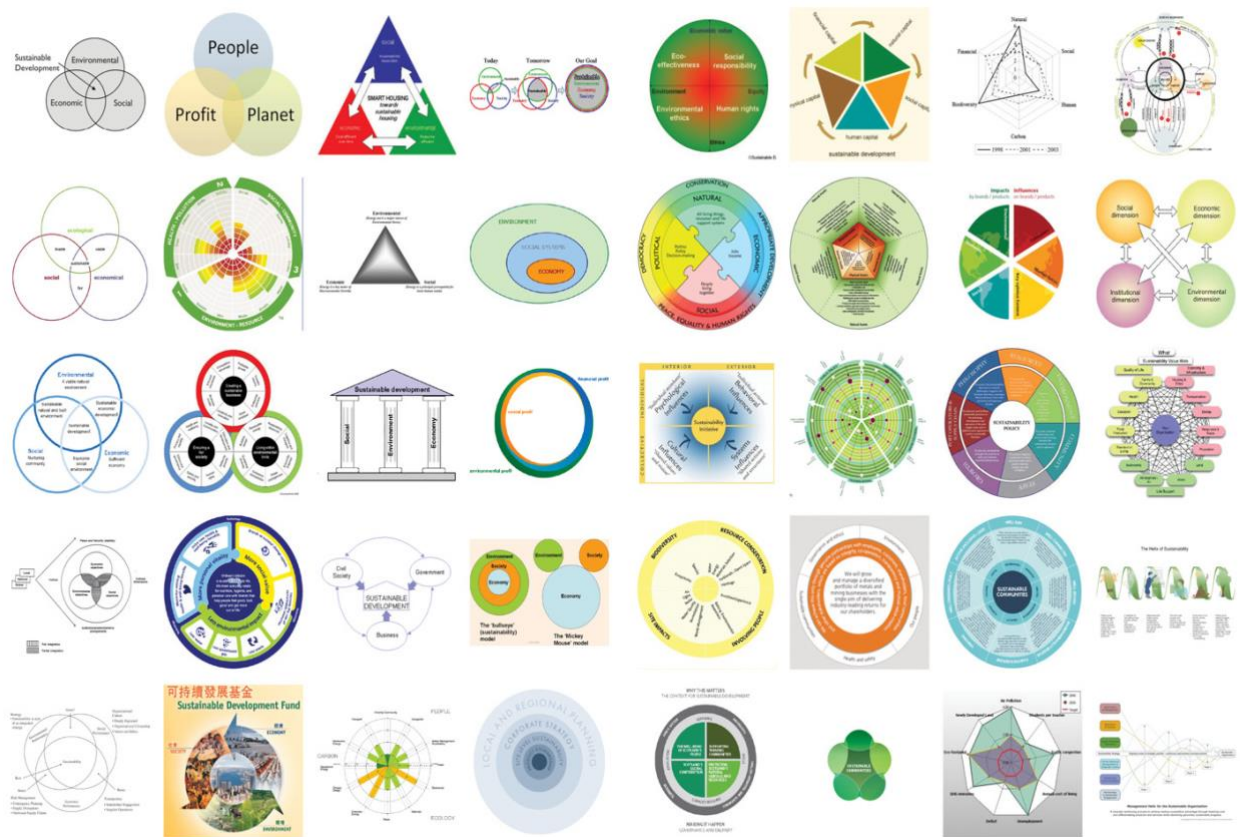
Figure 9: A Multiplicity of Sustainability Diagrams (Hsiang et al., 2012)

One most recurrent characteristic in the diagrams (*Figure 9*) is the fact that they place sustainability at the centre of the spheres, indicating that sustainability is best achieved when all involved parties work for a common goal (Hsiang at al., 2012). Some other diagrams represent sustainability as a never-ending process (e.g. DPSIR) involving several stakeholders, each playing their role in harmony within their respective network.

Two frameworks for measuring sustainability have been the most popular among practitioners with the tourism sector: The Triple Bottom Line (TBL) and the Driving force-Pressure-State-Impact and Response (DPSIR) frameworks. In recent years, and owing to its popularity with the business environment, Elkington's (2004) TBL has gained momentum, yet it fails to apply its concepts beyond the commercial sector (Das Gupta, 2008). Other tools have also been employed to measure sustainability, as

briefly discussed in this chapter. The United Nations came up with two main groupings of frameworks for measuring sustainability: the capital-based and policy-based frameworks. These led to the United Nations' DPSIR framework (and other related capital-based ones, discussed further in this chapter).

3.4.1. The Triple Bottom Line

The TBLassessment framework measures organisations' performance beyond just the financial aspect, a short-term basis against which organisations commonly judge their managers. It is said to be a "*cutting-edge risk management*" approach (Das Gupta, 2008, p.107) and it looks at both the environmental (ecological) and social impacts of these organisations on their network and environment, or the People, Planet and Profit.
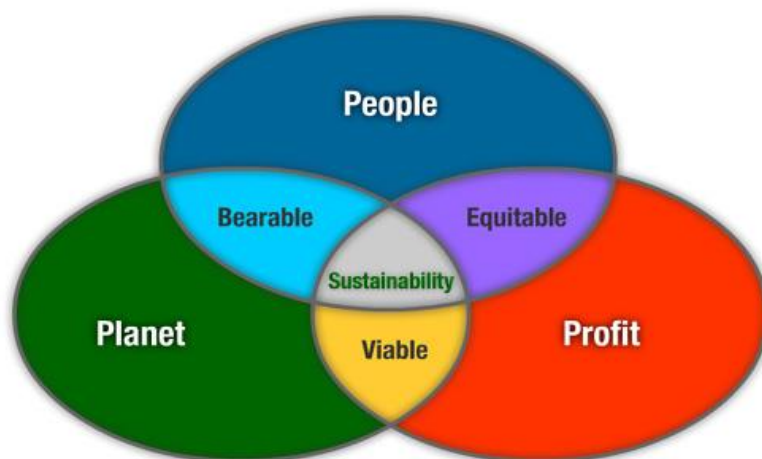
Figure 10: The TBL and Sustainability, adapted from Bell and Morse (2003, p.4).

As seen in *Figure 10*, Elkington argues that TBL encapsulates the essence of sustainability as it is at the heart of the relationships governing the trilogy People – Profit – Planet, i.e. bearability of the planet by people (and vice versa), the equitable share of the profits by businesses and connected networks, and viable profits generated by the planet, to ensure people's livelihood and profit's (business) continuity. As a measurement tool for corporate organisations, TBL refers to sustainability accounting, auditing and reporting within corporate organisations. However, Elkington

(2004) finds that these three concepts are still underused by businesses, as these tend to apply TBL concepts as mere 'black boxes', defined and approached in a rather broad and vague manner.

TBL has largely developed and has been accepted as the way forward in measuring and benchmarking business sustainability. It is widely used in the Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI), which develops and disseminates voluntary sustainability reporting guidelines. These guidelines aim at enabling organisations to report their findings/data on a comparable basis or 'triple bottom-line' reports. This sustainability reporting would thus be expected to become "*as routine and credible as financial reporting in terms of comparability, rigour and verifiability*" (Das Gupta, 2008, p.107).

The GRI's vision is to see reporting on economic, environmental and social performance become as comparable as financial reporting (Das Gupta, 2008, p.107). In 2006, nearly 1,000 organisations had used the GRI Framework as the basis for their reporting. It is a flexible framework as it is said to allow for comparability between different impacts of across different business sectors (Buchholz, 1999). As business corporations are not held accountable for moral values, but only for profitability (Crowther, 2008), social indicators, for instance, should shift from quantity objectives to perceived quality of life measures. What people want is a discussion of a company's sustainability as well as concrete goals; a discussion of how well prior goals have been achieved and how upcoming years will fare. They also need quantitative performance measures "*that would provide the opportunity to compare performance over time and again*" (Das Gupta, 2008, p.108) against other firms in order to stimulate benchmarking practices.

Benchmarking would be achieved by Elkington's Triple Bottom Line as TBL incorporates some of the ways in which business is now developing new 'win-win-win' strategies in the area of sustainable development, to benefit all key stakeholders, including the environment as a stakeholder (Elkington, 1997), yet has been criticised for falling short of socio-cultural sustainability assessment, due to lack of indicators applicable to human well-being.

Although inclusive in its approach with several supporters, TBL mainly focuses on business organisations, and has therefore not proven its usefulness beyond this. Moreover, its shortcomings stem from its lack of a clear measurement methodology and indicators towards identifying the three bottom lines. Norman & MacDonald (2003) have bitterly criticised this framework which actually lacks academic research and peer review, probably due to the fact that it is relatively new.

Their main criticism includes the fact that the framework hardly identifies any bottom line; they lack a common unit of measure for social issues. Additionally, they question the fact that environmental and social issues are often reduced to financial value. Finally, the authors argue that the framework is unable to effectively quantify a qualitative issue. Norman & MacDonald (2003) perceive TBL as just one of those marketing fads consultants use to lure large corporations into thinking they are good corporate citizens for the sole purpose of gaining business. Using the framework would make organisations look like they are actually making a more concrete, verifiable commitment to CSR and sustainability, while in reality they are making almost no effort at all. However, it is worthy of note that these mentioned authors acknowledge the fact that some companies do behave responsibly. A second major framework, the DPSIR, will be analysed in order to assess its applicability to measuring sustainability.

3.4.2. DPSIR

DPSIR stands for Driving Force, Pressure, State, Impact and Response. Both the United Nations and the European Environmental Agency EEA (2006a) have adopted this approach for setting up their Sustainability Development and Environmental Indicators. It is said to be "*a causal framework for describing the interactions between society and the environment*" (Norman & MacDonald, 2003). The UN uses Driving Force instead of Pressure, though both the former can bring about the latter. As further explained by the, the approach is cyclical as it starts off with the impact of human activity onto the environment, bringing about a change in its State. This change will have an Impact on human and the ecosystem health. The impact will therefore require a corrective Response from humans, and probably a Change in habits. This will, as a consequence, Drive future activity, and new Pressures and change in State will occur. Various combinations (i.e. mix of only some of the factors) of this framework can be derived from the main model, as seen in *Figure 11*:
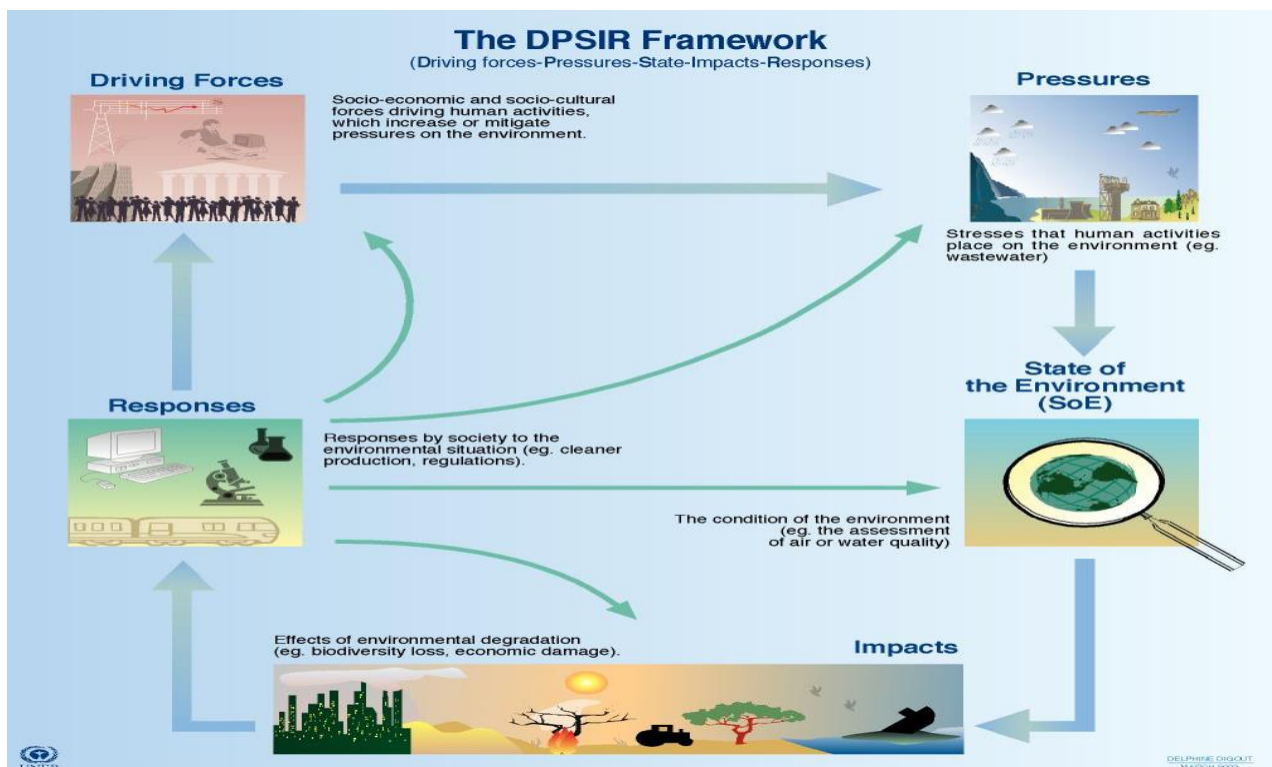
Figure 11: DPSIR Global International Water Assessment (GIWA), 2001: EEA, Copenhagen

The DPSIR stages, far from being a prescriptive *modus operandi*, provide a logical framework or process to help implement sustainability indicators. However, the model does not help in identifying those indicators. Furthermore, it does not apply to a particular aspect of the three dimensions of sustainability. Therefore, integrating the TBL within the DPSIR framework would provide a comprehensive tool for identifying and implementing sustainability indicators.

The DPSIR framework is not a straightforward model, despite its apparent linearity, as seen in *Figure 12*. However, its use is easy and convenient, making it a popular choice (Gunderson & Holding, 2001). Its merit lies in the clarity of the stages towards resolving issues and implementing a sustainability programme. However, due to its linearity, it does not incorporate the complex, chaotic and unpredictable nature of the environment (Van den Hove, 2000). Literature on sustainability perceives the environment, as capital, as much as financial, social and built environment capital. It therefore needs to be managed efficiently and effectively.
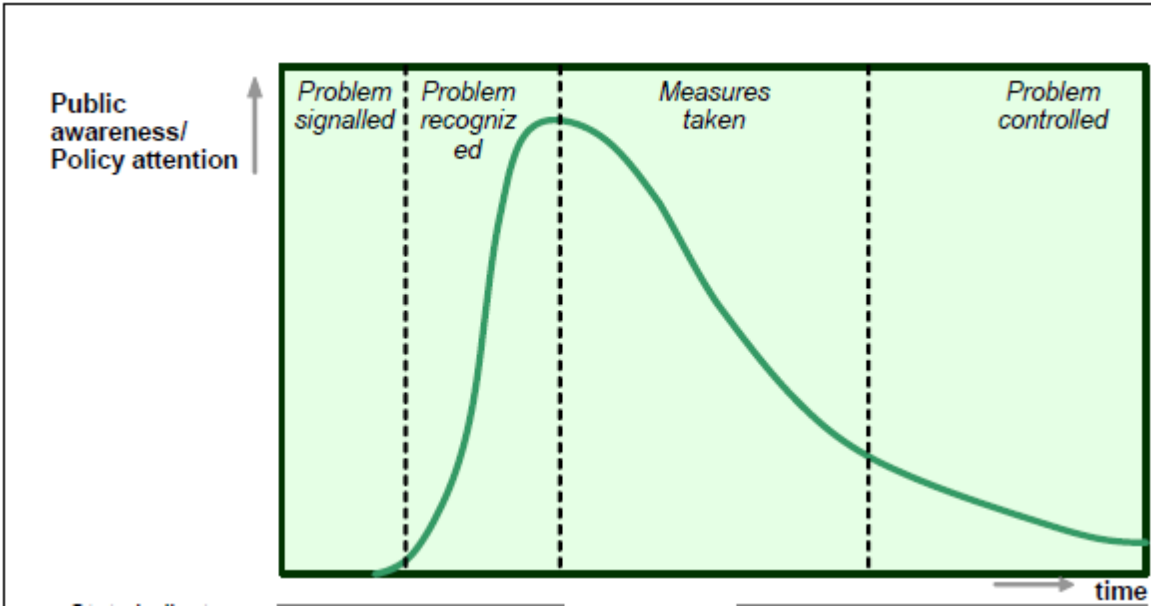
Figure 12: DPSIR Indicator Use in Policy Life Cycle **(Gabrielsen and Bosch, 2001, p.11)**

Edward et al. (2007, p.545) have reported the four main criticisms of DPSIR. The authors have reported that DPSIR is said to:

a. *Create a set of stable indicators that serve as a basis for analysis that may not take into account the changing dynamics of the system(s) in question.*

b. *Fail to capture trends except by repeating the study of the same indicators at regular intervals.*

c. *Do not specifically illustrate clear cause–effect relationships for environmental problems.*

d. *Suggest linear, unidirectional causal chains in the context of complex environmental problems that defy such description or analysis*

However, Karageorgis et al. (2006) argue that this criticism of DPSIR is erroneous as it does not take into account the very benefits of the framework which consists on identifying appropriate indicators for the measurement and evaluation of environmental problems, not the elaboration of cause and effect relationships.

The more recent criticism of DPSIR relates to the power relation between the developed and the developing world. The named authors argue that while western governments and large-scale NGOs define all the elements in the framework, it is the poorest in the developing world that have to address the impacts of a given environmental issue, and in the end, to become objects of investigation by the same ones who set the rules in the first place.

Other frameworks have echoed the two frameworks. Key ones would include: Domain – Goal – Sectoral – Issue and Causal frameworks, Capital – Domains – System Orientators framework and other measurement tools, most of which relate to the environment.

3.4.3. DOMAIN – GOAL – SECTORAL – ISSUE AND CAUSAL FRAMEWORKS

Waldron & Williams (2002, pp.180-194) identified the frameworks as Domain-based, Goal-based, Sectoral, issue-based and Causal frameworks, for which description and limitations are given below:

a. *Domain-based frameworks address a variety of tourism performance issues to include social, economic and environmental, but not necessarily linking with specific management goals. These domains are the same depicted by the Triple Bottom Line.*

b. *Goal-based frameworks identify indicators that respond directly to sustainability goals but do not address inter-relationships;*

c. *Sectoral frameworks respond to the function of a specific management group, and thus are useful in assessing management response to specific issues;*

d. *Issue-based frameworks often provide a short-term response to address the 'issue of the day'; longer term sustainability implications may be overlooked, a*

e. *Causal frameworks assess the existing conditions, stresses and responses but within-domain interactions are overlooked*

3.4.4. Capital – Domains – System Orientators Framework

Bell and Morse's (2003) framework refers to concepts such as Capital, Domains and System orientators. The Capital concept, for instance, has generated the carrying capacity concept of an ecosystem, which refers to the ability of the ecosystem to support a given size of the population with available resources and services within that ecosystem. This tool has widely been applied to assessing environmental factors.

The tool has generated several more frameworks for measuring tourism sustainability, of which: Ecological Footprint (EF) and the Environmental Impact Assessment (EIA). The main advantage of Environmental Footprint lies in the fact that it provides a snapshot of today's state of natural capital. It has contributed by estimating by how

much each consumer needs to reduce their footprint, either by cutting down on consumption, changing behaviours or by improving technology. Like the Environmental Impact Assessment (EIA), EF's weakness, however, is that it is not dynamic as a tool and has no predictive capacity (Rees & Wackernagel, 1996), and therefore appears to be falling short of its full potential (Jay et al., 2007).

Other tools for measuring sustainability include, *inter alia*, the Life Cycle Assessment (LCA), Environmental Auditing (EA), Multi-criteria Analysis (MCA), Adaptive Environmental Assessment (AEA), Regulation and Visitor Management Technique. These tools will not be further discussed in the present work, as their scope is limited to environmental sustainability.

Irrespective of the framework used, measuring tourism sustainability would be best achieved through the use of Sustainability Indicators (SIs) as they are not only useful and reliable, but they also provide easy to understand assessment and communication tools to decision- makers (OECD, 2003; UNWTO, 2004). They also help to categorise indicators in terms of cause and effect effect (Bell & Morse, 2003).

With direct application to tourism, further tools for measuring sustainability include, not exhaustively, Consultation and Participation Techniques, Codes of Conduct, Fair Trade in Tourism and Carrying Capacity Calculations, referred to earlier. The concept of the Carrying Capacity of the ecosystem asserts that there is a limit to what the environment can take (Mowforth & Munt, 2016). It refers to resource use optimisation, meaning that resource use should at no given time exceed regeneration ability (Rennings and Wigering, 1997). Any overuse would thus bring about an unbalanced carrying capacity, as nowadays evidenced by the high level of carbon dioxide emissions.

A balanced carrying capacity is worked out through identifying the Maximum Sustainability Yield (MSY), which is *"the number of biomass or individuals that can be*

removed from an ecosystem without driving the population down" (Bell & Morse, 2000,

p.35). Various categories of carrying capacities exist. Further description is provided

in *Table 10*

Ecological-environmental capacity	Physical-facility capacity
The level of tourist development of recreational activity beyond which the environment as previously experienced is degraded or compromised	The level of tourist development or recreational activity beyond which facilities are 'saturated'; or physical deterioration of the environment occurs through overuse by tourists or inadequate infrastructural network
Social-perceptual capacity	Economic carrying capacity
The level reached when local residents of an area no longer want tourists because they are destroying the environment, damaging the local culture or crowding them out of local activities	The ability to absorb tourist functions without squeezing out desirable activities. Assumes that any limit to capacity can be overcome, even if at a cost – ecological, social, cultural or even political
Psychological capacity	
This is exceeded when tourists are no longer comfortable in the destination area, for reasons that can include perceived negative attitudes of locals, crowding of the area (traffic jams) or deterioration of the physical environment.	

Table 10: Types of tourist carrying capacity: adapted from Watson and Kopacevsky (1996), in Mowforth & Munt (2016, p. 241).

The carrying capacity technique is said to have the benefit of being detailed and easy to apply (Bell & Morse, 2003), and relates closely to tourism. Three main points constitute the criticism of the Carrying Capacity (CC). They relate to: "*The validity of the concept itself, problems related to measurement of Carrying Capacity, problems*

related to application, especially in Less Developed Countries" (Bell & Morse, 2003, p.35).

From these frameworks, it appears that most of them evolve – to varying degrees - around the three aspects/domains of the Triple Bottom Line. We would argue that a more integrated framework consisting of combinations of some of these approaches would best measure the sustainability of tourism. However, irrespective of the employed method for measuring sustainability, the ultimate aim is to assess sustainability in its present practice (positivist method) and what still needs to be achieved (normative method), or the sustainability gap.

Following the definition of the sustainability gap, it is important to present Sustainability Indicators in a consistent and comparable manner. Such a clear presentation would provide a common platform for both decision- makers and practitioners to initiate discussions over sustainability, or the lack of it. It would thus trigger practitioners to explore and measure the sustainability gap and, in turn, identify metrics upon which sustainability could be built or improved. Yet this requires that the results be consistently presented and easy to interpret.

3.4.5. SUSTAINABILITY INDICATORS

Hart (2010, p. 67) defines an indicator as "*something that helps you understand where you are, which way you are going and how far you are from where you want to be*".

An indicator could also be either or both statistical or qualitative, and can also be dependent on the time and the space of its creation (Ceron & Dubois), 2010); and even of its originator. However, the main difference between an indicator and statistical data lies in the fact that the former carries some meaning while the latter does not. This meaning is thus more than just quantitative data. As an example, a temperature of

39°C not only indicates the temperature of the body of a person but also the fact that the person is ill (Rechatin, 1997). An indicator not only points to an issue but also helps set corrective actions when a problem has been identified. Moreover, it can show how well a system is working, and provide a basis for continuous improvement.

Unlike traditional indicators (individual factors), Sustainability Indicators (environmental, economic and socio-cultural factors) are interconnected. We thus concur with Besleme & Mullin (1997, p.43) when they state that indicators

"are an excellent tool for networks working toward a common goal. ... They can measure the effectiveness of policies and projects. Most of all, they can simplify, yet comprehensively track a network's progress towards its goals".

As the diagram below indicates, health, as an example, would greatly be affected by all other variables such as poverty level, job availability, or water quality; to name but a few.
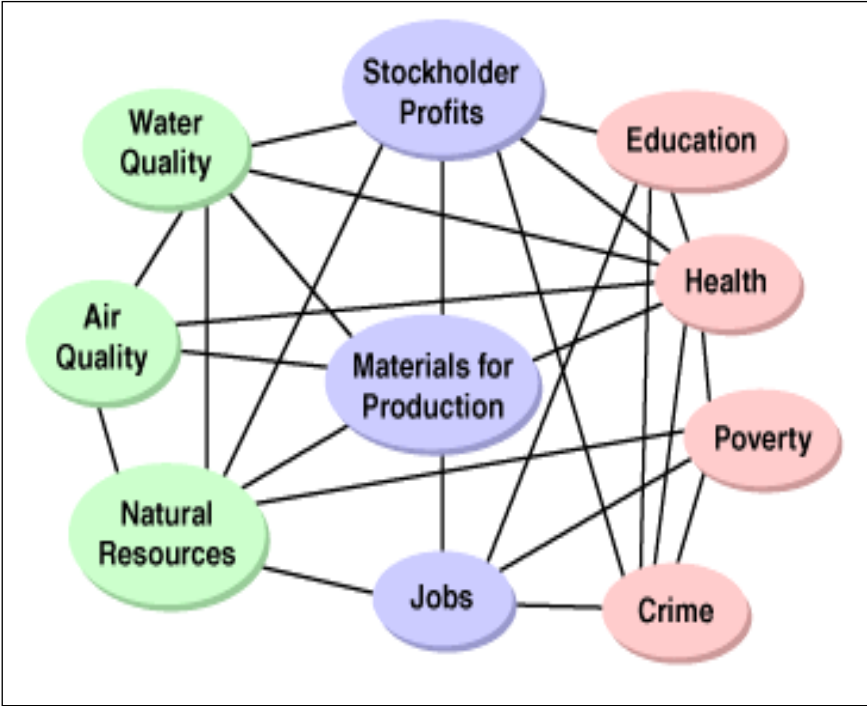
Figure 13: The Web of Interactions (Hart, 2010, p. 3)

However, it is important to note that Sustainability is a "*contested concept that is socially and politically constructed and reflects the interests and values of those who*

define them" (Mowforth & Munt, 2009, p.20), and different stakeholders perceive sustainability through their own lenses. In the same vein, Sustainability Indicators, too, would be contested, unless they are identified, and most of all, agreed upon by their ultimate users. Sustainability Indicators should enable or promote information exchange regarding the issue they address. Communication, as Smeets and Weterings (1999) argue, is the main function of sustainability as it is key to the success of any Sustainability Indicator. For an indicator to be used effectively, its content needs to be scientifically analysed and interpreted in a policy-orientated manner. Therefore, quantitative measures or indicators need prior clarification by qualitative analysis derived from discussions with the end-users of those indicators. Only then can an indicator be fit for purpose. Several issues arise from this discussion:

Firstly, why develop indicators in the first place, as there is always disagreement on the quintessence of their meaning? In the read literature, there is an interesting debate over the need for developing indicators for tourism. Miller (2001, p.361) argues that

"although it seems paradoxical to develop indicators for sustainable tourism when no satisfactory definition of the concept exists, the process of developing the indicators does help in determining the important tenets of the concept".

Secondly, Harrington et al. (1993) perceive an indicator as capable of summarising complex situations and of presenting them in an easy to understand shape. But Stoeckl et al. (2004) reject the whole idea of measurability, arguing that indicators cannot capture the entire reality but only point to it, somehow. But it has widely been argued that beyond these debates, SIs have a big potential to inform decision-makers in order for them to plan policy around priority issues and define required action through communication with all involved stakeholders (De Kruijf & Van Vuuren, 1998; Moldan et al., 1997; Tyteca, 1996).

Thirdly, it is reported that most efforts at sustainable practices are recent, small and localised (Ambrosi & Capoor, 2009). Yet, sustainability demands a more systemic and inclusive approach to address the Triple Bottom Line: Profits (economy), People (culture and wellbeing) as well as the Planet (environment), and to appeal to all key stakeholders. Therefore, in order to identify the right indicators at national level it would be required of a researcher to seek and obtain consensus from the most representative groups within the target entity. Unfortunately, in practice, the situation is not as easy as it might seem, and due to conflicting interests, not all stakeholders participate into the identification and implementation of Sustainability Indicators. Some of those stakeholders feel left aside in the decision-making process, and do not, therefore, actively take part in the sustainability efforts being implemented. These populations would most likely be poor and at the low enf of the social ladder.

Importantly, as little agreement exists about the choice of the Sustainability Indicators to include in the measurement, stakeholders should strive and find agreement before embarking on any project, as the final outcome is as important as the the decision over what SIs to (Bell & Morse, 2003). A positive outcome would require stakeholder collaboration, as it needs to shape action by turning goodwill and policy into practice. In this respect, White et al. (2006) argue that public participation and stakeholder consultation would help identify the right indicators. Furthermore, the authors perceive indicators as tools that

> *"should measure what those concerned are interested in and must provide meaningful information, enabling action to be taken" (White et al., 2006, p.7).*

Finally, only after action has been taken, as a result of well-agreed indicators, then semantic discussions around terminology would also cease. We agree with Stoeckl et al. (2004) when they argue that personal interests sometimes create a bias between

what people want to measure and what they can effectively measure. This explains the paradox stating that

"often we value what we can measure, rather than measuring what we value as SIs are just 'a means to an end and are not ends in themselves'" (Stoeckl et al., 2004, p.67).

Sustainability Indicators encapsulate the level of transparency and accountability that an entity applies towards meeting its stakeholders' expectations. SIs serve as an early warning system for decision-makers to initiate the necessary policy changes. In addition, policy- makers would have to measure progress by consistently updating these measures to the ever-evolving context in any sector. We agree with Stoeckl et al. (2004) when they argue that personal interests sometimes create a bias between what people want to measure and what they can effectively measure.

However, while identifying SIs, the researcher should always be wary of biases that can be motivated by some stakeholders' strong partisan views. The researcher should always be prepared to assess or acknowledge the bias Impact on the whole SI generation process.

The need to generate Sustainability Indicators as standardised measurements was openly expressed both in the Bellagio Principles and Agenda 21. Agenda 21 made an explicit reference of the importance of monitoring progress of those Indicators (Strirling, 1999). To achieve this monitoring, consensus needs to be met about the accuracy of the data. However, quantitative data is usually used by decision-makers in the normative context (political decisions). While decisions cannot be based on facts alone, some degree of value judgement needs to be built in. To circumvent this ambiguity, and in order for Sis to bring about change within a system, various authors (Ambosi & Capoor, 2009; Ruitenbeek, 1991) have suggested criteria (see next section) which indicators must fulfil.

It appears that designing Sustainability Indicators can be a quite complex endeavour as they can be misleading or can be manipulated and 'cherry-picked' to show what is desired by some prominent stakeholders, such as decision and policy makers. Indicators can also be a dangerous tool (White et al., 2006) as stakeholders may be carried away in their attempt to make indicators simple, comparable and interpretable. This may thus lead to over-aggregation, over-simplification or complex relationships, and therefore result in misleading or even false representation (Bell & Morse, 2003; DSCWG, 2001; Kelly & Baker, 2002). Irrespective of the types of systems being monitored by indicators, an effective SI should fulfill the following characteristics. Hart (2010, p.3) argues that a Sustainability Indicator should be:

1. *Relevant: an indicator must inform about the issue being investigated; e.g. the fuel gauge in a car tells the driver whether to refuel or not.*
2. *Easy to understand: an indicator must not be exclusive to experts only. Any car driver, for instance, should be able to read a fuel gauge.*
3. *Reliable: information provided by an indicator should be trusted; it actually must measure what it is meant to measure; it must give a true picture of what is being measured, even in an imprecise manner.*
4. *Data-based: the information needs to be readily available or gathered while there is still time to act.*

Whilst Reed & Doughill (2003) provide a set of criteria *(Table 11),* which indicators should satisfy, Hart (2010) presents a checklist **(*Table 12*)** for selecting Sustainability Indictor. It lays out the process criteria for developing Sustinabilty Indicators. Worth of mention is that Reed and Doughill's (2003) list of characteristics of good indicator was found to be *'one of the most complete examples'* (Ceron & Dubois, 2010p. 57) out of all those in the literature on Sustainability Indicators. Indicators should thus be:

a. *Measurable – necessary data available/can be collected*
b. *Sensitive - to spatial and temporal change*
c. *Economically viable - cost effective*

d.   *Acceptable and accessible*
e.   *Useable and easily interpreted*
f.   *Reliable and robust*
g.   *Verifiable and replicable*
h.   *Participative process - meets the needs and interest of target audience*
i.   *Specific - clearly relating to outcomes*
j.   *Timely - showing trends over time*
k.   *Transparent in methodology and selection*
l.   *Relevant - to local, regional, national policy and to local concerns*
m. *Scientifically well-founded*

Table 11: Characteristics of a 'good' indicator (Reed & Doughill, 2003, p.57)

The checklist in **Table 11** does not provide a value judgement about the SI, but only informs whether it fulfils the overall criteria for effectiveness (Ceron & Dubois, 2010). Additionally, it does not indicate the number of SIs to include. Literature on SIs suggests that a 'manageable number' of indicators should be used. However, it does not clarify what manageability implies, nor does it say by whom the number of SIs would be decided. Twenty, as a number (initially between 15 and 20) of indicators has been put forward on no scientific basis. Later on, 21 was advised as a number, solely because it would echo Agenda 21 (Crilly, et al., 1999). This is an indication that the process of identifying sustainability indicators can be mixed with a high rate of subjectivity, especially when it aims at fulfilling some purposeful political agenda. However, our approach to identifying SIs will be in line with Hart's (2010), Ceron and Dubois's (2010) and Bell and Morse's (2003) approach: stakeholder driven, inclusive, but not exclusively, of policy-makers. To minimise subjectivity over the amount of indicators to use and their quality, a number of questions should be put to stakeholders before relevant indicators can be identified. *Table 12* provides an example of questions related to the sustainability indicator checklist. It consists of the following 14 questions:

1	Does the indicator address the carrying capacity of the natural resources - renewable and non-renewable, local and non-local - that the network relies on?
2	Does the indicator address the carrying capacity of the ecosystem services upon which the network relies, whether local, global, or from distant sources?
3	Does the indicator address the carrying capacity of aesthetic qualities - the beauty and life-affirming qualities of nature - that are important to the network?
4	Does the indicator address the carrying capacity of the network's human capital - the skills, abilities, health and education of people in the network?
5	Does the indicator address the carrying capacity of a network's social capital - the connections between people in a network: the relationships of friends, families, neighbourhoods, social groups, businesses, governments and their ability to cooperate, work together and interact in positive, meaningful ways?
6	Does the indicator address the carrying capacity of a network's built capital - the human-made materials (buildings, parks, playgrounds, infrastructure, and information) that are needed for quality of life and the network's ability to maintain and enhance those materials with existing resources?
7	Does the indicator provide a long-term view of the network?
8	Does the indicator address the issue of economic, social or biological diversity in the network?
9	Does the question address the issue of equity or fairness - either between current network residents (intra-generational equity) or between current and future residents (inter-generational equity)?
10	Is the indicator understandable to and useable by its intended audience?
11	Does the indicator measure a link between economy and environment?
12	Does the indicator measure a link between environment and society?
13	Does the indicator measure a link between society and economy?
14	Does the indicator measure sustainability that is at the expense of another network or at the expense of global sustainability?

Table 12: Checklist for selecting Indicators of Sustainability (Hart, 2010, p.6)

It is worth mentioning that an individual SI can fulfil one or several characteristics from the checklist (*Table 12*). Also, woth of mention is the fact that all authors: Hart (2010), Ceron and Dubois (2010) and Bell and Morse (2003) are in agreement that Sustainability Indicators must not be dictated by policy-makers, but rather be identified bottom-up, by the very stakeholders concerned with the issues under discussion.

3.4.5.1. Process of Developing Sustainability Indicators

To properly define Sustainability Indicators, participation and consultation with the very beneficiaries of the project are of paramount importance. Bell and Morse (2003) propose the SSA approach, or Systemic Sustainability Analysis, as a way of developing SIs. In order for SIs not to become quantification-based tools, the authors (Ibid. p.31) suggest a five-step approach to identifying them:

1. *Identify the stakeholders with multiple unique views and the system in view*

2. *Identify the main SIs*

3. *Identify the band of equilibrium – the agreed reference condition. It is about the management of people's expectations (positive or negative outcomes or limits)*

4. *Develop the AMOEBA*

5. *Extend the AMOEBA over time*

AMOEBA is a Dutch acronym meaning general method for ecosystem description and assessment (Bell and Morse (2003). The framework is further discussed on Page 122. As said earlier, SI identification is an inclusive and participatory process that demands that stakeholders reach a consensus on the key principles and methods, as well as the SI objectives (Mitchell et al., 1995). Although participation in developing SIs has rarely been put into practice (Mitchell & McDonald, 1995), participation has held the centre stage in the development literature since the 1970s (Chambers, 1992; 1997; Chambers et al., 1994) Unfortunately, it is argued that the practice of sustainability has always had a top-down approach dictated by the West (Chambers et al., 1989; Chambers, 1992; Scoones & Thompton, 1994). This approach has allowed little network involvement in the process of defining and identifying relevant SIs for those stakeholders. Bell and Morse (2003, p.29) suggest three questions that need addressing before relevant SIs are developed:

a. *What indicators do we use to measure sustainability?*

b. *How do we measure them?*

c. *How do we use them?*

It is interesting to see that the named authors relate, from the outset, the identification of SIs with their use. Unless used for the actual practice of sustainability, any list of SIs will remain a mere academic or scientific exercise.

Relating to Less Developed Countries, a sustainability measurement framework is going to originate from the way stakeholders perceive their world with regards to the challenges they face today, and in the future. Hence these three test questions Bell & Morse (2003, p.148) suggested in order for any indicator to qualify:

a. *Is the indicator implicit or explicit? This concept refers to whether the indicator is generated top-down or bottom-up through participation.*

b. *Is the indicator inclusive or exclusive? This concept refers to who will implement the indicator, either the actual beneficiaries or the specialist/consultant.*

c. *Is the indicator measured qualitatively or quantitatively? A clear reporting format needs clarifying from the very beginning, for the sake of transparency and of further project monitoring.*

To ensure the SIs do not fall into the reductionism trap, some qualitative inputs need to sustain their development. This would best be achieved by referring to the whole community's vision. Each community seeks to assert its own future needs, wants, decisions, which will ultimately define its identity, be it at the local, regional, national or international level.

To this end, Waldron and Williams (2002, p.191) propose a process for developing Sustainability Indicators. Starting with the identification of the stakeholder-defined goals, this model identifies potential indicators. It then assesses their performance and reviews the indicators, as detailed in *Table 13*:

Developing Indicators of Sustainability: Process Criteria	
1. Identification of community sustainability goals	Wide consultation and community participation (e.g. surveys, focus groups, meetings) to establish broad-based stakeholder defined sustainability goals
2. Scoping	Determine target audience; Consider spatial and temporal bounds; Include institutional partners; Establish relevant number of indicators
3. Choose indicator framework	Select a framework that maximises ability of indicators to assess progress towards sustainability.
4. Define selection criteria	Indicator selection criteria should be based on community values and sustainability goals determined through stakeholder involvement.
5. Identify potential indicators	Use existing indicators lists as a guide and stakeholder input to refine listings to what is potentially viable.
6. Select final indicators	Apply framework and selection criteria to select final set.
7. Collect necessary information	Collect data on each indicator- this may involve both quantitative and qualitative techniques.
8. Analyse indicator results	Compare indicator values and trends to specific target levels based on community sustainability goals.
9. Report indicator results	Report indicators to target audience e.g. through the use of amoeba diagram and solicit feedback
10. Assess indicator performance	Identify progress towards established sustainability goals.
11. Review indicators	Over time indicators may need to be adapted to any system change, abandoned altogether and new ones adopted.

Table 13: A process criteria for developing indicators, adapted from Waldron and Williams, (2002, p.191).

3.4.5.2.   Types of Sustainability Indicators

Sustainability Indicators are grouped in various ways that meet the project objectives. Bell and Morse (2003) suggest two simplest ways of grouping SIs as: State SIs and Control SIs. While the former is the actual situation of a variable, the latter (also called Pressure, Process or Driving force) then measures the process, which will, in turn, have an impact on the state Sustainability Indicator. For the sake of clarity, they have been grouped into two main categories: generic and specific. It is worth looking in more detail at the type of SIs that

would relate more closely to the three 'bottom lines' of tourism sustainability, i.e. environmental, economic and socio-cultural.

3.4.5.2.1. Environmental Sustainability Indicators

Sustainability has most often been perceived through the ecological (environmental) and economic perspectives (Jalow, 2008). As much as the economic capital needs to be sustained or maintained to generate more wealth, nature's biodiversity needs to be maintained in order to produce and create more wealth. All the ecosystems, including the flora and the fauna need to be preserved by mankind through rational use. With regards to tourism, there is a limit to what the environment can take. This idea refers to the concept of carrying capacity of the ecosystem (Hawken, 1993). Maldonaldo et al. (1992) argue that the impact of the environment is assessed by calculating the carrying capacities. These authors identified three main types of carrying capacities and contended that all help assess the maximum number of visits a touristic site can take in a day or year, the main one being the physical carrying capacity measure.

The physical carrying capacity (PCC) refers to the material space an individual can occupy at any given moment. It is worked out as: length (of track) * visitors/metre (=1 => each visitor is allowed only 1 metre of the track at any given moment) * daily duration (hrs/day). Other carrying capacities include: Real carrying capacity (RCC), Effective or permissible carrying capacity (ECC). In addition, (Mowforth and Munt, 2016) proposed to incorporate the social carrying capacity that assesses the level of annoyance that the tourist activity causes.

Although carrying capacity formulae are useful when no alternative is provided, they can hide several assumptions due to each stakeholder's agenda. As Kopachevski and Watson (1996) argue, carrying capacity measurement heavily depends on the context in which it is made. Like SIs, Carrying Capacities are not exempt from human subjectivity. A different set of carrying capacity has been proposed by Kopachevski & Watson (1996). It is laid out in five categories: ecological-environmental, physical-facility, social-perceptual, economic and

psychological capacities. Their choice is based on the premise that values "*influence all phases and elements of social research …play a critical role in the choice and application of scienc*e" (Kopachevski & Watson, 1996, p.177). While working out their carrying capacities, tourist operators and conservationists would make assumptions for missing variables in order to put their point across; which would be either to boost or decrease the level of carrying capacity or tourist visits. However, setting limits in order to restrict access to a touristic site will always be subject to the initial objectives set, and henceforth to the values of those very people who defined the thresholds of those Limits of Acceptable Change (LACs). As much as carrying capacities, LACs too have their own limitations, as it is hard to agree on what is acceptable or not, as with standards of quality which are dependent upon time, space, interest group and value.

Subjective as it can be, measuring performance indicators will always be essential in tourism for stakeholders to ascertain the distance towards sustainability. Yet, it is still unclear whether limiting tourist numbers (as calculated by the means of carrying capacities and Limits of Acceptable Change tools) would provide a sufficient incentive for the development of LDCs. These measures advocate a rather eclectic form of tourism that could keep away large incomes brought in by tourist numbers. A new class of "ecotourists or ego-tourists" (Mowforth & Munt, 2016, p.151) seeking exclusiveness like with the mountain gorillas.

While generic ecological indicators refer to plain statistics, Sustainability Indicators provide a more workable solution to addressing the issue concerned (as seen in

Traditional Indicators	Sustainability Indicators	Emphasis of Sustainability Indicators
Ambient levels of pollution in air and water	Use and generation of toxic materials (both in production and by end user) Vehicle miles travelled	Measuring activities causing pollution
Tons of solid waste generated	Per cent of products produced which are durable, repairable, or readily recyclable or compostable	Conservative and cyclical use of materials
Cost of fuel	Total energy used from all sources Ratio of renewable energy used at renewable rate compared to non-renewable energy	Use of resources at sustainable rate

Table 14, **Table 15** and **Table 16**). The named tables compare traditional Indicators with Sustainability Indicators, displaying the insight to gain from an SI.

Traditional Indicators	Sustainability Indicators	Emphasis of Sustainability Indicators
Ambient levels of pollution in air and water	Use and generation of toxic materials (both in production and by end user) Vehicle miles travelled	Measuring activities causing pollution
Tons of solid waste generated	Per cent of products produced which are durable, repairable, or readily recyclable or compostable	Conservative and cyclical use of materials
Cost of fuel	Total energy used from all sources Ratio of renewable energy used at renewable rate compared to non-renewable energy	Use of resources at sustainable rate

Table 14: Environmental Sustainability Indicators, an example, adapted from Hart, 2010.

Traditional Indicators	Sustainability Indicators	Emphasis of Sustainability Indicators
Ambient levels of pollution in air and water	Use and generation of toxic materials (both in production and by end user) Vehicle miles travelled	Measuring activities causing pollution
Tons of solid waste generated	Per cent of products produced which are durable, repairable, or readily recyclable or compostable	Conservative and cyclical use of materials
Cost of fuel	Total energy used from all sources Ratio of renewable energy used at renewable rate compared to non-renewable energy	Use of resources at sustainable rate

Table 14 shows that standard indicators such as 'ambient levels of pollution in air and water' do not capture the essence of sustainability. They are not specific enough to explain whether a network's environmental ecosystems are sustainable. They provide little indication as to what specific measures or activities individuals or networks should put in place for reducing the pollution levels. Sustainable indicators, on the contrary, such as 'vehicle miles travelled',

can help to measure the actual activities causing pollution, and henceforth monitor the progress through time in order to get to reduce the pollution levels. The second group of Sustainability Indicators is economic factors.

3.4.5.2.2.   Economic Sustainability Indicators

Before discussing the economic Sustainability Indicators, it is worthwhile looking at the origins of capitalism as the root cause of the whole sustainability discourse. The following section, on development and capitalism, aims to put the economic sustainability debate into perspective.

The post-Fordist model sees the growth of more flexible modes of production and organisation triggered by *"rapidly changing consumer tastes and the emergence of niche and segmented markets"* (Mowforth & Munt, 2009, p.23). In light of this, the named authors argue that mass tourism could be related to the Fordism consumption model whilst niche tourism and other forms of 'new tourism' fit well within post-Fordism, as a way to sustain the economies of the First World. The economic sustainability in tourism implies that local communities reap the benefits of tourists' presence in a destination. It is the sum of the gains made locally, as a result of all the inconvenience caused by tourists. We concur with Mowforth and Munt (2016) that the main issue with sustainable tourism is more about the share of those gains between locals and the tourism operators, as these tourism operators tend to dictate all the terms, leaving little room for local communities to sustain the environment and their cultures. This has resulted from the establishment of traditional indicators for assessing community development as standard. This measurement does not take into account the actual needs of a given local community.

Economic Sustainability Indicators differ from traditional economic indicators. **Table 15** compares traditional economic indicators with sustainable community indicators, showing the emphasis of Sustainability Indicators.

Traditional Indicators	Sustainability Indicators	Emphasis of SIs
Median income per capita income relative to the national average	Number of hours of paid employment at the average wage required to support basic needs	What wage can buy
Unemployment rate	Diversity and vitality of local job base	Defines basic needs in terms of sustainable consumption
Number of companies	Number and variability in size of companies	Resilience of the job market
Number of jobs	Number and variability of industry types	Ability of the job market to be flexible in times of economic change
Size of the economy as measured by GNP and GDP	Variability of skill levels required for jobs	Local financial resilience
	Wages paid in the local economy that are spent in the local economy	
	Money spent in the local economy which pays for local labour and local natural resources	
	Percent of local economy based on renewable local resources	

Table 15: Economic Sustainability Indicators: an example (adapted from Hart, 2010)

As shown in **Table 15**, standard indicators such as GDP and *per capita* income, or unemployment rate, are not enough to explain whether a community can be self-reliant in the long term (Mowforth & Munt, 2016). In order to better frame economic sustainability, the next section will discuss this capitalistic aspect of it, i.e. economic growth.

Economic sustainability draws its meaning from the environmental sustainability, which in turn is rooted into the development theory. Development theories are derived from "*the Eurocentric thinking and analysis of western capitalist history. They are a product of Enlightenment and unequivocal 'modern project' like tourism itself*" (Munt, 1992, p.213).

Politics behind development refer to counteracting communism, serving as link between poverty, terrorism and First World security. Highlighted below are the United Nations' Principles of Sustainable Development from the World Commission on Environment and Development, which aimed at eradicating poverty from the face of the planet, as presented by McKercher (2003, p.3):

a. *Inter-generational equity - meaning that the range of activities and the scope of ecological diversity available to future generations is at least as broad as that felt by current ones*

b. *Intra-generational equity, social justice and poverty alleviation - improving the well-being of all residents in a network, and not just benefiting the powerful or the rich*

c. *Public participation - which means that we all have a role to play and that networks need to collectively make decisions rather than having them imposed by external forces*

d. *Environmental protection as an integral component of economic development - economic development without environmental conservation is no longer acceptable*

e. *Dealing cautiously with risk and uncertainty - in situations where environmental impacts of activities are not known, the preferred option is to proceed cautiously or not at all, until the likely impacts can be determined*

f. *Use of renewable resources at a rate equal to or less than the natural rate of regeneration*

g. *Accountability - about setting clear standards, ensuring monitoring and enforcement*

Beyond achieving an organisation's survival, sustainability can help improve a company's bottom line by aligning its vision with its core competencies. In so doing, it helps find a level playing field for strategic thinking and operational activities. As a force for economic growth, sustainability helps to generate and maintain resources and profitability for the long term. However, these profits, as well as their mode of production, are all dictated by governments,

businesses, academics, environmentalists and new socio-environmental organisations in the First World. The Third World has, therefore, to align to the First World's prescriptions. This process was initiated in various forums by both the GATT (The General Agreement on Tariffs and Trade) as well as the GATS (the General Agreement on Trade in Services) and implemented by the WTO (World Trade Organisation). Based on wealth generation, this process has contributed to the established idea across the Western World that capitalism should be the only viable alternative to development. The production model is thus forecast to become the only global economic order, given the right conditions (WCED, 1987).

Yet, there seems to be agreement about the fact that the Third World (or Developing World or again Less Income Countries) has always played the follower's role, mimicking the Western World by trying to 'copy-paste' its advances in order to catch up on development, as Hettne (1995, p.25) argues:

> *"Once the first industrial nation had been born it provided the model to imitate ... Not to imitate would mean permanent dependence ... by the decolonized world. In order to develop, it was deemed necessary for the 'new nations' to imitate the 'modernisation imperative"* which appears to be more of a western mode.

Then a new hegemonic order was established between the 'North' and the 'South'. The North thus became the standard to be followed by the South in order for the the South to upgrade from under-developed to developing. Ironically, the term 'developing' infers that these countries would always be pursuing a dream once made by the Western world. As Rist (2002) argues, the concept of development, engineered by the West, needs to be scrutinised and challenged as it was constructed within a particular history and culture. It therefore cannot be replicated elsewhere as actually, the capitalist one size does not fit all. Capitalism has evolved in various stages, starting from Fordism, post-Fordism or de-industrialisation, then the post-modernist era. De-industrialisation occurred due to falling

profit margins in the industrialised countries. The deficits in the West were then exacerbated by the growth of the little tigers of Asia (Hong Kong, Singapore, South Korea and Taiwan). Tourism, alongside other service businesses, was then established as a new product, to counteract the Asian rapid growth. Tourism development and consumption, a product of the First World countries, rapidly stretched over to Third World countries to meet the needs of a more sophisticated society in the post-modern era.

The post-modern era, as Harvey (1989) argues, is the new form of globalisation, or time-space compression, which seeks to minimise time turnover in order to make time and capital run faster for higher profits. This era is the final stage of three, beginning with the Fordist and post- Fordist models, with its related products as tourism. Although economic, some Sustainability Indicators such as 'salaries paid locally and spent locally to boost local economy' can help to assess the viability of that community in the long term, as they would reduce rural migration and henceforth further contribute to strengthening the socio-cultural fabric of the community.

3.4.5.2.3. Socio-cultural Sustainability Indicators

Globalisation, led by the post-modernist mode of production and consumption, has accelerated cultural changes in Less Developed Countries. These changes are the consequence of highly flexible and rapidly changing lifestyles that Harvey (1989, p.vii), refers to as 'flexible accumulation' and 'time-space compression'.

Although mainly economic, Harvey's theories of flexible accumulation and time-space compression have led to cultural transformations in the Third World. In turn, these have paved the way for the development of tourism, especially of the 'new tourism' in the Third World. They have triggered the emergence of post-modernist cultural forms, which broadly are the result of the globalised economic development theory in its various post-modernist manifestations. The most stereotypical shift in culture is epitomised by "*Big Macs, Coke and*

the web" (Mowforth & Munt, 2009), making Third World countries unable to sustain their own cultures and lifestyles, values and beliefs.

Only a limited amount of literature about the impacts of tourism on Social sustainability exists. Works by Smith and Brent (1989), Smith (2001), as well as Plog (1972) and Survival International (1995), have voiced issues of the impact of tourism on local communities. To this end, and in order to further contribute to literature, this research is warranted. Social sustainability could thus be seen as

> "*the ability of a community... to absorb inputs, such as extra people... and to continue functioning either without the creation of social disharmony as a result of these inputs or by adapting its functions and relationships so that the disharmony created can be alleviated or mitigated*" (Mowforth & Munt, 2009, p.26).

Henceforth, tourism in Less Developed Countries has established itself as a one directional activity fuelled by western post-modernist ways, whose goal has been to meet the western hedonistic quest for remote places. Davis (2002) refers to it as the gentrification of wild places that causes a theft of tradition and an uprooting of local communities. The author develops a bitter view of the role tourism plays in local communities and warns of a risk of seeing

> "*all the world's ruggedly beautiful landscapes ... destined to be packaged as 'heritage', wrenched from unemployed locals and sold off to scenery-loving burghers fleeing the cities*" (Mowforth & Munt, 2009, p.26).

However, the evil is not brought in by foreigners only, as just argued. Even within local communities divisions start to surface when unequal share of the produced wealth excludes those who do not take part, or are not allowed to take part, in the tourism industry. Therefore, measuring social carrying capacity can help policy-makers minimise those inequalities (Davis, 2002). Additionally, by using social carrying capacity measures, these policy-makers would draw a line between necessary changes in societal cultures or lifestyles due to the

dynamic nature of these and the possible culture shift, or transculturation (Pratt, 2003). Cultural sustainability is of paramount importance as only coherent and viable societies can sustain both the environment and its production. **Table 16** is a sample of comparative generic social and sustainability indicators.

Traditional Indicators	Sustainability Indicators	Emphasis of Sustainability Indicators
SATs and other standardised school test scores	Number of students trained for jobs that are available in the local economy Number of students who go to college and come back to the community	Matching job skills and training to needs of the local economy
Number of registered voters	Number of voters who vote in elections Number of voters who attend town meetings	Participation in democratic process Ability to participate in the democratic process

Table 16: Socio-cultural Sustainability Indicators, an example. (Adapted from Hart, 2010).

As seen in **Table 16**, Sustainability Indicators transcend the mere numerical performance usually focused on by projects. Unlike the traditional indicators, Socio-cultural Sustainability Indicators encapsulate the value of those numerical performance indicators and thus underpin the quality of the role local communities play for the survival of any project. They emphasise the need for what the project brings to the community in a more durable manner, as only this can be capitalised upon for future community development. As an example, an indicator like '*students returning from higher education studies to work in their local communities*' is highly indicative of the capacity of that community to keep developing new skills and become competitive in the long run at both regional and international levels.

However, indicators can be stereotypical as they are more related to the western societies' needs and issues than to those of local communities in Less Developed Countries. Hence,

identifying locally defined Sustainability Indicators can effectively contribute towards sustaining the economic growth, the environmental development and the socio-cultural values of Less Developed Countries, in general, and of the D.R. Congo tourism industry in particular.

3.4.6. CRITIQUE OF SUSTAINABILITY INDICATORS

Sustainability Indicators (SIs) are not a perfect tool; they have been subject to criticism, arguing they can easily lead to reductionism or oversimplification of the myriads of complex interactions between elements in every system. This viewpoint stands in opposition to the holistic approach, which asserts that parts cannot fully convey the meaning of the whole. However, Capra (1996) and MacRae et al. (1989) support the idea of aggregating those interactions. The relevance of the debate between reductionism and wholism would be meaningless if we consider that the object of science is the study of *"either very small bits of reality or simplified surrogates for complex whole systems"* (Slobodkin, 1994, p.75). Therefore, both sides of the same coin need analysing for a thorough understanding of systems. Finally, we concur with Koestler (1964, p.290) when he asserts that

> *"... 'partness' and 'wholeness' recommend themselves as a serviceable pair of complimentary concepts because they are derived from the ubiquitously hierarchic organisation of all living matter".*

The present research acknowledges the self-regeneration aspect of natural capital (exhaustible and reproducible capital). We therefore concur with Jallow (1994) that sustainability excludes the idea of the decline of exhaustible capital. This form of capital is made up of all non-renewable resources, which cannot be replenished after depletion. Some of them are fossil fuels and minerals.

Whilst in agreement with the strong sustainability (no substitutability allowed), this research will focus on the very essence of sustainability, which is grounded in the holistic view of all aspects of life and its sustaining mechanisms.

From the read literature, it appears that Sustainability is perceived more as a descriptor of tourism and development than as a survival mechanism by means of which each system and sector, tourism included, should maintain itself through time, and thrive,

3.5. PRESENTING RESULTS

We would therefore concur with Jallow (2008) that, unless these sustainability indicators are defined or agreed upon by all stakeholders concerned, they would but be measuring the immeasurable. In order to present the measurement of sustainability through indicators, Bell & Morse (2003) suggest the use of AMOEBA (a Dutch acronym meaning general method for ecosystem description and assessment). The authors suggest that a perfect kite shape (see *Figure 14*) indicates that the activity is more balanced and henceforth more sustainable. In the same vein, the more the AMOEBA points to one particular factor, the more unsustainable the activity is, as seen in *Figure 14*.

In the same vein, (White et al., 2010, p.18) suggest that, for communication purposes, indicators must be presented in such a way as to answer two key questions, i.e. who will use them and how. A sustainability indicator should thus be presented to:

1. *Explain the indicator (including its methodology, underlying assumptions and what the data might mean). This would mean that indicators would be funneled down from a multitude to a handful of them, thus reducing complexity and therefore providing a workable sustainability indicator.*

2. *Highlight how it compares to the past (baseline) and to the goal (future visions and benchmarks). Some historical data would thus be required for this to be achieved. However, lack of prior data would serve as an opportunity for creating this baseline.*

3. *Note linkages, i.e. between economic, environmental and social factors. This implies understanding the direct and indirect contributors to the change in the indicator and the flow-on impacts the indicator trend may have*

4. *Graphically allow visual (therefore intuitive) interpretation*

The AMOEBA requires two main methods of presentation: visual integration on the one hand, and numerical integration on the other hand. Whilst the visual integration is represented by the 'AMOEBA' diagram in *Figure* 14, numerical integration provides the required numerical inputs for the Amoeba.

A longitudinal representation of the AMOEBA illustrates progress made towards sustainability. The actual progress is shown against one of the factors, each represented by one axis, as seen on the scenarios mapped in **Figure 14**.
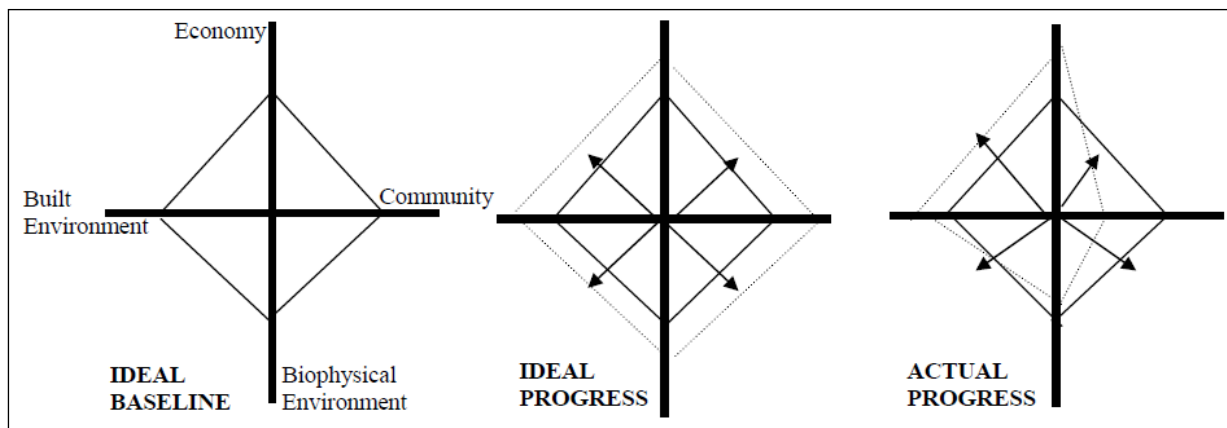
Figure 14: Example of AMOEBA (DSCWG, 2001; Bell & Morse, 1999)

From the AMOEBA (**Figure 14**), we see that while the built environment and economic indicator progressed, the biophysical environmental indicators are unchanged but the network indicator decreased.

The process of mapping data on an AMOEBA can be a very time-consuming task and does require data to be converted to a unitary scale (DSCWG, 2001). However, its advantage lies in its powerful visual representation, showing the 'bigger picture', whilst maintaining a level of detail (DSCWG, 2001), as indicators are individually represented by the 'arms'. In the shown AMOEBA, it appears that whilst the network indicators decreased sensibly, the biophysical environment ones dropped slightly. It also shows significant improvement of the economic factors and just a slight development of the built environment. While these

authors' presentation displays the development in three distinct stages (ideal baseline, ideal progress and actual progress), we suggest the three should be merged in a single AMOEBA integrating colour coding. This integrated representation would bring out a clear comparative picture, highlighting the distance between the three stages. In order for any framework representation (like the AMOEBA) to convey some actionable content, it needs to be substantiated by unambiguous indicators. Critics have questioned the claim that and to what extent sustainability Indicator measurement has had an impact on policy change.

Sustainability Indicator (SI) measurement does not seem to have had a significant impact on policy-making and change to date due to the fact that it has been either liitle used or used in an inappropriate manner. Although While Bell and Morse (2003) argue that this relationship has hardly been demonstrated, they concur with Kasemir et al.'s (1994) analysis that data science outputs have hardly translated into policy formulation. This would be due to the following reasons, such as

> *"a lack of awareness of the issues; political unacceptability of most actions; opposition from entrenched interests; and inadequacy of institutional mechanisms for bringing together development and environment"* (Bell & Morse, 2003, p.50).

To date Sustainability Indicators have have not had much impact on policy change owing to the the fact that SIs have always been generated top bottom (by policy makers). (White et al., 2010). If identified by appropriate stakeholders (bottom up), SIs have had an impact on community change.

The review of literature has reviewed tourism and its importance as an accelerator of wealth creation and its current flawed practice in LDCs. It has also highlighted the concept of Sustainability with its related elements of Ethics, transparency and accountability. Finally, the review of literature has shed light on different models and frameworks for measuring ex-post sustainability. The main gap (*Figure 15*) in literature appears to be the fact that none of

existing models and frameworks measures ex-ante sustainability, i.e. stakeholders'
willingness and commitment to behaving in a sustainable manner leading to sustainability
achievement.
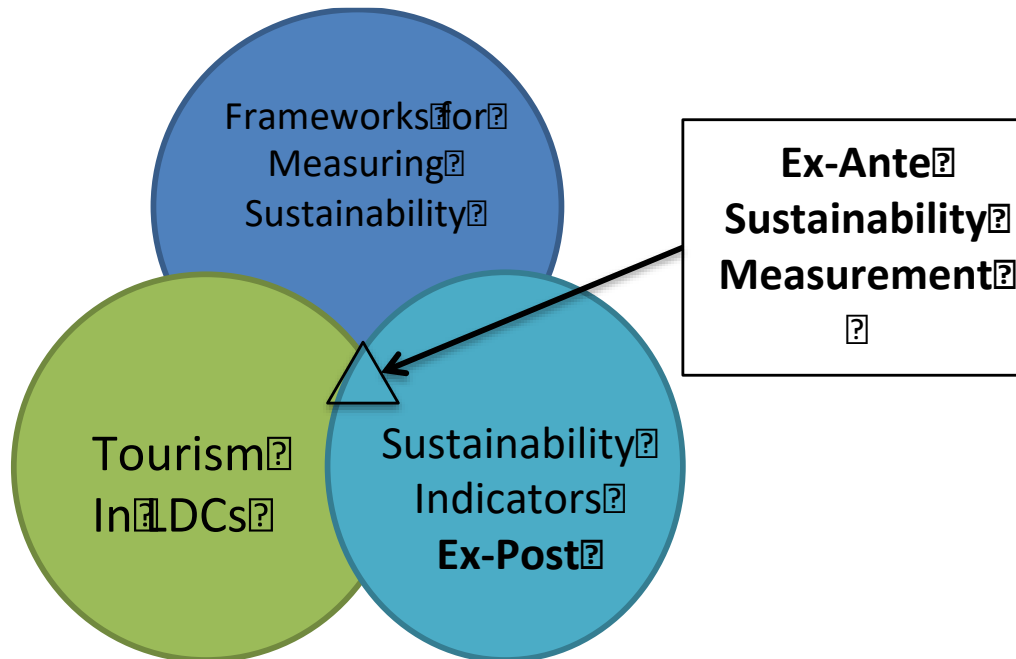
Figure 15: Research Gap: Ex-ante sustainability measurement in LDCs

Figure 15 summarises the the extant literature about sustainability and its measurement
within the tourism sector of the D.R. Congo. Several frameworks for measuring sustainability
have been reviewed, yet all of them have carried out the measurement of the effects of
human activity (ex-post measurement). They have failed to assess humans' willingness to
achieve sustainability, as only humans' commitment can sustain their behaviour in the
longer term and thus ensure their activities and henceforth their sector are sustainable.
Figure 15 indicates the research gap the present research intends to fill i.e. the ex-ante
sustainability measurement.

3.6. SUMMARY

This chapter has critically reviewed literature about two main sections: Sustainability and Sstainability Measurement. The first section has established that although sustainability appears to be a key concept in modern management, it is a contentious concept as it is hard to define. Whilst several definitions of the term exist, none of them has captured the true meaning of the concept a its meaning lies in its practice.

The concept of sustainability has been closely linked to three dimensions: Econominc, environmental and socio-cultural. These dimensions have made it easy to assess sustainability, and several models have been created to date; yet sustainability measurement has been focussing on ex-post assessment instead of looking at the causes of unsustainability, i.e. ex-ante assessment. Ex-ante assessment measures human's intentions for behaving in an inducing manner for achieving sustainably, i.e. ensuring the continuity of the system they rest upon.

Section two of this chapter has reviewed existing approaches and frameworks for measuring sustainability. However, due to corruption and its corollaries, Less Developed Countries hardly engage into the practice. Little is known about the D.R. Congo, least about its sustainability credentials. While measuring sustainability can be the only way to evidence the efforts deployed towards achieving it (Senge et al., 1994), existing frameworks for measuring sustainability may, owing to ineffecient control systems, prove to be inappropriate for application in Less Developed Countries. Although the Triple Bottom Line and the United Nations' DPSIR, as well as the deriving other frameworks and tools have been heralded as good tools for measuring environmental sustainability, they have not captured the essence of balanced systems (including dynamics in the socio-cultural factors) in Less Developed Countries.

The main gap in the read literature is derived from this inability for all the frameworks to capture the human willingness to behaving sustainably. Whilst all frameworks have

measured the effect of human activity (ex-post), they have been unable to measure, ex-ante, their behavioural change and their willingness to sustain the system they rest upon. This inability is mainly due to either lack of statistics or high inaccuracy of these on the one hand, and on the other hand, to the fact that people and communities in LDCs perceive their mutual exchanges (estabilshed through regular interactions between them) more valuable than numerical assessment measurements, be they of strict monetary value. These exchanges, in Less Developed Countries, if positive, would lead towards achieving sustainability of any system and of any industry. In volatile environments, informal ties and links between stakeholders hold communities together.

CHAPTER 4. THEORETICAL UNDERPINNING AND CONCEPTUAL FRAMEWORK

4.0.   INTRODUCTION

Two main theories underpin the framework of this research: Social Exchange Theory, and Stakeholder Theory.

> *Theories explain relationships within a piece of research (Creswell, 2014) and it is the researcher's task to "limit the number of theories and try to identify the one overarching theory that explains ...the major research question" (Ibid. p.61).*

Stakeholder Theory posits that different individuals can have impacts on an organisation and the organisation on the individuals. This impact level is dependent on the individuals' nature and level of interaction with the organisation (Freeman, 1984) and on the resulting value these individuals get from it. Social Exchange Theory (SET) asserts that social actors continually create relationships by engaging in interactions, which in turn create value both to the individual actors (stakeholders) and to the network as a whole (Thibault and Kelly, 1959).

Combining these two theories helps us understand how sustainability can be achieved. However, sustainability can only be defined in a given context as it conveys the interests and values of those concerned (Mowforth & Munt, 2016) as only these can help achieve it. In the same vein, Sustainability would be perceived as a resulting state of balance created by multiple interactions and resulting exchanges (Sustainability Indicators) between network stakeholders. This chapter discusses the two theorectical concepts highlighting the importance of interactions and the resulting value, which helps network actors hold together. A visual representation of the guiding theoretical framework is presented in *Figure 16*:
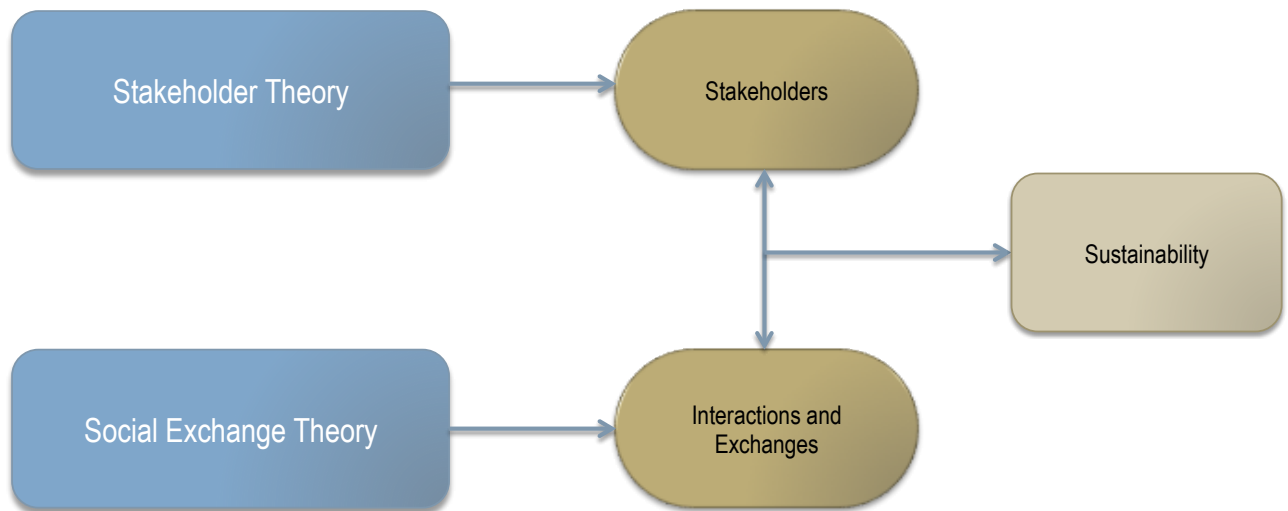
Figure 16: Theoretical Underpinning for the research

Figure 16 indicates that whilst Stakehoder Theory helps to identify key stakeholders within a network, Social Exchange Theory informs on the most relevant interactions which create exchanges between these network stakeholders. The whole network ultimately grows stronger as its key stakeholders reinforce their mutual and self-defined interactions (Sustainability Indicators) yielding positive exchanges to the same stakeholders. The network would therefore grow, self sustain and endure, as it is fuelled by positive exchanges from its stakeholders. In this perspective, stakeholders are not only beneficiaries of a strong and stable network, but also the makers of its sustainability.

4.1.   STAKEHOLDER THEORY

For the last 30 years scholars and practitioners have been trying to explain the complexities and challenges in modern businesses, and *stakeholder theory or " 'stakeholder thinking'"* *has emerged as a new narrative"* (Freeman, 2010, p.1). Stakeholder Theory developed from the need for society to regulate businesses in relation to their growth facilitated by the boost of technological development and its concept has been widely adopted by academics, media and managers (Fontaine et al., 2006). Several definitions of stakeholder exist. The most traditional one sees a stakeholder as

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"any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p.46).

The search for a definition of the concept has seen several emergent others, each one drawing from their specific contexts and serving their own purposes (Freeman et al. 2010). However, the named authors perceive a stakeholder more as shareholder or stockholder, the very owners of the organisation whose needs and value increase should be put first. Furthermore, Stakeholder Theory states that several other parties are involved as stakeholders. Stakeholders are thus any groups with a vital role in an organisation's survival (Freeman, 2004), including: governmental bodies, political groups, trade associations, trade unions, communities, financiers, suppliers, employees, and customers. Sometimes even competitors are counted as stakeholders — their status being derived from their capacity to affect the firm and its other stakeholders (Freeman et al., 2010).

In the same vein, Friedman (2006) identified the various other groups, which would constitute an organisation's stakeholders: customers, employees, local communities, suppliers and distributors, and shareholders. In addition, Friedman (2006) considered the following groups to be stakeholders: the media, the public in general, business partners, future generations, past generations (founders of organisations), academics, competitors, NGOs or activists, trade unions or trade associations of suppliers or distributors, financiers other than stockholders (dept holders, bondholders, creditors), competitors, government, regulators, and policy-makers.

Definitions of the stakeholder concept abound, and this multiplicity of definitions is due to the fact that the term is an essentially contested concept (Miles, 2012; Mitchell, 2012), being variously describable, internally complex and open in character (Gallie, 1956). Highly contextualised concepts can be problematic (Miles, 2017). Stoney and Winstanley (2001, pp. 605–606) state that

''…there is considerable confusion arising from the multitude of conflicting views [and]… failure to recognize and map this diversity has weakened rather than strengthened the stakeholder concept''.

However, a decade later, Crane and Ruebottom (2011) warning that the concept was running the risk of becoming a *meaningless term as it is said to be vague and ambiguous Fassin (2009) and that it has been difficu*lt to develop theory from it (Scherer & Patzer, 2011). In this vein, Smith's (1776) and Freeman's (1984) views of stakeholders are similar as they relate stakeholders to customers due to their choice over competiting other offers (Harrison and Wicks, 2013) and only organisations which will offer greater benefits will be able to retain the most stakeholders. The named authors argue that stakeholders' choice for an organisation to support is subjectively based on their own perceptions regarding the way transactions, relationships and interactions with the organisation influence the benefits they receive (Harrison & Wicks, 2013).

These perceptions can be measured proportionately to the happiness those stakeholders feel from the tangible and intangible factors received. Hecenforth, organisations strive to treat their stakeholders well and manage their interests by increasing value through good performance (Donaldson & Preston, 1995; Freeman, 1984; 1994; Freeman, Harrison and Wicks, 2007; Harrison, Bosse & Phillips, 2010; Jones, 1995; Jones & Wicks, 1999). However, these returns have only been measured in financial terms. (Berman et al., 1999; Choi & Wang, 2009; Hillman & Keim, 2001).

Conluding her research on stakeholder definitions, Miles (2015) proposes definitions in four main groupings: claimant, influencer, collaborator, and recipient. In addition, she builds 11 associated other groupings from the intitial four, as presented in *Table 17*.

Category	Definition	Reference
Claimant	Individuals or groups with which business interacts who have a 'stake' or vested interest in the firm. This 'stake' is also described as a 'claim'	Carroll, 1989, p. 22
Influencer	Those who can assist or hinder the achievements of the organisation's objectives	Philips et al., 2003, p. 481
Collaborator	Participants in the human process of joint value creation	Freeman, 1994, p. 415
Recepient	Are placed at risk as a result of a firm's activities	Clarkson, 1994, p. 51
Claimant – Recepient	Those persons or interests that have a stake, something to gain or lose as a result of its [the corporation's] activities	Clarkson, 1998, p. 2
Claimant – Influencer	The firm is characterised by relationships with many groups and individuals ("stakeholders"), each with (a) the power toaffect the firm's performance and/or (b) a stake in the firm's performance	Jones, 1995, p. 407
Influencer – Collaborator	Those groups without whose support the organisation would cease to exis	SRI, 1963, p. 854
Claimant – Collaborator	Constituents who have a legitimate claim on the fim … established through the existence of an exchange relationship	Hill and Jones, 1992, p. 133
Collaborator – Recepient	Bear some form of risk as a result of having invested some sort of capital, human or financial, something of value, in a firm	Clarkson, 1994, p.5
Influencer – Recepient	Any group or individual who can affect, or be affected by, the achievements of an organisation's purpose	Freeman, 1984, p. 54
Inluencer – Recepient	Based on an explicit or implicit agreement of a mutually acknowledged rights and obligations in order to achieve mutual benefit or prevent some harm	Lamberg et al., 2008, p. 847
Claimant - Influencer – Collaborator	Stakeholder groups have a vital stake in the operations of a business without whose sanction and support the business would cease to exist	Murphy et al., 1997
Claimant – Collaborator – Recepient	Holders of legitimate interest or stakes in company activities, directly through market transactions or indirectly through exposure to external effects	Nuti, 1997, p. 14
Influencer – Collaborator – Recepient	Individuala and constituencies that contribute, either voluntarily or involuntarily, to its wealth-creating capacity and activities, and who are therefore its potential beneficiaries and/or risk bearers	Post et al., 2020, p. 8
Claimant – Influencer - Recepient	Contractual commitments because they are (a) grounded in some form of mutueal agreement; (b) for the specific purpose of realising mutual benefit or preventing some harm; involving (c) a set of mutuallyacknowledged future rights and obligations to either be implied or 'presented' in the terms of the contract	Heugens and Van Oosterhout, 2002, p. 388

Table 17: Examples of stakeholder definitions for each definitional class (Miles, 20015, p. 454)

In so doing, the named author argues that definitional debates should cease and give way

to more mature discussion over stakeholder identification and contexts (Miles, 2015). The

author thus encourages academics and practitioners alike to focus on the practical

applicability of the theory. Furthermore, since the initial work by Freeman (1984), ample literature has been written to classify stakeholders on the basis of the following three branches: descriptive, instrumental approach and normative approach (Miles, 2015) as presented in *Table 18.*

Descriptive	The aim is to understand how managers deal with stakeholders and how they represent their interests. The corporation is viewed as a constellation of interests, some time competitive and some time cooperative. The analytic theory will show how the MNC can deal with these divergent interests of stakeholders
Instrumental	Study the organisational consequences of taking into account stakeholders in management, examining the connections between the practice of stakeholder management and the achievement of various corporate governance goals
Normative:	Identification of moral or philosophical guidelines linked to the activities or the management of corporations. Donaldson and Preston argue that if these three approaches are combined without acknowledgement it would result to confusion.

Table 18: Stakeholder classification approaches arising from Freeman's work **(1984)**

Table 18 indicates that stakeholders interact between them, creating value through their mutual exchanges embedded into sustainability indicators (See section 3.4.5). Stakeholders then assess the value by its strength and its quality. Sustainability is thus attained if positive value is yielded from the exchanges, as only this will make these stakeholders continue to support and strengthen the network they depend on. Whilst strength is a key determinant of a network, quality is a finer measure than strength as it encapsulates the subjective assessment stakeholders make of the benefits they receive from other network stakeholders. The next section presents the second theory underpinning this research, Social Exchange Theory.

4.2.   SOCIAL EXCHANGE THEORY

Social Exchange Theory (SET) was initially introduced in social science by Thibault and Kelly in 1959 and is based on the premise that human behaviour or social interaction is an exchange of activity, tangible and intangible, specifically of rewards and costs (Homans, 1961). It looks at the way the structure of rewards and costs in relationship impacts patterns of interaction (Molm, 1991). Seen through the lens of SET, exchange is considered to be the basis of human behaviour (Homans, 1961). Furthermore, Nunkoo (2016) argues that SET has been popular in the sociology and social psychology literature and that the theory is considered to be one of the oldest theories of the following fields as indicated in *Table 19* showing the major development stages of the theory (Nunkoa, 2016).

Author	Year	Contribution
Homans	1958	Emphasis on social behaviour in the exchange process
Thibaut and Kelley	1959	Discussion how actors in an exchange relationship weigh the benefits of the exchange relation.
Emerson	1962	Work related to the concept of power between the actors in an exchange relationship,
Blau	1964	Emphasis on social interaction as an exchange process.
Emerson	1981	Notes that social exchange involves two persons, each of whom provides some benefits to the other, and contingent upon rewards from the other

Table 19: Major development stages of Social Exchange Theory, Nunkooa, (2016, pp. 588-596)

Social Exchange Theory is said to be *"one of the most influential conceptual paradigms … yet tends to rely on an incompletely specified set of ideas"* (Cropanzano, R., Mitchell, M., 2015, p.874) and that the presence of such vagueness would make a model difficult to test

(Ibid.). However, SET has received wide attention in social science in general, and in tourism in particular.

As a theory, it is said to have been widely contributed in explaining residents' perceptions and attitudes with regards to tourism development (Crowther, 2008). Its relevance to sustainability of tourism stems from the fact that people (residents more specifically) tend to support tourism proportionately to the benefits they expect or draw from it (Peppard & Rylander, 2006). This expectancy theory determines people's attitudes, perceptions and behaviour towards sustainability in a significant manner. Behaviour is shaped respectively by people's values (Allee, 2008), attitudes and perceptions (Henderson, 2006), and even their behavioural intentions (Feather, 1980).

Social Exchange Theory also asserts that all relationships have costs and benefits, and that people determine the worth of a relationship before they can engage into it (Lambe et al., 2001). Additionally, Molm (1994) suggests that interdependence between interrelated parties can stimulate reciprocity. Reciprocity is referred to by Cook et al. (2013) as an exchange rule, which guides interdependent exchanges. Despite the popularity gained by SET, the theory is said to lack clarity in what the various exchange rules are (Cropanzano and Mitchell, 2005).

However, for a relationship to endure, the value deriving from the relations needs to be perceived satisfying to the parties involved in the relationship. The received rewards or benefits therefore need to equal at least, or at most exceed the costs of the relationship. Blau, 1964 argues that there is a difference between social exchanges and economic exchanges in that the former greatly depend on everyone's decision, and are, henceforth subjective to the perception of individuals in relationships because relationships are created within social and cultural contexts and within a timeframe (Miell & Dallos, 1996) by firming up through interactions and various exchanges, which in turn, create meaning or value to the relationships (Miell & Dallos, 1996). Value co-creation happens when stakeholders' roles

move from being isolated and passive to becoming more connected to and active with the organisation (Ng & Yip, 2009) and henceforth synergetically co-create value with the said organisation.

Furthermore, the created benefits vary both in intensity and in quality. Miell & Dallos (1996) argue that the nature and quality of a social contact is more important than its intensity and that different individuals experience relationships differently depending on their own gains and expectations from those relationships. Furthermore, the authors contend that interactions between individuals help them better define their relationship, setting shared rules, working on shared goals, and that all these involve

> *"the development of joint activities wherein people have constructed shared mutual patterns of actions, share understanding and feelings ... and shared identity"* (Miell & Dallos, 1996, p.3)

These shared patterns would contribute, in the long run, to the formation of behaviours and actions (Dallos, 1991; Procter, 1985). The next section will review the way value, an inherent component of social exchanges, determines behaviour and enhances relationships.

4.3. CONCEPTUAL FRAMEWORK

4.4. Social Exchange Theory and Sustainability

In today's ever-changing social world, no single community or business sector is a self-sufficient island (Stein & Sen, 2001). Dynamism and interaction define the modern business environment, which has become more a value network than a mere profit-making system. To fully grasp how value is created, extended or enhanced within and across networks, Value Network Analysis (VNA) helps visualise internal and external value networks and

complex economic ecosystems (Senge et al., 1994). VNA is concerned with how various network assets are converted into value.

Value Network Analysis (VNA) assesses the benefits (value) accrued by the network. This value is primarily intangible as it closely relates to intellectual capital (Allee, 2008), which not only creates but also manages tangible assets, and can henceforth help to sustain the network through time. Sustainability and its measurement are central to this research. The findings from literature review suggest that measuring sustainability remains the only way to assign meaning to such an abstract concept.

Different notions of value exist; the most relevant to this research is subjective value. As opposed to objective value, subjective value refers to what each individual happens to like and their own assessment of it (Hausman & McPherson, 2006; Sen., 1987).

People tend to like what they value, and this can be either tangible or intangible. Intangible assets are closely linked with Intellectual Capital (Donne, 1624), but more so with Social Capital (Granoveter, 1982). Allee (2009, p.11) defines tangible exchanges as

"*contractual transactions involving goods, services, or revenue, including but not limited to physical goods, … "*

Yet, the author acknowledges the difficulty in determining whether an asset is tangible or intangible and argues that it is dependent on its contractual nature, not its physical nature (Allee, 2009), and this understanding varies from network to network.

On a different note, Stein and Stren (2001, p.13) define a network as a

"spatially diffuse structure, with no rigidly defined boundaries, consisting of several autonomous nodes sharing common values or interests, linked together in interdependent exchange relationship".

Networks are complex in structure, yet they can self-reconfigure and ensure coherence in purpose and flexibility in execution thanks to its capacity to adjust to the any contextual operating environment (Castells, 2004). From the definition by Stein and Stren (2001), a network appears to be a system within which relationships are formed through interactions,

and where individuals share common values to achieve a common purpose. Cook and Rice (2003) argue that value greatly depends on actors' past experience with reinforcement (Cook and Rice, 2003).

As a primary value conversion mechanism, a network comprises of actors in continuous interaction. Their interactions create value which can either strengthen or weaken the network. A network has no value judgement of the outcomes, as these can be either positive or negative, depending on the beliefs and intent of people in different roles within the network (Allee, 2008).

Value Network Analysis (VNA) asserts that value is continually created to self-sustain the network or system, which generates it. The diagram in *Figure 16* indicates that different roles in the network interact and the resulting transactions or exchanges produce deliverables that would be further used to produce newer assets. The cycle would thus carry on to ensure the system is sustained as various networks continually adapt by responding and co-evolving with the environment (Allee, 2008). In agreement, Ramalingam (2002) states that the chance for networks to endure and develop depends on their ability to continually learn and adapt to new contexts (Ramalingam, 2002). Only fittest networks would survive, and further contribute to the evolution of the system. Weak networks would henceforth either adapt (by joining stronger networks) or break up altogether. A summary by the named author provides details of each of the elements of Value Network Analysis: Roles, Transactions and Deliverables. Roles are played by network actors, who contribute to the network by holding their respective functions. Transactions or activities go from one actor to another. They can be formal exchanges of information or benefits. Deliverables are the actual outcomes or value derived from the transactions and related exchanges. Previous contributions to research on analysing value networks include work summarised in *Table 20*:

Author	Year	Contribution
Kothandaraman and Wilson	2001	Proposed a model of value-creating networks and defined the scope, depth of interactions, and competitive environments of value networks
Allee	2002	Proposed a value network approach for modelling and measuring intangibles
Peppard and Rylander	2006	Introduced the value network as a way to analyse competitive ecosystems.

Table 20: Previous Research as summarised by Ramalingam (2011, p.12).

VNA asserts that value is created when different roles positively appraise the cost and benefit returns from their interactions. The more benefits (either financial or non-financial) are generated, the stronger the network grows. Allee (2008) suggests that Value Network Analysis links specific interactions within the value creating network directly to financial and non-financial scorecards.

4.5. Stakeholder theory and sustainability

Stakeholder theory relates to Sustainability (see section 2.1) as Sustainability calls for all stakeholders to work towards the same goal. As stakeholders constitute elements of an organisation and its wider network (Wood, 1991); they interact within and without, firming up relationships within the network and even between networks. These networks range from global, international, national to local organisations and citizens (Oury, 2007). Beyond present time stakeholders, sustainability also looks at future generations as stakeholders, and aims at wisely using current exhaustible resources (non-substitutable), which should sustain the organisation's growth. It is good to see that all other definitions of sustainability convey the idea that the concept goes beyond the profit-making obligation organisations

have towards their owners or shareholders, to include both social and environmental aspects.

Stakeholder Theory is increasingly related to the concept of Sustainability as stakeholders are key to Sustainability achievement because only they can help achieve it. Jallow (2008) relates Stakeholder Theory to sustainability as a mechanism allowing an organisation's stakeholders to develop strategies which should endure the test of time. More specifically, Crowther (2008) argues that these business strategies and operations should take into account future members of society as well as the environment.

In summary, from Social Exchange Theory and Stakeholder Theory, we have drawn our conceptual framework highlighting the key concepts used in the process of measuring sustainability, as seen in *Figure 17.*
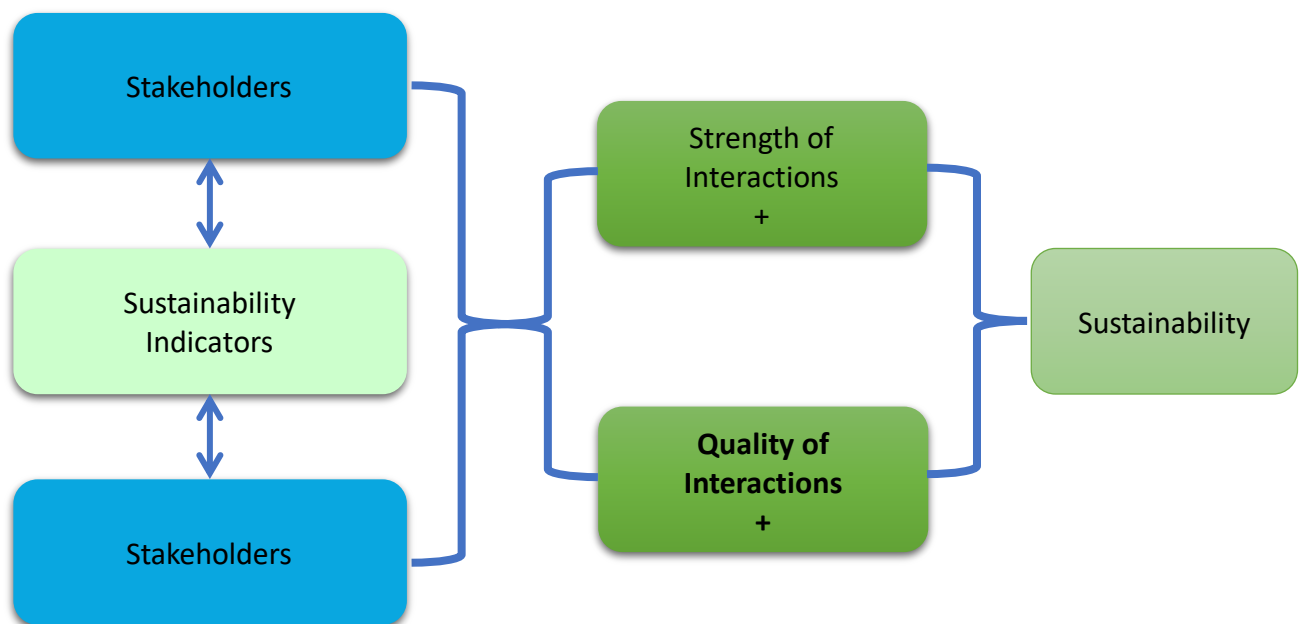
Figure 17: Conceptual Framework for the research

Figure 17 indicates that stakeholders interact between them, creating value through sustainability indicators (See section section 3.4.5). Through their mutual exchanges, Stakeholders then assess the value the relationship has accrued, by its strength and its quality. Sustainability is thus attained if positive value is yielded from the exchanges, as only

this will make these actors continue to support the network they depend on. Quality is a finer measure than strength (Miell & Dallos, 1996).

Key to this research is the measurement of sustainability in a complex environment, namely the field of business, specifically tourism. Unless it is measured, sustainability is bound to remain a myth, as the common management saying goes 'what gets measured gets done'. Yet, there is lack of agreement over what needs measuring.

Our choice of Social Network Analysis (SNA) as the most suitable data analysis approach to be used is justified by the fact that it encapsulates the concept of quality of relationships between various actors and within a network, and henceforth it conveys the notion of holistic approach to sustainability. Transactional approach could not capture the multiplicity of relations happening across this large network to convey such a complex concept as sustainability. Also referred to as durability (Scott, 2012), sustainability is well captured by SNA in that it measures the lifespan of relations (Katz, 1966) fuelled by constant interaction, which, in the long run, contributes to behaviour change. Social Network Analysis is about relations between actors within a network or across networks. The following sections will evolve around two main elements of sustainability best explained by SNA: Strength and Quality of relationships. Whilst Strength refers to tie intensity, it captures the Intensity of the ties relating two individuals (actors). Quality is assessed through the actors' subjective perception of the relationship, whether it is positive or negative. These two concepts are key to the present research and require further explanation.

 a. **Strength of relationships**: in Social Network Analysis, relations are graphically represented as lines between nodes. A relation is deemed strong if it is represented by several lines linking two nodes. These lines can be grouped in only one line and have a value attached to it. We have also referred to strength as 'amount' as it is the value of the relationship. It is shown by the total number of degrees, occurences of relationships between any two nodes. As argued by Scott (2012), "*the strength of a relation can be*

measured by the number of interlocks that it involves" (p.58) and can be represented either by value number or by the thickness of the line between two nodes. The above-named author also argues "*values typically indicate the strength of a relation rather than its mere presence*" (p.61).

Relations can be strong or weak. With valued data (interval and ratio), we have set a cut-off point and have determined that weak relations are those ranging from point two down to zero, and that strong relations have values over two. This is well supported by Scott (2012) when he discusses the dichotomisation procedure for valued data. The author argues that "*the researcher chooses to consider only those relations with a value above a particular level as being significant*" (p.61). The same procedure holds true in ascertaining the quality of relationships.

b. **Quality of relationships**: upon assessing the strength of relationships, we then went on measuring the quality of these. Miell and Dallos (1996) argue that quality of a relationship is even more important than its strength. The named authors argue that

> "*the overall amount of social contact is less important than the nature and quality of that contact*" (Miell and Dallos, 1996, p.3).

They also assert that different individuals experience relationships differently depending on their own gains and expectations from those relationships, and that only quality relationships endure the test of time as they help to create a lasting change in individuals' behaviours. Follwing are the key analysis facilitated by the use of a social network analysis software:

1. Cluster Analysis

Cluster analysis is defined as a

> "*statistical classification technique in which cases, data, or objects (events, people, things, etc.) are sub-divided into groups (clusters) such that the items in a cluster are very similar (but not identical) to one another and very different from the items in other clusters. It is a discovery tool that reveals associations, patterns, relationships, and structures*" (Feb 18, 2018).

Cluster analysis shows which sub-groups hold together from the rest of the network. This measure will help us to explain how stakeholders are firmly connected within the network, and henceforth help us ascertain the level of sustainability this network has. Stakeholders holding together in a cluster means for these stakeholders that they share more intense (stronger) and better quality of benefits with one another than with those outside their cluster. The cluster density thus indicates the level of support this network/ system would require maintaining itself and thus achieve sustainability *(as discussed in the Conceptual Framework section)*. It is presented both in the form of a matrix and a graph. Graphs are particularly useful as they can "*immediately suggest some of the most important features of overall network structure*" (Hanneman and Riddle, 2011, p.331). In the graph, the strength of a relationship is usually indicated by a number on the arrow in the diagram (Hanneman, 2018).

We have opted for the Tabu cluster analysis over others because this form of Clustering model*: "uses a more modern (and computer intensive) algorithm than Concor but is trying to implement the same idea of grouping together actors who are most similar into a block. Tabu search does this by searching for sets of actors who, if placed into a block, produce the smallest sum of within-block variances in the tie profiles*" (Hanneman online, 2018, section 13).

2. Brokerage

Brokerage provides clarity on the main role played by individual actors (Stakeholder group) within the network. This concept was generated by Gould and Ferdinandez and it examines Ego's relations with its neighbourhood when Ego acts as an agent in relations among groups or categories (Hanneman and Riddle, 2011).

The main brokerage role actors will play in this system is the co-ordinator role as they are positioned on a straight path between two members of the same category as themselves. The role an actor plays grants him/her some power. As Hanneman (2011) argues, power can apply to relations between two actors (micro) or to the entire network (macro), yet both are closely connected in social network thinking.

3. Reciprocity Analysis

Reciprocity analysis is a measure of network cohesion; reciprocity helps us better understand how much 'value' is shared within the network. This will ultimately contribute to the design of our bespoke model for measuring sustainability of tourism in LDC, the Sustainability Value Model (SVM). In addition, Centrality measures will also be presented and, wherever relevant, explored.

4. Degree

Degree indicates the number of connections a person (*ego*) has through giving to or receiving value from others (*alters*). Degree relates to the notion of influence or power (Hanneman, 2011) and to *Social Capital* (Granoveter, 1982). Therefore, an actor receiving more ties (in-degree) than others appears to be *'prominent'* and is said to have '*high prestige'* and *'importance'*. However, actors giving out more ties than others (out-degree) are said to be *'influential'* as they are able to spread their views across the network with speed. Actors with more ties have greater opportunities because they have choices. This autonomy makes them less dependent on any other actors, and hence their power (Hanneman, 2011)*.*

Additional measures can be derived from degree centrality, such as graph **Density** which is a measure of network cohesion or density which results from dividing the total number of ties (values) by the total number of possible ties (Hanneman et al., 2018). The Density measure is not discussed in this study as is captured within Cluster analysis.

5. Betweenness

Betweenness indicates how a person positions in a network vis-à-vis others and refers to the extent to which the person is able to serve as an intermediate point of contact between any two other persons. The person represented by such a point would be able to control access or flow of information to others because of the 'structural hole' (Burst 1992) which exists between the two others connected by him or her (Scott, 2012).

In so doing, the person would present him/herself as a broker between all his/her connections.

Closeness was not applied to this research as it indicates how close a person is to all others in the network as the research is less interested in distances between actors.

To keep consistent with the systemic approach of this research, whole networks is our focal analysis point more than Ego networks. Whilst 'Ego' networks focus on an actor's relationship with others (alters) 'Whole' networks analyse the entire network value and its contributing actors. Therefore, graphs were extensively used to visually present network dynamics among the five stakeholder groups emerging from this research. Graphs are said to be key to presenting information about social networks and the maths are handled by computer softwares, so henceforth the researcher does need to do the maths (Hanneman & Riddle, 2005).

Crowther (2008) contends that in Less Developed Countries sustainability has developed alongside stakeholder engagement, in stages within organisations, and that sustainability

and stakeholder engagement are key factors of the stakeholder theory. A detailed development of the concepts is presented in *Table 21*:

Stage of development	Dominant feature	Typical activity	Examples
1	Window dressing	Redesigning corporate reporting	Changed wording and sections to reflect CSR language
2	Cost containment	Re-engineering business processes	Energy efficiency programmes
3	Stakeholder engagement	Balanced scorecard development	Customer/employee satisfaction surveys
4	Measurement and reporting	Sophisticated tailored measures	CSR reporting
5	Sustainability	Defining sustainability: re-engineering processes	Sustainability reporting
6	Transparency	Concern for the supply chain: requiring CSR from suppliers	Human rights enforcement: for example: child labour
7	Accountability	Reconfiguration of the value chain	Relocating high value-added activity in Less Developed Countries

Table 21: Stages of maturity of CSR activity (Crowther, 2008, p.28).

Sustainability is not a stand-alone concept; it is derived from CSR reporting and best encapsulates concepts of transparency and accountability. It is perceived in a holistic way through its three impact dimensions: socio-cultural, economic and environmental. Beyond the confines of corporate environments, sustainability should take into account various stakeholder groups impacting its achievement. As these groups are derived from the three sustainability impact dimensions they not only act upon these but also undergo the pressures related to the dimensions. The most popular sustainability dimension model is Elkington's TBL or three Ps. Whilst the Social cultural impacts (People) would be about acknowledging people's right to decent facilities and livelihood, the Environmental responsibility (Planet)

impacts would seek to minimise overcrowding by visitors etc, and Economic responsibility (Profit) impacts would involve dealing with business ethics, corruption and bribery, direct and indirect economic impact on networks (Elkington, 2004).

Stakeholders determine whatever happens within these three dimensions and are, at the same time, impacted by their outcomes.

4.6. SUMMARY

This chapter has introduced and discussed the two theories underpinning this research. Social Exchange Theory, on the one hand, asserts that various roles continually interact, converting their current assets, both tangible and intangible, to generate value within networks. The theory indicates that enduring relationships are those which have accrued actors' higher value resulting from more benefits than the costs for maintaining the relationships *(*Cropanzano & Mitchell, 2015). Sustained positive value would then define actors' behaviour to comply with the relationship values, attitudes and perceptions, and even their intentions.

Stakeholder Theory, on the other hand, sees a stakeholder as anyone having an interest in an organisation and who can also be impacted by it. The theory asserts that individuals' choice of an organisation to support will depend on the value they receive from it over its competitors. Stakeholders can thus be internal or external to the organisation yet will need to be frequently updated on the organisation's performance.

Social Exchange Theory (SET) is linked to Stakeholder Theory. Whilst SET emphasises interactions between actors, the Stakeholder Theory refers to actors as stakeholders keeping close interactions with their organisation of interest. Seen in this way, the two theories are closely linked to sustainability assessment, the overall aim of this research. Sustainability is achieved by stakeholders in constant interactions. Stakeholders will always assess the benefits they receive from their network and decide to further invest in the network in order to sustain it, if received benefits are deemed higher than the costs of investing in those network relationships.

Stakeholders's exchanges determine the level of attained sustainability, which is built upon the nature and quality of the created value within a system or network, but more so with

quality. We concur with Cropananzo et al. (2010, p.602) when they assert that "*Quality of exchanges stands as one of the key ways of assessing social exchange relationships as it leads to reciprocative behaviours*".

Within the tourism sector (or network), various roles continually interact, converting their current assets, both tangible and intangible, to generate value or deliverables within networks. For networks to endure as cyclical systems, gained value is continuously ploughed back into the system to produce even more value for the network stakeholders, and thus sustain the whole system. Systems are involved with their own sustainability, always adjusting to its environment (Allee, 2008).

Determining these interactions, and the resulting value, will pave the way for the design of a model framework and tool for measuring the sustainability of tourism. The last section has discussed Value Network Analysis (VNA) as a tool for analysing the exchanges derived from interactions between various stakeholders, and how these exchanges, if positive, can ultimately contribute towards the achievement of sustainability. The next chapter looks at the methods and design which the research has employed in order to apply these theories.

CHAPTER 5. RESEARCH METHODS AND DESIGN

5.1. INTRODUCTION

This research has presented a critical review of the research context (chapter two) indicating the fact that LDCs' main difficulty in assessing sustainability is not only the lack of reliable statistical figures but more so because of inherent human lack of factors related to sustainability of which the main ones are accountability, transparency. Building on the preceding chapter, chapter three went on to review sustainability and existing key measurement tools and frameworks. This chapter has highlighted the fact that all existing approached for measuring sustainability have dealt with ex-post sustainability. By establishing this as the gap the present research aims to bridge by proposing a new approach of **ex-ante sustainability measurement**. This approach is in line with the developed conceptual framework which highlights the importance of stakeholders' interactions and resulting exchanges in achieving ex-ante sustainability, as developed in chapter four

5.2. RESEARCH PHILOSOPHY, ONTOLOGY AND EPISTEMOLOGY

This chapter presents the philosophical position and related methodology employed to develop a tool for measuring ex-ante sustainability. The tool is made of the two main variables: intensity and quality of exchanges between stakeholders. While section one discusses research philosophy and related espistemological and ontological stances, section two introduces the most relevant research design for this research, section three discusses the methods of data collection and analysis. Then section four covers the strategy and methods employed in relaton to the chosen philosophical position. Finally, section five introduces the pilot study.

Research philosophy is defined as a basic set of beliefs or worldview that guides the researcher (Guba and Lincoln, 1994). Creswell (2018) summarises it as paradigm (Lincoln,

Lynham and Guba, 2011), epistemologies and ontologies (Crotty, 1998), or even conceived research methodologies (Newman, 2009). Research philosophy is the orientation that guides researchers in their choice of an appropriate approach to their research.

Research philosophies are concerned with Epistemology, the way knowledge is developed, and Ontology, the actual nature of that knowledge. The ontological discourse lies around the understanding of the nature of social entities. Ontology discusses issues relating to possible two ways of social entities existence, either in pure nature, thus dissociated from social actors, or whether they can and should be considered social constructions *"built up from the perceptions and actions of social actors" (Saunders et al., 2007).*

Research methods and design find meaning in the philosophical paradigm that upholds them. Philosophies of knowledge, also called epistemology, relate to the way knowledge is acquired. This implies that a paradigm is highly value laden, with a great deal of subjectivity around the way it is understood, designed and applied in research. Bryman (2012) argues that the same paradigm guides researchers' views on the way they should interpret results. Knowledge can thus be acquired through four types of paradigms: postpositivism, constructionism, transformative and pragmatism (Creswell, 2018).

5.2.1. POSITIVISM

Postpositivism, also called positivist/postpositivist worldview refers the scientific methoc research and is said to be related more to quantitative than to qualitative research (Creswell, 2018). It is called postpositivism as it upholds the thinking after positivism which challenges the notion of absolute truth of knowledge (Philips and Burbules, 2000) since we can hardly be completely positive about our knowledge of human behaviour and actions.

Postpositivists share the philosophy stating that causes determine effects which can be tested through experiments. According to Burbules (2000) this position holds the following key assumptions:

a. Knowledge is conjectural and absolute truth cannot be found

b. Research is the process of making claims and then refining or abandoning some of them for other claims more strongly warranted.

c. Data and rational considerations shape knowledge

d. Research seeks to develop relevant, true statements, ones that can serve to explain the situation of concern or that describes the causal relationship of interest.

e. Being objective is an essential aspect of competent inquiry.

The knowledge developed by postpositivism is based on observation and measurement of reality that exists "out there" (Creswell, 2018) because there are laws and theories that govern the world, and the postpositivist researcher needs to test and refine them with the aim of understanding the world.

5.2.3. CONSTRUCTIVISM

Also called social constructivism, constructivism or interpretivism is strongly related to qualitative research. Social constructivists believe that individuals are always in search for understanding of the world they live and work in. Various induviduals hold various views of the same reality, because of each individual past experience. The researcher would thus try and understand the complexities from the stuation being studied, instead of narrowing them into categories (Creswell, 2018). The author contends that subjective meanings from participants are negotiated through social interaction and through individual's lives.

The research aims to make sense of the views others hold about the world. Therefore, unlike with the postpositivists, the constructionist researcher generates or inductively develops a theory or pattern of meaning (Creswell, 2018). Crotty (1998) has developed some key assumptions related to constructivism:

a. Human beings construct meanings as they engage with the world they are interpreting

b. Humans engage with their world and make sense of it based on their historical and social perspectives

c. The basic generation of meaning is always social, arising in and out of interaction with a human community.

Processes of interaction among individuals are key to constructionism. Researchers would focus on certain contexts in which people live and work in order to understand the actual historical and cultural settings and therefore interpret their various experiences.

5.2.4. TRANSFORMATIVE

Transformative approach started during the 1980s and 1990s from individuals who felt that the postpositivist assumptions imposed structural laws and theories that excluded marginalised individuals in society or issues of power and social justice, discrimination, and oppression that needed to be addressed (Creswell, 2018). The author (Ibid.) contends that there exists a complex body of literature characterising this worldview, but main groups of researchers are critical theorists; participatory action researchers; Marxists; feminists; racial ethnic minorities; persons with disabilities; indigenous and postcolonial peoples; and members of the lesbian, gay, bisexual, transsexual, and queer communities.

For Mertens (2010) a transformative worldview research inquiry needs to closely linked with politics and a political change agenda to address social oppression at whatever levels it happens. Therefore, research agenda must contain action for reform capable of changing both participants' lives, the institutions in which individuals work or live, and the researcher's own life.

One of the issues would constitute the focal point for the beginning of the study. Moreover, collaboration between the researcher and participants is key so as not to further marginalise

the participants as a result of the inquiry. In this sense, transformative research provides a voice for these participants, raising their consciousness or advancing an agenda for change to improve their lives. It would thus be seen as a "*united voice for reform and change*" (Creswell, 2018, p. 9).

Martens (2010) has summarised the transformative paradigm as follows:

a. It places central importance on the study of lives and experiences of diverses groups that have traditionally been marginalised, and how their lives have been constrained by oppressors and the strategies that they use to resist, challenge, and subvert these constraints

b. The researcher focusses on inequalities based on gender, race, ethnicity, disability, sexual orientation, and socioeconomic class that result in asymmetric power relationships.

c. The research in the transformative worldview links political and social action to these inequities.

d. It uses a program theory of beliefs about how a program works and why the problems of oppression, domination, and power relationship exist

5.2.5. PRAGMATISM

Pragmatism derives from the work of Pierce, James, Mead, and Dewey (Cherryholmes, 1992). Other writers include Murphy (1990), Patton (1990), and Rorty (1990). There are many forms of of this philosophy, but for many, pragmatism as a worlview arise out of situations, and consequences rather than antecedent conditions (as in potpositivism). It is concerned with applications and solutions to problems (Patton, 1990).

Instead of focussing on methods, researchers emphasize the research problem and question and use all approaches available to understand the problem. As a philosophical underpinning of mixed methods studies, Morgan (2007), Patton (1990), and Tashakkori and Teddlie (2010) convey its importance for focussing attention on the research problem in

social science research and then using pluralistic approaches to derive knowledge about the problem.

Alongside Cherryholmes (1992), Morgan (2007), Creswell (2018) contends that pragmatic provides a philosophical basis for research; with the following key features:

a. Pragmatism is not committed to any one system of philosophy and reality.

b. Individual researchers have freedom of choice. In this way, researchers are free to choose the methods, techniques, and procedures of research that best meet their needs and purposes.

c. Pragmatists do not see the world as an absolute unity.

d. Truth is what works at the time. It is not based in a duality between reality independent of the mind or within the mind. Thus, in mixed methods research investigators use both quantitative and qualitative data because they work to provide the best understanding of the research problem.

e. The pragmatist researchers look to the what and how to research based on the consequences – where they want to go with it. Mixed methods researchers need to establish a purpose for their mixing, a rationale for the reasons why quantitative and qualitative data need to be mixed in the first place.

f. Pragmatists agree that research always occurs in social, historical, political, and other contexts. In this way, mixed methods studies may include a postmodern turn, a theoretical lens that is reflective of social justice and political aims.

g. Pragmatists have believed in an external world independent of the mind as well as that lodged in the mind. But they believe that we need to stop asking questions about reality and the laws of nature.

h. Thus, for the mixed methods researcher, pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

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5.2.5.1. THE RESEARCH PHILOSOPHICAL ORIENTATION: PRAGMATISM

This research aim is to find a way to measre sustainability in LDCs and in the D.R. Congo's gorilla tourism sector. Literature has indicated the existence of several frameworks used to measure sustainability. However, all the tools used only measure the effects of human's activity causing unsustainability (ex-post measurement). The tools have not captured the holistic approach (ex-ante measurement) of assessing the causes making stakeholders to behave unsustainably. Two key drivers have emerged from the theoretical framework as capable of explaining ex-ante sustainability: stakeholders and exchanges resulting from various actors' interactions within the tourism sector. Sustainability Indicators have therefore been identified as the most appropriate way to assess the exchanges and thus measure sustainability in a human-centric manner. In order for sustainability to be achieved, stakeholders' exchanges need to be of high intensity and of excellent quality.

To achieve the ex-ante sustainability measurement, the pragmatist ontological orientation stands as the appropriate worldview for this research. Pragmatism supports the holistic approach to measuring sustainability, an approach derived from actions, situations and consequences, but not from antecedent conditions (Rossman and Wilson, 1985). We concur with Creswell (2018) that pragmatism, as a worldview, is dictated not by the methods but rather by the research problem and research question. The researcher would therefore use "*all approaches available to understand the problem*" (Creswell, 2018, p.10).

5.3. RESEARCH DESIGN

Research design is about the organisation of research activities in order to achieve the research objectives and aim (Easterby-Smith et al, 2008). Whilst methods are addressed by the approaches used in this research for data collection and analysis, they have been used to establish the interactions happening between stakeholders. Several authors (Creswell,

2018, Cherryholmes, 1992 and Morgan, 2007) suggest that for mixed methods researchers, pragmatism leads not only to multiple methods and different worldviews but also to various assumptions, as well as different forms of data collection and analysis.

Research designs are different types of inquiry in qualitative, qualtitative and mixed methods approaches. They have also been refered to as strategies of inquiry (Denzin and Lincoln, 2011). Research designs define specific direction for each research study. Computer technology has made it possible to researchers to engage into complex procedures of data collection and analysis. Three types of research designs are frequently used in social sciences: quantitative, qualitative and mixed methods.

5.3.1. QUANTITATIVE DESIGN: DEDUCTIVE APPROACH

Quantitative research design is about processes of collecting, analysing, interpreting, and writing the results of a study and then making an interpretation in line with a chosen theory. It consists of the following main approaches: survey research and experimental research (Creswell, 2018).

5.3.2. QUALITATIVE DESIGN: INDUCTIVE APPROACH

Qualitative research, which employs an inductive approach, aims at generating insight from the way people perceive the the world aroung them. It consists of collection of open-ended data, analysis of text and images, representation of information in figures and tables, and personal interpretation of the findings (Creswell, 2018). The named author (Ibid.) states that numbers have "*become more clearly visible during the 1990s and into the 21st century*" (p.13). Key qualitative research methods comprise: narrative research, phenomenological research, grounded theory, ethnography and case studies.

5.3.3. MIXED METHODS APPROACH

This approach involves the combination or integration of qualitative and quantitative research and data in a research study (Creswell, 2018). The named author (Ibid.) contends that integrating diverse types of data best provides a thorough understanding of a research problem than either method alone. The main research designs in mixed methods approach are: convergent, sequential (explanatory sequential and exploratory sequential), and transformative mixed methods. Some key aspects need considering while planning for a mixed methods study: timing, mixing, weighting and theorizing.

Timing in mixed methods data collection explains the sequence of data collection in a study and whether data collection occurs simultaneously, or the researcher collects the data sequentially with one database gathered prior to the other database (Creswell, 2018). When qualitative data colletion comes first, the research is exploratory, and explanatory when the qualitative data is used to confirm or elucidate quantitative findings. The qualitative phase in this research provided orientation to the quantitative stage. It helped to identify who the key stakeholders were in the DR Congo's gorilla tourism sector. Furthermore, it confirmed most of the UN's Sustainability indicators and helped to genrerate adding new ones.

Mixing in mixed methods research can take place at any of the levels in the process of data collection, analysis and interpretation or at all three phases (Cresswell and Plano Clarke 2007). Whilst qualitative results were analysed separately, quantitative results were backed up by some evidence from respondents in the qualitative findings in order to further explain the obectives which were to measure the Intensity and the Quality of exchanges between stakeholders.

Weighting in mixed methods refers to the priority given to the quantitative or the qualitative method in a given study. Equal priority can be given to either mehod or one method could

be emphasised more than the other (Creswell, 2009). More emphasis has been placed on quantitative findings as they helped design the Sustainability Value Model (SVM).

Theorizing is concerned with whether a theoretical orientation runs through the whole study, or only influences the questionnaire, the study participants or the tools used for collecting data. It could be either implicit or explicit. This research has used theory in an implicit manner. Social Exchange and Stakeholder theories played a key role in designing the model and tool for measuring sustainability.

5.3.3.1. The study research design: mixed methods exploratory sequential

This thesis aims to design a tool for measuring sustainability in Less Developed Countries, more specifically within the gorilla tourism sector of the D.R. Congo. It is grounded in the pragmatist philosophical orientation which supports the holistic approach to measuring ex-ante sustainability as opposed to all existing ex-post measurement frameworks. This is a valid approach as it is derived from stakeholders' actions and situations (Rossman and Wilson, 1985) and the researcher can make use of multiple methods to attain stated research objectives. The exploratory sequential mixed methods approach has been identified as best candidate for the present research. It started with a qualitative exploratory stage wherein key Sustainability Indicators and key stakeholders, as well as their perception and attitude towards sustainability.

5.4. RESEARCH STRATEGY

The choice of a specific strategy to employ in a research is defined by the type of the investigation: qualitative, quantitative or mixed methods. Research starategy is about the type of study the researcher decides to use in oder to guide the procedures in the research deign (Creswell, 2018).

While qualitative design strategies include the grounded theory, ethnography, case studies, narrative research and phenomenological research, the quantitative design strategies comprise of experiemental research and surveys.

In line with its exploratory sequential mixed methods, this study has used phenomenological and surveys research strategies respectively for its qualitative and quantitative stages. In a phenomenological research, the researcher tries to understand participants' life experiences in order to draw patterns and relationships. This strategy has been found appropriate for the qualitative stage (13 respondents) of this mixed methods research. It has thus helped not only to identify the 5 stakeholder groups the gorilla tourism sector comprises but also to select the key sustaianability indicators relevant to the tourism sector in the DR Congo.

Before interviews were carried out, desk research was conducted with the aim of acquiring initial information about the research areas. Owing to limited published and reliable data on tourism in the D.R. Congo, we collected secondary data within the country. These relate particularly to current legislation and initiatives, tourist arrivals historical data, and socio-economic development of areas neighbouring gorilla parks.

We carried out neither structured interviews nor focus groups to avoid socially desirable responses. These methods are appropriate as field-based approaches because our aim is to understand tacit stakeholders' perceptions as

> *"interviewees may use words or ideas in a particular way, and the opportunity to probe these meanings will add significance and depth to the data you obtain"* (Bryman & Bell, 2007, p.511).

To answer the research questions, and before establishing the measurement of sustainability of gorilla tourism in the D.R. Congo, our research will pursue the following objectives:

1. *To assess the applicability of the UN's Sustainability Indicators to the D.R. Congo's gorilla tourism industry and generate new Sustainability Indicators*

2. *To identify key stakeholder groups applicable to the sector*

3. *To explore stakeholders' understanding and perception of sustainability*

In addition, a pilot study was carried out among the same respondents as those from the qualitative stage of the study. The pilot study intended to test the two main measures of sustainability, intensity and quality of stakeholders' exchanges, within the proposed tool and model for measuring ex-ante sustainability, the Sustainability Value Model (SVM).

5.4.1. THE QUALITATIVE STAGE

5.4.1.1. Data collection

Thirteen in-depth interviews were conducted in and around the Virunga and the Kahuzi-Biega national parks, the home of the Congolese gorillas. The interviews were semi-structured, complying with a consistent theme. They were supported by a guide (appendix Nr 1) and moderated by the researcher.

Semi-structured interviews are relevant to a pragmatist paradigm chosen for the case of this research (Collis & Hussey, 2009). They are mostly appropriate when it is necessary to understand the construct that the interviewee uses as a basis for his or her opinions and beliefs about a particular matter or situation (Easterby-Smith et al., 1991).

In addition to projective techniques (questioning and word association), we used critical incident technique to encourage idea generation and truthful account of personal experience of activities and events (Collis & Hussey, 2009). This technique helped us gain insight from villagers neighbouring the parks, as they recounted their living conditions. Enabling techniques may not be appropriate for such in-depth interviews conducted in people's homes/offices. However, prior to carrying out the interviews, background information was collected about both the stakeholders and the tourism industry. This contextualisation is critical in qualitative studies as it enhances *"your sensitivity to the qualitative research data you subsequently collect and aid your interpretation"* (Collis & Hussey, 2009, p.143).

Each interviewee was asked about their understanding of tourism sustainability and its benefits gained from interacting with other stakeholders. They also identified key Sustainability Indicators from a set of United Nations Sustainable Development ones (Appendix 2) and generated new Indicators applicable to the Congolese Tourism Industry.

Each area (region) of research was approached separately, and data collection took place in the summer period: June 20th – August 2nd. This 'dry' season is convenient for tourism as

tracking in the tropical jungle is safer. Findings from collected data has allowed for the design of the quantitative survey questionnaire, which was administered later.

In line with the stated objectives, we believe our choice of mixed-methods minimised the method effect, and thus increased the confidence level to be placed in our conclusions. In order for a research strategy to be accurate, its findings need to be both reliable and valid. This idea is well explained by Rogers (1961) arguing that scientific methodology needs to be seen for what it truly is, a way of preventing the researcher from deceiving himself or herself in regard to their creatively formed subjective hunches which have developed out of the relationship between the researcher and his/her material.

   a. **Reliability** conveys the idea that the findings would be the same if the research were carried out over again (replicability); it leads to measurement consistency. One way of understanding the need for reliability is summarised as:

   "since there can be no validity without reliability ... a demonstration of the former is sufficient to establish the latter" (Lincoln & Guba, 1985, p.316).

   Therefore, reliability is a consequence of the validity in a research. We will try and reduce threats to reliability in both stages of this research.

- Qualitative stage: Debate about reliability in qualitative research abounds. To reduce threats to reliability, we intend to carry out overt, face-to-face in-depth interviews, as opposed to telephone and other forms of interviews. Face-to-face interviews help respondents discuss openly sensitive issues. They also help collect non-verbal behaviour and address ethical issues. Guba and Lincoln (1994) provide an insightful way around the debate about validity and reliability in qualitative studies by proposing alternatives. While in agreement that these two criteria have traditionally been more associated with quantitative than to qualitative research, the authors suggest trustworthiness and authenticity as criteria for evaluating qualitative research. They relate four trustworthiness criteria to quantitative

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equivalent criteria as follows: credibility would relate to internal validity, transferability to external validity, dependability to reliability, and confirmability to objectivity. Trustworthiness is of particular importance in this research as it substantiates the credibility placed upon any piece of qualitative research, which is validated by respondents.

- Quantitative stage: We intend to minimise the threats to the three aspects of reliability: while stability will be enhanced through the use of test-retest, internal reliability will be checked through the analysis of the Cronbach's Alpha, and the inter-observer consistency by the use of pre-coded closed-ended statements, administered face-to-face. We will not incentivise respondents, as this practice can lead to risks of contamination (distortion of respondents' answers), affecting reliability.

b. Internal Validity refers to the extent to which data collection method. it seeks to ascwrtain whether the methods accurately measure what they were intended to measure (Saunders et al., 2007). In other words, it is concerned with both the accuracy of the measurement instruments and the truthfulness of findings. It answers the question whether those tools actually measured what they were set out to measure.

There are several types of threats to internal validity: history, maturation, testing, instrumentation, mortality threat, and ambiguity about causal direction (*Ibid*). To reduce these threats, and thus increase internal validity of our research, we intend to pre-test the measurement instrument. In so doing, threats to the two relevant aspects for validity in this research (face and construct validity) will be reduced. To ensure a higher validity level, we will administer (pre-test) the questionnaire amongst a limited sample of our population of interest before commencement of the actual survey.

c. External Validity *(generalisability)* answers the question about whether the findings may be generalised to all organisations (Saunders et al., 2007). Since the non-probability sampling method has been used in this research, one would assume there is little chance

for its specific findings and conclusions to be generalised to all LDCs, for lack of representativity of such samples. Furthermore, we agree with Bryman & Bell (2007) when they question the very essence of representativity of non-probability samples. The authors argue that any sample can only be representative of the population from which it was drawn as (Bryman & Bell, 2007).

The establishment of credibility of findings entails both ensuring that research is carried out according to the rules of good practice and submitting research findings to the members of the social world who were studied for confirmation that the investigator has correctly understood that social world (Bryman & Bell, 2007).

In this perspective one would believe that the rigour applied in this research would warrant the generalisability of its findings. However, Scott (2012) argues that this argument may not always hold true due to the fact that networks sampling suggests otherwise.

To conclude, the questions around validity and generalisability in social research are addressed by the researcher's adherence to research rigour. This rigour would bring about credibility research users would place in the research. In this perspective we believe that the rigour to be applied in this research will warrant for generalisability of its findings.

5.4.1.2. Data analysis

The 13 interviews were analysed through category building. We used Nvivo software and thoroughly analysed the data from the transcripts. Nvivo was the most appropriate tool to use as it has the capability to construct categories from a very large amount of data, as opposed to manual method. Categories were thus built by means of a wordtag. All interview transcripts were merged in one file and a wordtag was drawn to make a visual representation of words that occurred the most and stood out from the text. We then cleared out generic words (found irrelevant to the research) from the cloud (articles, verbs). From the 13

interviews, five main groups have emerged. They represent key stakeholders in the gorilla park tourism sector.

Additionally, a list of 45 UN Sustainable Development Indicators (SDI) was presented to interviewees. They were asked to rank the SIs on relevance to the gorilla tourism. Selection was carried out on a 5-point scale (1 = not relevant at all and 5 = very relevant). Respondents were asked to decide which indicators they found to be the most relevant to the gorilla tourism sector. Resulting SIs are presented in *Table 26*.

5.4.1.3.   Sampling Technique

Sampling, according to Saunders et al. (2007), is a research tool that enables the researcher to collect data from subgroups rather than the whole population. Researchers select between the probability and the non-probability sampling methodologies, or a combination of both, to comply with their own research paradigms in order to meet their research objectives.

Non-probability sampling methodology was applied to the selection of respondents for each of the research strategies. This is motivated by the lack a sampling frame. As there was no available sampling frame for these in-depth interviews and faced the difficulty of determining a sample. The applied convenience snowball sampling method was appropriate in this case. A snowball sample is a non-probability sample in which initial contact is made by a small group of participants who are relevant to the research topic and this is group then used to propose other participants relevant to the research topic (Bryman, 2012). Although respondent selection was based on their willingness to being interviewed, we ensured the initial people were carefully selected in order to achieve the right snowballing effect. The manager at one of the hotels in Bukavu (our first research area) not only pointed us to the regional conservation and tourism officials, but also recommended us to them. This was the

turning point for our convenience sampling as these officials then recommended us to their counterparts in the second research location (Goma).

Choice between two or more available respondents depended on the researcher's own judgment about fitness to the research objectives. This was the case when deciding to choose between two international non-governmental organisations: WWF and WCS in Bukavu. Our choice for WWF was motivated by the observed close affinity between the conservation department and WCS. This helped avoid respondent bias in the research. Apart from local community leaders, one respondent from each of these five communities in the two targeted locations was interviewed.

We achieved the planned total of 13 in-depth interviews in both national parks areas, yet with the set number of respondent categories, as highlighted in *Error! Reference source not found.*.

		Respondents Category	
Target Groups		**Virunga (Goma)**	**Kahuzi-Biega (Bukavu)**
Institutions: Government Authorities	National (1)	1 Director	
Institutions: Tourism Organisation	Regional (2)	1 Director	1 Director
Institutions: Conservation Organisation	Regional (2)	1 Director	1 Director
Businesses	Hotels (2)	1 Manager	1 Manager
	Tour Operator (1)	1 Speed Boat Owner	
Environment: Non-Governmental Organisations	International (2)	*1 WWF*	
		1 GTZ	
Local Communities Leaders (1)		1	
Tourists (2)		*2*	

Total Interviews 13	*13*

Table 22: Qualitative and Pilot Research Sampling

5.5.   Access to Respondents

To obtain easy access to individual respondents, we sought word of mouth recommendations from our key initial contacts. The first stage started in Bukavu (for the Kahuzi-Biega park), where a hotel manager pointed us to their contacts within the conservation and tourism departments, and these recommended us to their business partners, international NGOs and institution officers. A tourist was contacted at his hotel in Bukavu. The second phase in Goma (for the Virunga Park) was made easy thanks to direct recommendations by respondents in Bukavu. They contacted their Goma counterparts on our behalf. However, we were cautioned about approaching local community members, due to high insecurity level in the areas (See section 4.2.1.). We therefore contacted and obtained support from local community representatives in each of the research areas.

5.6.   Increasing Response Rate

Face-to-face questionnaires yielded a good response rate much higher than telephone interviews (Bryman, 2012). Additionally, snowballing helped to further increase response rate; contacts were recommended to us through word of mouth.

We administered the interviews face-to-face either in respondents' offices or in their most convenient location. Apart from tourists and local community members, all respondents were contacted in their offices. Owing to the fact that these respondents were pre-recommended to us by their peers/acquaintances, we achieved 13 interviews as detailed in *Table 22*. Following this stage, and in line with the mixed-methods methodology, the quantitative stage was conducted.

5.7. The Quantitative Stage

With the 5 key stakeholder groups defined and the 24 Sustainability Indicators agreed upon, the quantitative data collection and analysis were achieved exclusively by means of Social Network Analysis. Wasserman et al. (1994) argue that Social Network Analysis (SNA) is based on society, which is primarily built around relations, and resulting exhanges and patterns. While *Nodes* will be referred to as actors, also as stakeholders, *Relations* will be invariably called exchanges, benefits or again value.

The quantitative stage of the research helped to measure the strength (intensity/breadth) and the quality (depth) of relationships existing within the tourism sector. It also assessed various benefits stakeholders (actors) receive from other actors in the industry, and henceforth helped to assess the sustainability level for each individual Indicator. Each Indicator was presented as a question on an individual roster for interviewees to assess.

To this end, the face-to-face method of administering the questionnaire was used. This method has been selected over all others (CAPI, CATI) as it complies with the field realities within the area of research. Less Developed Countries in general, and the D.R. Congo in particular, have either limited or unevenly distributed telephone penetration rate, and much less so for computer access. This is exacerbated by the lack of landlines in many countries (like the D.R. Congo), making the cost of interviews by mobile phones unaffordable for interview purposes. Therefore, face-to-face interviews stand as a better alternative to telephone interviews, as they offer an array of benefits. In addition to yielding relatively higher response rate and better output quality than telephone interviews, face-to-face personal interviews allow for longer interview time, help to target the right respondents and easily establish rapport with selected respondents, thus leading to less politically correct responses from them. Finally, face-to-face interviews allow the interviewer to capture non-

verbal signals (puzzlement, doubts, etc.) and further clarify questions using visual support materials (show cards, photos, etc.) (Bryman, 2012).

Three hundred and two structured questionnaires were administered by interviewers. Therefore, we maximised standardisation, and thus minimised errors resulting from intra and inter-interviewer variability. Intra-interviewer variability, on the one hand, occurs when interviewers lack consistency in the way they ask questions and record answers. On the other hand, it results from the way two or more interviewers would ask questions and record answers in an inconsistent manner. We thus minimised intra-interviewer variability by training interviewers and by pre-testing the measurement instrument. Inter-interviewer, however, was eliminated by the exclusive use of closed-ended questions which, in addition to the fact that they are easy to process, eliminate coding errors (intra and inter coder variability), and thus lead to achieving standardisation (Bryman, 2012).

The quantitative stage of the research was carried out to achieve the following objectives:

1. To assess the breadth of exchanges between key stakeholder groups
2. To assess the quality of those exchanges

5.7.1. Research methods: Social Network Analysis

Social Network Analysis is growing in popularity amongst social researchers studying relational structures in social entities. Social actors can assign meaning to the world as it has no existence of its own, except as ascribed in social networks through people's talk, writing or arguments about it (Bryman, 2012). Social networks are formally defined as *"a set of nodes (or network members) that are tied up by one or more types of relations"* (Wasserman and Faust, 1994, p.320*)*. Relational data are captured and analysed on basis of the patterns derived from connections between actors. It is worth noting that these exchanges are based on the actors' own perception of their environment and of the social space which, according to Lewin (1936), are present in a field and are part of the group

within its surrounding environment. This environment can be internal to the group, and even dependent on it. Scott (2012) contends that the most relevant environment to the group is the perceived one as

> *"its social meaning is actively constructed by group members on the basis of their perceptions and experiences of the contexts in which they act" (p.15).*

5.7.2.   Social Network Analysis: Data Collection

Data collection was based on rosters, matrices including actors both vertically and horizontally. Data was collected for each of the 24 sustainability indicators of the research, i.e. each respondent had to provide answers to 24 roster questionnaires. All rosters required valued data (ordinal) sequentially addressing the Intensity and the Quality of each of the sustainability indicators. The questions were asked as follows:

1. Type of Intensity question: e.g. '*How many times did Actor X visit you over the last three months?*'

2. Type of Quality question: e.g. *'How happy are you with the visits you received from Actor X?'*

Relational data can be either nominal or ordinal and can describe the strength of friendship choice (Hanneman, 2011). Both strength and quality data were ordinal on a five-point scale. Respondents in the rows would rate the interactions they received from those in columns, and thus assess the Intensity and the quality (good / bad) of those exchanges.

5.7.3. Social Network Analysis: Sampling

As many as 302 survey questionnaires were administered face-to-face to conveniently targeted respondents for a period of no less four months (starting August 2012). Owing to the lack of a sampling frame, we initiated our convenient sampling from hotels, as was the case with the qualitative interviews. This sampling method is in line with the method intended to analyse the deriving data, i.e. the Social Network Analysis (SNA). A social network exists thanks to nodes and ties, the latter being exchanges between its actors, be they individuals or organisations. Simmel (1971) argues that *"Society exists where a number of individuals enter into interaction"* (Simmel, 1971, p.23) to achieve a purpose. Therefore, the snowball sampling method made access easier and increased response rate for this research, as actors from the same stakeholder group were willing to recommend their peers to us (Bryman, 2012).

We had planned to achieve 300 completed questionnaires with equal regional and cell split: 150 respondents in each of our research locations (Virunga and Kahuzi-Biega parks), and a specified number of respondents for each of the five stakeholder groups.

As there was no sampling frame for the targeted respondent profile, we could not pre-define the demographics of our final sample. However, respondent occupation guided the selection of the right respondent, and the following sample split in each sub-group was planned to yield a total of 300 respondents, as detailed in Error! Reference source not found..

Target respondent groups	KBNP-Bukavu	VNP-Goma	Total
International Community: Conservation/Environment: employees in national and international conservation NGOs	30	30	60
Governmental Institutions including employees from regional and national tourism and conservation departments	30	30	60
Local Communities: leaders and employees in the hospitality, education and health sectors within and around the parks.	40	40	80
Businesses including hotels/restaurants, employees, tour operators	40	40	80
Tourists who have visited a gorilla park	10	10	20
Total	**150**	**150**	**300**

Table 23: Sampling Schedule: quantitative stage

Although we achieved 302 interviews, both the regional split and respondent categories were not achieved due to lack or unavailability of these, caused mainly by insecurity, at varying levels (Maekawa, 2015). Error! Reference source not found. shows the actually achieved sample:

Number	Respondent Category	Kahuzi Biega	Virunga	Grand Total
1	Businesses – HotelTravel & finance	20	29	49
2	Businesses – RestoCatering & Shops	21	12	33
3	Businesses - Transport (AirRoadLake)	6	9	15
4	Conservation – NGO International	17	6	23
5	Conservation – NGO Local	22	16	38
6	Institutions - ConsvtnTourism	7	10	17
7	Institutions - ImmigrationPolice	5	7	12
8	Institutions - Government	11	13	24
9	Local Communities - FarmerSalespeople	6		6
10	Local Communities - Leaders	12	2	14
11	Local Communities - ParkguardTouristguide	4		4
12	Local Communities - PublicServices	35	6	41
13	Tourists	25	1	26
	Grand Total	**191**	**111**	**302**

Table 24: Respondent Categories

Whilst Businesses have 3 respondent categories, Conservation (international Community) has 2, Institutions (Government) 3, Local Communities 4 and Tourists only 1 category.

5.7.4. Social Network Analysis: Data Analysis

Data analysis was carried out by means of SNA softwares: UCINET and NetDraw. Although reference will be made to relationships between individual actors as categories, key analysis will be drawn at network level, which is a whole with elements affecting one another, yet operating for the same purpose (Allee, 2008). The following key analysis measures have

been used: cluster analysis, brokerage, reciprocity, degree and betweenness. *Table 22* summarises the key relational measures employed in the present research.

Nr	MEASURE	CONTENT
1	Cluster analysis	A tool that reveals associations, patterns, relationships, and structures. It is also a measure of the network Density. Clusters (ucinet) are drawn to provide evidence of network actors sharing the most value together.
2	Density	Density (ucinet) evidences how strong the network is by displaying the actual connection value as compared to the total connections the network can possibly have. Network Density is also displayed within Netdraw when presenting all network relationships.
3	Brokerage	It examines ego's relations with its neighbourhood from the perspective of ego acting as an agent in relations among groups (categories).
4	Reciprocity Analysis	Helps better assess cohesion within the network. In NetDraw, reciprocity displays all relationships between actors, highlighting mutual relations between actors. Actors missing relations are displayed as isolates, those not connected with any other actors in the network.
5	Degree	indicates the number of connections a person (ego) has through giving to or receiving value from others (alters).
6	Betweenness	indicates how a person positions in a network vis-à-vis others and refers to the extent to which the person is able to serve as an intermediate point of contact between any two other persons.

Table 25: Key relational measures employed in the present research

In line with the holistic approach to this research, the choice of SNA has been dictated by the fact that analysing social networks requires looking at connections within a network (not group) as, unlike attributes, relations connect individuals irrespective of their socio-economic profiles, defining their opportunities and constraints deriving from the circle those individuals live and operate in (Scott and Carrington, 2011).

Thirteen sub-groups were aggregated from the 302 respondents. However, in order to avoid clutter in the SNA graphing system, we further aggregated the 13 subgroups to reach only 5 main key stakeholder groups which allowed for easy interpretation as,

> "*visualisation is difficult for large and complex networks, but the visual imagery behind the basic concepts of graph theory can help us imagine the more complex structures of which they are the building blocks*" (Scott, 2012, p.35).

From each roster (each includes an indicator, relationships between 302 actors and 13 sub-groups) we applied both reduction of actors and combination of ties. **Reduction** was applied at two levels: by grouping the 302 respondents into the 13 main categories of actors. Then we brought the 13 sub-categories down to five main stakeholder groups. We also applied a combination of 24 SIs describing Intensity of the benefits received by stakeholders into a big grouping named 'Intensity'. As suggested by Hanneman et al. (2005),

> "*the reduction approach seeks to combine information about multiple relations among the same set of actors into a single relation that indexes the QUANTITY of ties*".

Additionally, we applied **Combination** by aggregating the 24 ties describing how these actors perceived the benefits they had received from other stakeholders. We have called this 'Quality' as

> "*the combination approach also seeks to create a single index of the multiplex relations, but attempt to represent the quality of ties, resulting in a qualitative typology*" Hanneman et al. (2005, p.338).

As each pair of the 24-multiplex data had the same structure (nodes), and we used matrix operations "*to combine the multiple cognitive maps (e.g. averaging, minimum value, maximum value, etc.)* (Hanneman et al., 2005, p.338). Such matrices are

> "often *reduced to a new class-by-class matrix by summarizing the information within each block. Sometimes the average density of ties or the average value of tie strength, is used to summarize the blocked matrix*" (Hanneman and Riddle, 2005 in Scott and Carrington, 2011, p 339).

5.7.5. Social Network Analysis: Model development approach: The Pilot Phase

Before the quantitative phase of tis research, a pilot was conducted with the aim of testing the measurement tool. Thirteen structrured questionnaires in the form of rosters were conducted in and around the Virunga and the Kahuzi-Biega national parks, the home of the Congolese gorillas. The structured survey questionnaires were administered by the researcher himself. The roster covered two questions, the same used in the quantitative stage. The same respondents (as in the qualitative interviews - as highlighted in **Error! Reference source not found.**) were presented with two rosters to assess the frequency of visits by other stakeholders and the quality of those visits they received from mentioned stakeholders. By assessing quality, respondents were asked how they felt about the visit, i.e. whether the visit was good or bad for them. In total, 26 rosters were filled (two rosters per respondent * 13 respondents). The obtained data were later analysed using Social Network Analysis software UCINET and NetDraw, its associated graphing software. Sustainability Value Model (SVM) has been designed to display the Intensity and the Quality of network exchanges. Two levels of analysis were appied: *Global* and *Sustainability Indicator* based with all stakeholders included. While *Global assessment* looks at all Sustainability Indicators, *Sustainability Indicator assessment* only looks at individual Sustainability Indicators or a meaningful group of SIs. Additionally, a comparative analysis is presented; and for each sustainability indicator, it compares the strength and the quality of relationships amongst all stakeholders. Whichever level is concerned, the analysis will look at the following key measures from Ucinet and NetDraw, its related graphing software. Hanneman & Riddle (2011, p.331) argue that graphs are very handy in presenting *information about social networks. …" You don't have to do the math (that's why we have computers) … a good drawing of a graph can immediately suggest some of the most important features of overall network structure …a good drawing can also indicate how particular ego (node) is embedded in (connected to) its neighbourhood*".

5.8.   Access to Respondents

To obtain easy access to individual respondents, we sought word of mouth recommendations from our key initial contacts. The first stage started in Bukavu (for the Kahuzi-Biega park) where a hotel manager pointed us to their contacts within the conservation and tourism departments, and these recommended us to their business partners, international NGOs and institution officers. A tourist was contacted at his hotel in Bukavu. The second phase in Goma (for the Virunga park) was made easy thanks to direct recommendations by respondents in Bukavu. They contacted their Goma counterparts on our behalf.

5.9.   Increasing Response Rate

Face-to-face questionnaires yield a good response rate much higher than the telephone interviews. Additionally, snowballing helped to further increase response rate; contacts were recommended to us through word of mouth. We administered the quesionnaires face-to-face either in respondents' offices or in their most convenient location. Apart from tourists and local community members, all respondents were contacted in their offices. Owing to the fact that these respondents were pre-recommended to us by their peers/acquaintances, we printed questionnaires as need arose. We thus achieved a total of 7,852 rosters, (26 rosters per respondent * 302 respondents) which were later analysed using the Social Network Analysis method (Scott, 2012).

5.10. Research Ethics

We ensured strict adherence to the Data Protection Act 1988, and to the Market Research Society Code of Conduct. We negotiated and obtained audiotaping of the interviews, and clearly let respondents know that all the data would be used solely for this research purpose. All respondents were told their names would not be disclosed, under any circumstances. They were also made aware that they could terminate the interview at any time.

In addition,, face-to-face structured interviews stipulated that respondents would be solicited neither for advertising, selling nor for fundraising, and that their individual responses would not specifically be looked at as all the data would be kept confidential.

Before initiating our field research, the Faculty of Business made it a requirement that a authorisation be given to us, in writtin, by the Ministry of Tourism and Conservation of the D.R. Congo. This was due to the fact that we had planned to visit at least one gorilla park, so we fully become acquainted with the research area. We thus obtained the letter that helped us even gain access to official authorities for interview purposes (see Appendix 5). The letter also facilitated our access to the park, as we were charged neither the visit not tracking fees. Furthermore, the park authorities allowed 6 armed rangers to escort us in the jungle for visiting gorillas (see Appendix 6).

CHAPTER 6: PHASE 1: QUALITATIVE FINDINGS AND DISCUSSION

6.1. INTRODUCTION

The findings from the qualitative stage cover three main sections: the emergence of key stakeholder groups within the tourism industry, their attitude towards sustainability, and the assessment of the exchanges within the tourism sector, as explained by the Sustainability Indicators. Specifically, the qualitative phase of the research covers the following objectives:

1. To identify key stakeholders applicable to the Congolese gorilla tourism sector
2. To validate UN's Sustainability Indicators and identify locally-defined new one
3. To explore key stakeholders' understanding and perception of Sustainability

Five key stakeholder groups were identified and 24 Sustainability Indicators (SIs) identified as follows: 18 out of the 45 United Nations' Sustainability Indicators were validated and 8 were locally defined. (See section 6.3.). Additionally, the research explored stakeholders' understanding of the concept 'Sustainability'. We found out that the concept is well understood and positively perceived by all these five stakeholder groups as in French 'sustainability' translates to 'durability', which is "the *ability to withstand wear, pressure, or damage*" (Oxforddictionaries, accessed on Feb 2018). Interviewees said sustainability is "*for our children to inherit a clean environment as we have it today*" (Environment respondent). They also associated the concept with 'longevity'.

With regards to tourism, sustainability is understood as the only way to ensure visitors will come to visit the country because "*we have something special to show them, something still in its God-made condition, the jungle*" (Institutions - Tourism official). Yet,

> "*if our authorities carry on ill-treating locals as is currently done, we'll soon forget about the snow that is on our mountain tops in the parks*" (Local communities representative).

These interviewees are aware that cutting trees down would bring about drought. However, they closely associate sustainability to 'agents' for sustainability and see themselves as agents for protecting the park's flora and fauna. Moreover, they expressed their concern about the fact that governmental authorities have been hunting them out of park borders. These locals have lived in the vicinity of the parks for very long and have nowhere else to go.

6.2. Objective 1: Identifying key stakeholder groups in the gorilla tourism sector

Five key stakeholder groups were identified within Congolese gorilla the tourism network which extends far beyond national boundaries to the global community. Its actors are national, regional and international.

From *Figure 18*, we can see the emergence of five stakeholder groups from the data: Conservation: (environment) was labelled International Community, Government as Governmental institutions, Local Communities (parkguides, people), Businesses (hotels, travel agencies) and Tourists. Other themes have also emerged from the wordtag.

Figure 18: wordtag of emerging stakeholder groups and some sustainability Indicators

The first research objective pursued by the interviews was to identify key stakeholders within the tourism industry. They represent key stakeholders in the gorilla park tourism sector. The Nvivo generated wordtag emerged with key stakeholders, as seen in *Figure 18*.

1. The Environment, said by most repondents to be the global network, is responsible for the physical environment. The global warming issue has made the environment to become a global asset and issue, too important to be left exclusively to local actors. Achieving environmental sustainability requires that the global network get involved in ensuring synergies in combatting global warming are bearing fruit. This further emphasises the interconnectedness of factors across the board.

2. Institutions as a network are both local and national. These have the responsibility of making and enforcing the right policies, as well as ensuring that the industry obtains the right investment (e.g. in the built environment) for its survival.

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3. The business community, which supports the tourism sector, bridging the needs of both tourists and policy-makers and those of local communities, in the area they operate.

4. Local communities are the people directly affected by the tourism industry (e.g. employees), living in the vicinity of touristic attractions.

5. The Tourist community: these are the main customers for the industry and their exchanges have a critical impact on the whole sustainability discourse within the tourism sector.

6.3. OBJECTIVE 2: To validate UN's Sustainability Indicators and to identify locally defined new ones

Upon selection of the five stakeholder groups from the wordtag *Figure 18* some relevant Sustainability Indicators were also identified. The following retained SIs scored the highest among the 45 UN SIs. The full list is presented in Appendix 3. After data were aggregated and averages drawn, the following SIs were retained.

Susrainability Indicators	Environment (global)	Institutions (nat&local)	Business	Local Communities	Tourists	Total
Socio-Cultural	**4.0**	**4.0**	**5.0**	**5.0**	**4.0**	**4.4**
1.1. Education (Education Provision)	4.0	4.0	5.0	5.0	4.0	4.4
1.2. Employment (New Job Opportunities)	4.0	4.0	5.0	5.0	4.0	4.4
1.3. Health/water supply/sanitation (Health Provision)	4.0	4.0	5.0	5.0	4.0	4.4
1.4. Housing (Provision)	4.0	4.0	5.0	5.0	4.0	4.4
1.6. Cultural heritage (Local Culture Support / Protection)	4.0	4.0	5.0	5.0	4.0	4.4
1.7. Poverty/Income distribution (Decent Salaries)	4.0	4.0	5.0	5.0	4.0	4.4
1.8. Crime (Physical Protection and Security)	4.0	4.0	5.0	5.0	4.0	4.4
3.1. Freshwater/groundwater (Clean Water Provision)	4.0	4.0	5.0	5.0	4.0	4.4
3.14. Land use change (Farming Provision)	4.0	4.0	5.0	5.0	4.0	4.4
4.1. Integrated decision-making (Consultation in decision-making)	4.0	4.0	5.0	5.0	4.0	4.4
4.2. Capacity building	4.0	4.0	5.0	5.0	4.0	4.4
Electricity Provision	*4.0*	*4.0*	*5.0*	*5.0*	*4.0*	*4.4*
Financial Support & Funding	*4.0*	*4.0*	*5.0*	*5.0*	*4.0*	*4.4*
Economic	**4.0**	**4.0**	**5.0**	**4.0**	**4.0**	**4.2**
2.5. Transportation (Transport Safety)	4.0	4.0	5.0	4.0	4.0	4.2
3.12. Sustainable tourism (Tourism Development)	4.0	4.0	5.0	4.0	4.0	4.2
4.7. Institutional and legislative frameworks (Legal Protection)	4.0	4.0	5.0	4.0	4.0	4.2
Honest Staff Provision	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
Infrastructure and Road Improvements	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
New Investments	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
Tax and Finance Policies	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
Training Quality for Staff	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
Value for Money Services	*4.0*	*4.0*	*5.0*	*4.0*	*4.0*	*4.2*
Environmental	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
3.6. Biodiversity/biotechnology (Gorilla Protection)	5.0	5.0	5.0	5.0	5.0	5.0
3.7. Sustainable forest management (Forest Protection from Illegal Occupation)	5.0	5.0	5.0	5.0	5.0	5.0
Grand Total	**4.1**	**4.1**	**5.0**	**4.6**	**4.1**	**4.4**

Table 26: Stakeholder-selected Sustainability Indicators within D.R. Congo Tourism

Whilst the SIs in *italics* (*Table 26*) are locally added indicators, all others were retained from the United Nation's list of Indicators for Sustainable Development. The numbering of the SIs is the standard United Nations' own identification.

6.4. OBJECTIVE 3: Exploring Stakeholders' Perception Towards Tourism Sustainability

Following the identification of key stakeholders within the tourism sector, the research explored stakeholders' understanding and perception of the concept 'sustainability'. Following is the report including objectives 1 and 3.

The research has provided insight about the role each community plays. It has also established the existence (or absence) of interactions between these stakeholders and henceforth helped us to test the tool for use in the quantitative stage, i.e. the Social Network Analysis software, UCINET and its graphical tool, NetDraw. In line with our conceptual framework (see Chapter 5), this insight informed the design of Sustainability Value Model (SVM) which is the aim of the present research. The five identified communities are presented and their perception of sustainability, as applied to the gorilla tourism, is discussed.

1. International Community (Conservation, Environment, Tourism)

The Conservation community has been referred to by respondents as 'Environment'. It represents the International Community, which plays the role of custodians of the world environment as the Congo basin forest, like all world forests, is too important to the world's ecosystem to be left for individual countries to manage. We agree with Eckhart and Lanjouw (2008) when they assert that *"with climate change, every person on earth has become a stakeholder in the future of tropical forests"*.

This group is made up of national and international non-governmental organisations (NGOs) and representatives of some Western governments. The following key stakeholders/actors have been identified in this community: GIZ (a German organisation), WWF (World Wildlife

Fund), WCS (Wildlife Conservation Society) and Greenpeace. Other actors include local advocacy NGOs like the Pole Pole foundation.

As suggested by an international NGO respondent,

> "*since 1980, Kahuzi Biega is among the five UNESCO world heritage sites in the DRC. It is no longer the property of the DRC, but belongs rather to the international community*" because "*during the war against ADFL rebellion, the Eastern Congo was cut off from Kinshasa the capital city, the international community gave rations, medicines, everything needed ... and ensured that people working in the park could continue to work despite the war as it is a world heritage. Otherwise the park couldn't exist today. That's what was labelled the 'green power'*" (Conservation – NGO International respondent).

This is a testimony to the hard work and commitment by the conservation community, essentially made up of international NGOs and co-operation, as reported by Radar Nishuli, Chief Park Warden for Kahuzi-Biega. *"We were very happy to see that all the efforts that our staff and partners have been taking are leading to a growth in the population"* (Conservation – NGO Local respondent). This is well backed up by the 2010 census indicating an increase in Eastern gorilla numbers: from 168 in 2004 to 181 in 2010) within the Kahuzi-Biega park. Likewise, mountain gorilla numbers increased from 380 to 480 in 2011 from the previous census in 2003 (Tomimura, 2012). The census was carried out by both the ICCN and international partners, despite the decade-long war and overall insecurity within the park.

Locally, the role of the international co-operation to sustain conservation, and henceforth lay the ground for tourism, is widely acknowledged. Local communities feel the positive impact of an organisation like GIZ without which, as they say, *"there would be no nature conservation in the park. GIZ accompanies us in all ways"* (Local communities' respondent). Likewise,

conservation officers acknowledge the vital role played by various international bodies in supporting conservation as

> *"they support the UNESCO protected sites. WWF is operational in Tombo, GIZ in the PNKB and WCS as well. WCS even does more because it pays our office night guards. They also pay all water and electricity bills"*. (Institutions – conservationtourism respondent).

2. Governmental Institutions (Local and National)

The Congolese institutions bear the responsibility to make and enforce laws that safeguard conservation and encourage tourism development. These are national and local governmental and administrative institutions, mainly the minister's cabinet in charge of tourism and conservation, and top administration officials in charge of the two intertwined departments. Additionally, officers working at the forefront of delivering service to tourists and other stakeholders play an important role in the industry. They include the police, immigration and customs officers.

These institutions understand the key role of tourism sustainability for national wealth production and development, and for passing through today's assets onto future generations. However, their knowledge does not lead to action as

> *"I can't see the government's contribution to tourism, conservation or sustainability because all the bosses up there are only interested in the forest for them to claim millions from the international community because they know these ones, at least, care about the environment"* *(Local Community representative).*

Increasingly, local communities are demanding to be involved in decision-making regarding conservation. However, as states a respondent, the decision-making process is too slow:

> *"This is the 69041 law which is currently in the process of being updated. It was submitted to the lower house of parliament, which would normally pass it onto the upper house before being*

submitted to the President of the Republic and then be enacted. There is increasingly the realisation that local people should be more involved in conservation, and that the current policing strategy should be abandoned" (International Community – Conservation respondent).

Governmental institutions are very slow in getting the proposed new legislation enacted. This is evidenced by the fact that the sector is managed under obsolete legislation dating back 1969. Another reason for poor implementation of sustainable measures in the tourism industry is the government's overreliance on mineral extraction. Oil exploitation (namely by Soco, a public British company) has been put on halt in the Virunga national park pending the outcomes of the Environmental Impact Assessment (EIA) to be carried out in this protected area, as can be seen on the map in *Figure 19*

Lake Edward sits across the DRC and Uganda border, surrounded by national parks.
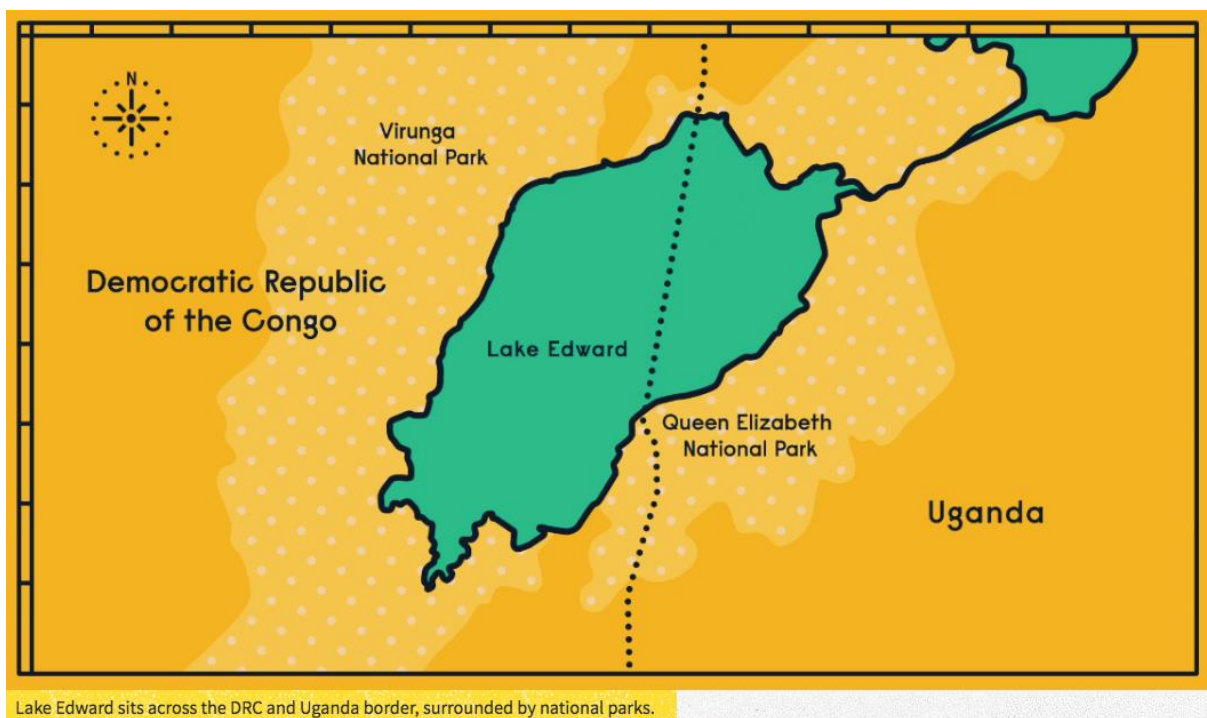
Figure 19: Oil drilling in the Virunga National Park (D.R. Congo) – Global witness, 2016

This is evidence of the government's lack of clarity between its vision for sustainability and its practice, as the country officials' short-term gains are favoured over long-term and sustainable ones (CIA, 2018). Furthermore, as argued by Transparency International (2016), owing to poor transparency and accountability, there is little agreement between national and local

institutions, causing the country to fall short of income generated by the tourism sector, unlike in neighbouring Rwanda and Uganda (Waekawa, 2015). Oil drilling project came to a hault when world conservationists, mainly WWF, and influential world leaders pressured the country government and Soco to stop the drilling in 2015.

Tourism in gorilla parks is a big source of income. However, as local communities think, decision-makers are failing to attract investment to the sector for local development, as voiced by this respondent:

> *"Politicians who are in power today make fun of tourism. They do not know how much wealth it can generate. We need politicians who are genuinely aware of sustainability. Tourism policy is not clearly specified, so there can be no clear actions taken on the ground. But here in our province, some are aware that tourism can generate plenty of money" (Institutions Officer – Tourism).*

Additionally, these claims indicate that there is little synergy between local and national institutions in charge of tourism. This lack of commitment to tourism is exacerbated by the fact that local communities, and the whole population henceforth, perceive the role of institutions as rather

> *"superficial, they hide behind titles and do nothing that they know would contribute to the improvement of people's conditions; on the contrary, they hustle any business operator they get to work with: hotels, restaurants, transporters and travel operators alike. Obsolete legislation makes us pay very high tax rates; where does all that money go?" (Business community respondent).*

All respondents concur that all the tax money goes to the authorities themselves. Self-interest appears to supersede public good in the D.R. Congo; so much that even institutions themselves are left without any administration funds to run the offices, yet their lifestyle is prince-like. One

respondent (Institutions Government) mentioned that buying new furniture for a governmental office was one of the local institution's recent achievements. Another one (Institutions Conservation and Tourism), as mentioned earlier, praised an international NGO for paying the office bills and night guards, as the institution is unable to operate without external financial support. Finally, there is need for capacity building so that the authorities can be aware of key facts and figures about their job (gorilla numbers, park size …) as only international agencies (GIZ, the German agency for International Coorperation or WCS, the Wildlife Conservation Society) were able to provide the researcher with key figures and articulated issues regarding both the tourism and the conservation sectors. This was evidenced by the recent gorilla census updates which only the WCS could provide as the census was the NGO's initiative.

3. Local Communities

Local communities include community leaders, salespeople, handicrafts people, farmers, teachers, nurses, tourist guides and guards, and local administration workers, as well as faith ministers. Local communities are the closest guardians of the two national gorilla parks and are made of villagers and their leaders; they live in the vicinity of the parks, and are a big asset for conservation and for tourism. A serious issue facing these local communities is the fact that they are asked by government to evidence their land tenure whilst, ever since their ancestors occupied the land, villagers never required any legal or formal papers to prove land ownership. Below statement comes from a local governmental officer criticising the way the central government has been threatening local communities neighbouring the parks:

> *"this is unfair on these poor villagers. New legislation needs to be put in place to take into account the fact that villagers had never needed land documents, and thus give them back their land" (Govermental Institutions: Conservation and Tourism Officer).*

The situation is cyclical from 1970 when the park was created. However, Mubalama (2010) stresses the difficulty in determining the actual park limits as *"most of the few boundary markers placed during the 1920s and 1930s have disappeared"* (Mubalama, 2010, p.205). These uncertainties have made it hard for tourism to kick-off and achieve sustainability.

Sustainability, as perceived by local communities, is closely linked to and dependent upon security, both from armed groups (including rebels) and from legal pursuits. As perceived by local communities, sustainability is closely linked to and dependent upon security, both from armed groups (including rebels) and from legal pursuits:

> *"If wars and sporadic invasions cease, then visitors can come to see the gorillas, and the villagers will sell their food harvests and craftwork to tourists. Even hotel owners and workers will benefit, as well as park guards and tourist guides" (Local Community – Farmer respondent)*

Yet, as argued by another respondent, there are no better conservationists than local communities:

> *"Take a close look; you'll see that it is the people living around protected areas who are the best park guards. Policing cannot work; unless you obtain local people's involvement, you will always fail because local people live and interact with the park at all times, and they know they cannot destroy their source of livelihood" (Local Community – leader respondent).*

This can be explained by locals' proximity to one another, and poachers tend to operate in areas where they are not known. That is why each village has its own guards. Therefore, having the majority of active locals to work in conservation will keep poachers away. No villager would want to cause shame to himself and all his family (Maekawa, 2015). This is substantiated by Putnam's (1995) social capital that is enhanced by trust within social networks.

4. Businesses

The Business Community encompasses several stakeholders such as hotels, restaurants and catering, events organisers, travel agencies and transport companies (by air, road and lake), mobile phone operators, bars/clubs and shops. All these businesses are located in Goma and Bukavu city centres, situated respectively 89 km and 37 km away from the gorilla parks.

Business operators expressed told us they felt business was thriving in both cities, and that the hospitality industry was faring much better than other sectors. This momentum has been made possible by the United Nations' international peacekeeping contingents which moved from the capital city (Kinshasa) to Goma neighbouring the Virunga Park. Naturally, this movement brought with it collaterial advantages like conferences, local house rented by expatriates, transport, leisure and recreational businesses all benefitting from the headquarters transfer to one of our research research areas. With these come direct benefits related to the tourism sector: direct and indirect employment, high contribution in taxes, etc.

However, benefits from the business industry do not trickle down to villagers neighbouring the two gorilla parks, and they feel powerless about it, as stated by this respondent:

> *"There is little we can do about it; the government has a role to play. We pay high taxes and expect the money to be invested in and around the park so that more tourists can come and stay longer in our hotels here in Bukavu" (Businesses – Hotel Travel & finance).*

Very little investment has been made in the vicinity of the parks, due to established insecurity, poor/inexistent infrastructures and obsolete policies. This causes villages neighbouring parks to be cut off from all business activity, and thus miss out from the post-conflict development momentum (Maekawa, 2015).

5. The Tourist Community

Nearly all the gorilla tourist community is made up of visitors from Western countries, and only a handful from Less Developing Countries. Tourists come to visit the D.R. Congo for various reasons, including humanitarian aid, research on the social impacts of the war and its corollaries (telegraph.co.uk, accessed on Feb 28, 2018). Tourists' awareness of sustainability is way beyond local standards, and they can *"only wish Congolese wealth would benefit local people"* (Tourist respondent). Sustainability, as seen by tourists themselves, is the reason *"why I keep coming back to visit the gorilla parks, to make sure I do my bit to support local efforts to protecting the jungle and the gorillas"* (Tourist respondent). This has been further evidenced by campaigners against oil drilling in the Virunga Park as over 700,000 signatures were raised to pressure decision-makers to stop Soco plc to stop its drilling project in the park (theguardian.com, accessed on June 26, 2018).

Upon determining the five stakeholder groups and exploring their understanding and perception of sustainability, this research goes on to assess these stakeholders' interactions between them. It assesses the strength and the quality of these interactions. By means of a Social Network Analysis tool (UCINET), the data collected on a roster (see Appendix 3) was analysed and then presented graphically using NetDraw software.

In summary, the five stakeholder groups stand as follows:

1. The tourist network is a very large global community. Its actors are national, regional and international. These are the main customers for the industry yet overlooked by the Triple Bottom Line model as it ignores these actors' generated and received values. Thes values have a critical impact on the whole sustainability discourse within the tourism sector.

2. The Environment, said by most repondents to be the global network, is responsible for the physical environment. The global warming issue has made the environment to become a global asset and issue, too important to be left exclusively to local actors. Achieving environmental sustainability requires that the global network get involved in ensuring synergies in combatting global warming are bearing fruit. This further emphasises the interconnectedness of factors across the board.

3. Institutions as a network are both local and national. These have the responsibility of making and enforcing the right policies, as well as ensuring that the industry obtains the right investment (e.g. in the built environment) for its survival.

4. The business community, which supports the tourism sector, bridging the needs of both tourists and policy-makers and those of local communities, in the area they operate.

5. Local communities are the people directly affected by the tourism industry (e.g. employees), living in the vicinity of touristic attractions.

6.5. SUMMARY

This chapter has presented and discussed the findings from the qualitative stage of this research. Key findings are, on the one hand, the identification of the five stakeholder group the gorilla tourism sector comprises; and, on the other hand, the validation of 18 sustainability indicators from United Nations' 45 indicators for sustainability development, as well as the generationof 8 locally relevant SIs. In addition, the chapter has discussed these stakeholders' perception towards sustainability.

Overall, sustainability is well understood and positively perceived by all these five stakeholder groups as standing the test of time, also referred to as "durability" (Scott, 2012, p.33). They know sustainability makes current clean environment and the forest endure for future generations to inherit. With regards to tourism, sustainability is understood as the only way to ensure visitors will come back to visit the country because respondents are very aware that the D.R. Congo has something special to show the world, i.e. the gorillas. Finally, they know they have a role to play as first guardians of the park, albeit the fact that governemental authorities keep pressuring them to leave their lands neighbouring the parks. It is interesting to see that respondents from local communities (villagers) relate sustainability so closely to environmental conservation, which, in turn, is linked to tourism.

To sum up, the resulting stakeholder groups and sustainability indicators from the qualitative stage of this research have been put to use in the quantitative stage.

CHAPTER 7. QUANTITATIVE FINDINGS AND DISCUSSION

7.1. INTRODUCTION

Before discussing the results of this research, it is worth referring to the conceptual framework which has inspired this research. At the heart of sustainability lie interactions between stakeholders. The present research seeks to ascertain how these interactions can help sustain the network from which they have initially been generated. As stated by our guiding theoretical framework, Social Exchanges sustain a network. Henceforth Social Exchange Theory (SET) has been identified as the lens through which stakeholder-based sustainability of any system can be best approached. Social exchanges are based on actions which depend on others' rewarding reactions (Blau, 1964). As all relationships have costs and benefits, people always want to maximise the value of their exchange outcome and assess the quality of these relations before deciding to continue engaging in them and this, in the long run, will help the said network to endure.

The findings from this research have shown that relations can be either strong or weak (Intensity). Moreover, they can be of good quality or bad quality. Scott (2012, p.33) concurs with Mitchell (1969) that three elements can describe the quality of relations in interpersonal networks: "reciprocity, intensity and durability".

Relationship exchanges can be positive or negative; and only positive ones sustain relationships. This subjective assessment of the exchanges/value by network actors will determine the quality of the relationships and would make these same actors be willing to further engage in the relationship or leave it altogether. Sustainability of the network is thus dependent upon the degree to which stakeholders maintain positive interactions between them, which lead to behaviour change, as further discussed in this research. The quantitative stage was preceded by a pilot research.

7.2. Pilot Stage Findings – Testing the Tool

7.2.1. Introduction

Following up on the qualitative findings which identified the five key stakeholders in the tourism sector, we administered a roster to them with the aim of testing the model among these stakeholders. Consistent with the findings from the qualitative stage, the findings display a high level of unsustainability of the Congolese gorilla tourism sector.

7.2.2. Pilot Objective: Testing the Sustainability Value Model: testing the Strength and Quality of Stakeholders' exchanges

On a five-point scale, two questions were asked to assess the benefits accrued by the five stakeholder groups within the Congolese tourism sector. The first question (through a roster as in (Appendix 3) aims at ascertaining the intensity of interactions between the stakeholders. Likewise, the second question measures the quality of those exchanges.

7.2.3. Respondent Categories

From the detailed respondent groups shown in *Table 27* the following categories were tested:

Stakeholder Groups	Virunga (Goma)	Kahuzi Biega (Bukavu)	TOTAL	
Institutions	3	3	6	46%
Businesses	2	1	3	23%
Environment	2	0	2	15%
Local Communities	0	1	1	8%
Tourists	0	1	1	8%
TTOTAL	7	6	13	100%

Table 27: Pilot Test - Respondent Categories

Table 27 indicates that the majority of respondents (46%) were from governmental institutions, followed by Businesses (23%). Tourists and Local Communities were the least contacted respondents (8%).

7.2.4. Testing the Strength (Intensity) of Exchanges between Stakeholders.

To ascertain the intensity of relationships between stakeholders (actors), a roster was administered to the following five stakeholder groups, as described in the preceeding chapter. Ratings in the roster are 1 (very few), 2 (few), 3 (some), 4 (a few) and 5 (many). The number of visits is relative to each respondent's own assessment. Good or bad relationships depend on a stakeholder's own assessment of the visit frequency they receive from other stakeholders (actors). A 'good' visit frequency is three visits and over, whilst 'bad' visit frequency would be of one and two visits.

Categories	International Community (Environment)	Governmental Institutions	Businesses	Local Communities	Tourists
International Community (Environment)		3	3	1	1
Governmental Institutions	1		1	1	1
Businesses	3	1		0	2
Local Communities	1	0	3		0
Tourists	2	1	1	0	

Table 28: Intensity of interactions (Visits) received by stakeholders

7.2.5. Emergence of a Model

A simulation of the Sustainability Value Model would thus bring about a network view as follows:
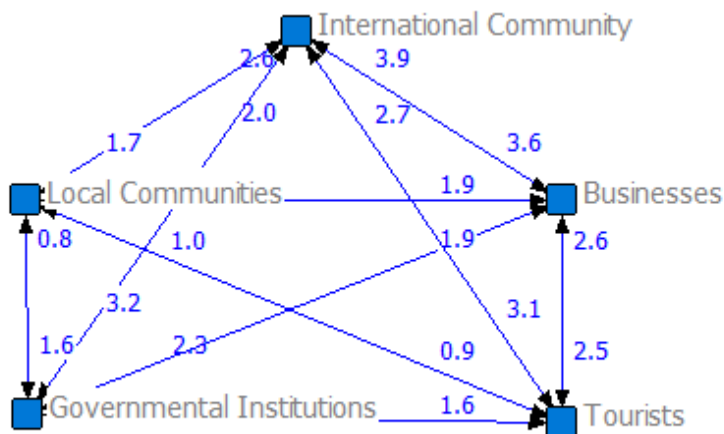
Figure 20: Sustainability Value Model (SVM) from UCINET/NetDraw with pilot data.

The network in *Figure 20* is based on the interactions between the five stakeholder groups mentioned in the SVM diagram (*Figure 20*): Governmental Institutions (national and local tourism and conservation officials), Businesses (business community), International community (Environmental, conservation and local NGOs), Local Communities as well as Tourists. The network simulation displays relationship/interactions between all network actors, and sustainability would be achieved only if each network member receives strong interactions (more than two visits) from other network actors.
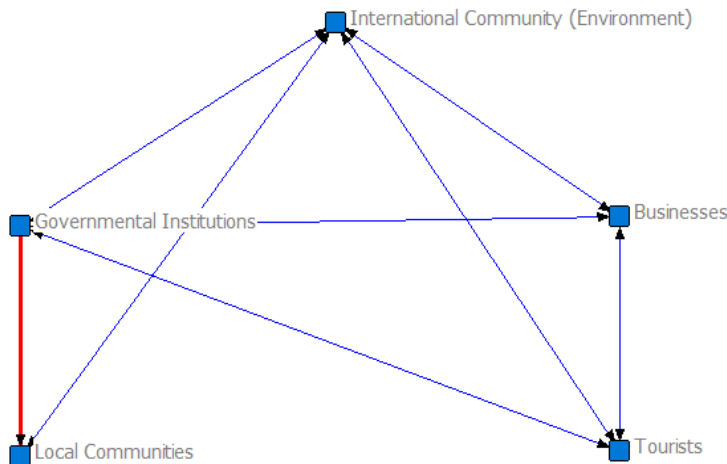
Figure 21: Whole network showing all relationships/visits (from very bad to bad)

Figure 21 has been generated directly from NetDraw. It indicates the emergence of the model straight from the software, and builds towards the design of the tool. It thus appears, from *Figure 21*, that most stakeholders interact between them; yet only the International Community (Environment) and Governmental Institutions hold interactions with all other stakeholders. The figure shows that the least connected stakeholders are local communities. There are no reciprocal interactions with Tourists and they never visit Governmental Institutions. Although

the relational matrix in ***Table 28*** shows how often these stakeholders meet, it does not tell whether those stakeholders' visits are perceived positively or negatively. To further explain the quality of these interactions, another roster was administered to assess the quality of the relationship between stakeholders.

7.2.4. Testing the Quality (Depth) of Stakeholders' Exchanges

All Ratings

To obtain the quality (depth) of these visits (relations), another roster was administered (1=Very bad, 2= Bad, 3=Good, 4= Very Good and 5= Excellent) relations. As a reminder, good and bad quality interactions depend on a stakeholder's own assessment of the quality of the visit they received from fellow stakeholders. The same cut-off point has been applied to distinguish between a 'good' quality interaction (value over 2) from a 'bad' quality interaction (value 1 to 2).

Categories	International Community	Governmental Institutions	Businesses	Local Communities	Tourists
International Community		2.0	3.9	2.6	2.7
Governmental Institutions	3.2		2.3	1.6	2.8
Businesses	3.6	1.9		1.9	2.6
Local Communities	1.7	0.8	1.3		1.1
Tourists	3.1	1.6	2.6	1.0	

Table 29: Quality of interactions (Visits) received by stakeholders

Figures in *Table 29* show that all actors have rated everyone else's quality of received visits. Businesses have rated visits from Local Communities as of low quality (1.9). Likewise, Tourists and Local Communities have rated their mutual visits as bad visits. Although Tourists visit Governmental Institutions, their interaction is deemed of bad quality (1.6).

1. Bad Quality Interaction (<=2)

The graph below shows that all actors have rated everyone else's quality of relations. Even Local Communities have rated Tourists and Businesses negatively, yet they seldom meet. The graph is drawn straight from NetDraw, the Social Network Analysis graphing software.
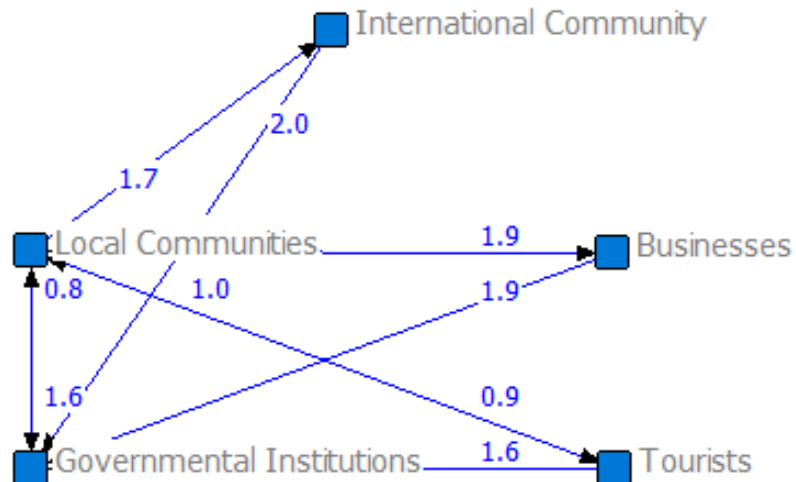
Figure 22: Whole network showing all relationships (Value <=2)

Note: The absence of relations indicates that these actors have rated each other negatively, as can be seen through the quality assessment in the next graph (*Figure 23*).

2. Good Quality Interactions (>2)

Figure 23 shows that although visits have been rated positively, albeit low, Businesses and International Community hold the highest positive exchanges between all stakeholders.
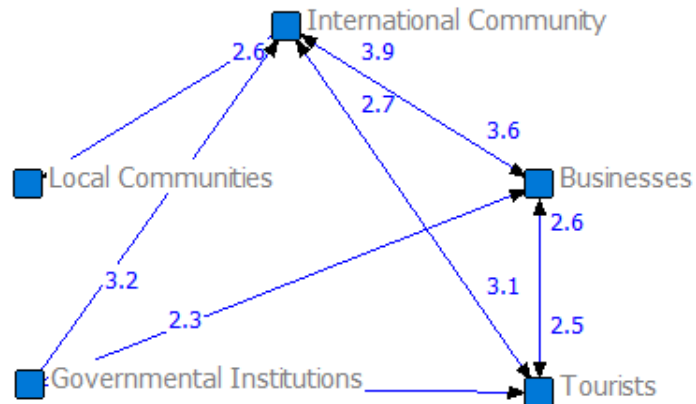
Figure 23: Whole network showing good quality interactions (at value >2)

3. Very Good Quality relationships (>3)

Finally, very good quality relationships only exist between the International Community and all others, except for Local Communities remaining isolated with actors finding their visits of little worth to them. International Community plays a pivotal role here, as their job is to actively promote conservation and tourism in the sector, mainly with Tourists who, in turn, appreciate their interactions with International Community.
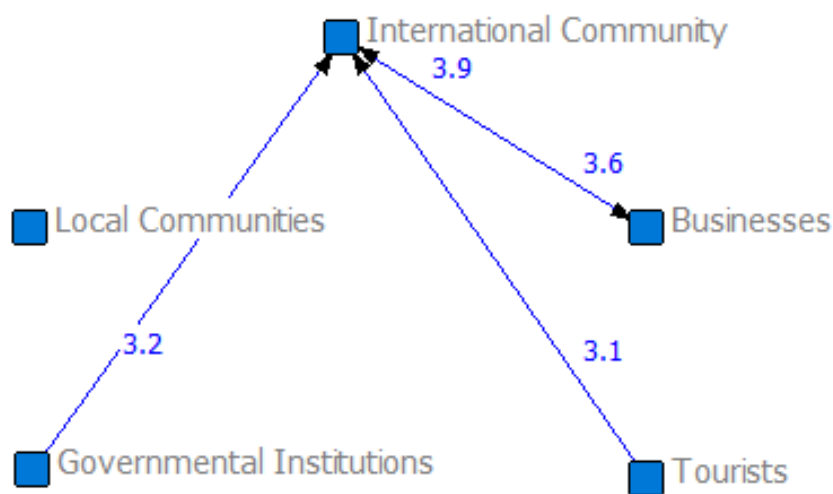
Figure 24: Whole network showing Very Good quality relationships (at value >3)

Figure 24 shows a major disconnect in this network. This indicates that the quality of interactions within the tourism sector is low or bad, i.e. stakeholders do not perceive value in most interactions. It is worth noting the lack of level 5 (excellent) exchanges in this network.

The reasons for poor quality interactions between Local Communities and the rest of the network are substantiated by factors such as: insecurity, obsolete land ownership and taxation policies. The named author argues that Businesses have poor quality of interactions with other network actors due to coercitive measures enforced by officers. Whilst Tourists meet with Governmental Institutions (namely Immigration services), they rate as poor the quality of their

interactions because of not only the high cost of visas to enter the country (one of the highest in the world), but most of all the harassment and insecurity which are rampant and do not incentivise tourists to stay longer or want to come back. Of particular interest, insecurity causes Tourists not to interact with Local Communities as these tourists are briefed not to mingle with local communities. In May 2018, two British tourists were held hostage in the Virunga park and their guide shot dead (BBC, 2018). This is further evidence of the fragility of this tourism sector. Based on the results of the pilot research presented earlier, the following model has emerged as the Sustainability Value Model (SVM) encompassing five key stakeholder groups interacting by means of exchange of Sustainability Indicators:
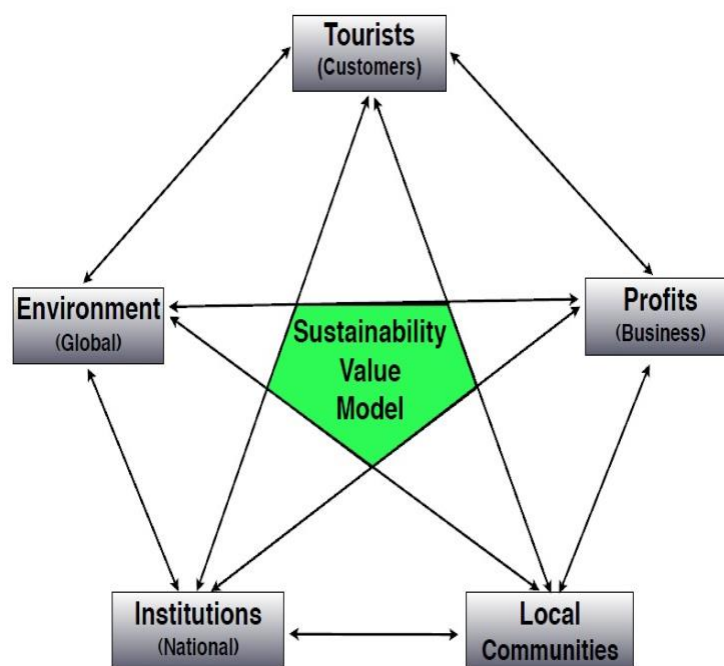
Figure 25: Sustainability Value Model (SVM), designed by the author

Figure 25 suggests linkages and interdependencies between all the five stakeholder groups achieving the sustainability of the tourism sector.

7.2.5. SUMMARY

The pilot stage has indicated that sustainability rests upon all stakeholders' shoulders as each group can impact the sector either positively or negatively. Stakeholder influence, derived from their interactions, has been analysed by means of a Social Network Analysis tool (UCINET) and graphically presented using NetDraw. An actor (stakeholder) may have received frequent visits from another actor, yet those were 'bad' visits in terms of their object, e.g. visits made by governmental institutions have been judged bad, as has been reported by a Local Community Representative (section 7.2.)

Research findings from the pilot stage of this research show that the International Community (international and national NGOs) holds the whole system together, and if removed, would leave the sector in a very unstable situation, indicating its unsustainability level. Through the visual representation of the Sustainability Value Model (SVM), it appears that the Congolese gorilla tourism sector's value is very limited as most exchanges are of low value (<=2). From this pilot stage, a survey questionnaire was designed and fieldwork was carried out in Bukavu (with a visit to the Kahuzi-Biega national park) and in Goma respectively. However, the quantitative research provided further clarity on the exact extent of the sustainability of the sector.

The following stage aimed at assessing the actual level of sustainability within the D.R. Congo tourism sector by means of the same measures: intensity and quality of interactions between stakehoders, addressing both objectives.

7.3. OBJECTIVE 2: To Measure the Strength of Exchanges (Intensity) between Stakeholders

This objective (measuring the strength/intensity of exchanges) was attained by asking respondents questions pertaining to the frequency of the visits they received by other stakeholders, the number of stakeholders whose visits they received and how many visits they actually received.

As discussed earlier, strong relationships lead to enduring and sustainable networks whilst weak relationships make the network lose value and weaken, and overtime can bring about network destruction. Strong ties between actors are built up from frequent and intense interactions derived from the level of group attachments and the frequency of meetings.

In Social Network Analysis intensity is reflected by 'Degree' at actor level, but more so by density, at the network level. It conveys the strength of exchanges in a relation. Intensity determines whether relationships which would endure the most are the multi-faceted ones as they are tested through various aspects of the social life.

To keep consistent with the systemic approach of this research, whole networks will be our focal analysis point more than ego networks. In a whole network, all actors' connections are presented whilst an ego network looks only at those actors connected to one specific actor (Ego). Therefore graphs will be extensively used to visually present network dynamics among the five actors emerging from the qualitatitive stage of this research.

Results from the mentioned three questions will be presented graphically to measure the strength of interactions between all stakeholders. Through the first two Sustainability Indicators we will argue that sustainability is achieved when network actors' meeting frequency is high and numbers of actors meetings one another is significant. Following are detailed findings from the stated objectives.

7.3.1. Objective 2: Descriptive Statistics

As shown in *Table 24*, *Table 30* indicates the main categories resuting from the 302 respondents. The Kahuzi-Biega park yielded 63% of respondents while Virunga park hold only 37%. Whilst businesses constitute the bulk of respondents overall (32%), hotels, travel agencies and financial organisations are the main respondents within the category; transport providers are the smallest group. Tourists (9%) and local communities (22%) are the least contacted respondents due to rampant insecurity in the Great-lakes region.

Nr	Respondent Category	Kahuzi Biega	Virunga	Grand Total	Kahuzi Biega	Virunga	Grand Total
1	Buisnesses	47	50	97	25%	45%	32%
2	International Community	39	22	61	20%	20%	20%
3	Government	23	30	53	12%	27%	18%
4	Local Communities	57	8	65	30%	7%	22%
5	Tourists	25	1	26	13%	1%	9%
	Grand Total	**191**	**111**	**302**	**63%**	**37%**	**100%**

Table 30: Respondent Categories – descriptive statistics

7.4. Objective 2: Visit Frequency

The question asked was: "how many times did you meet (Partner X) over the last 12 months?

Visit frequency, measured by the number of visits stakeholders have received from others, provides an indication to the strength of ties within a network. Relationships between actors can be strong or weak. Social relations grow stronger with time and actors invest their time to consolidate ties with those they care for. Measuring the frequency with which these actors have been meeting one another is key to understanding how close the actors are and therefore how willing they would be to remain related.

It goes without saying that only actors with frequent visits develop stronger relations, as evidenced by this research of which findings indicate that stakeholders tend to visit one another a maximum of six times a year. Tourists tend to be visited the most times, followed by businesses. Tourists visit Businesses the most as they use Businesses' services and facilities more often than anyone else. We have discarded self-assessment, e.g. Businesses visiting Businesses, to avoid biased responses.

Throughout the following discussion, cut-off point levels will be applied to delineate strong from weak ties (interactions). Whilst weak relations will be from value point 2 (<=2) and below strong ones will be values above value 2 (>2).

1. Tie Strength - Frequency of Partners' Annual Meetings

Frequency of partners' annual meetings – tie strength	Businesses	International Community	Government	Local Communities	Tourists
Businesses		1.0	1.1	1.1	3.0
International Community	3.5		1.3	1.2	3.0
Government	3.6	1.0		1.1	2.0
Local Communities	3.4	1.0	1.2		1.3
Tourists	6.0	1.0	1.7	1.0	

Table 31: Frequency of partners' annual meetings – tie strength

Table 31 shows how frequently stakeholders visit one another. The figures are derived from a questionnaire roster, which asked respondents how often they met annually. Green colour coding indicates the highest rates and red the lowest. The figures shown are averages of all visits respondents claim to have received from other respondents in the course of a year. For this Objective, the following measures will be analysed: Multiple Centrality, Cluster Analysis, Brokerage and Reciprocity.

From the *Table 31* we can see that Businesses have received the most visits from all other actors but more specifically from Tourists. Tourists, however, have been most in contact with Businesses and the International Community.

2. Centrality Measures

Before presenting and discussing the results, it is worth reminding some key measure in Social Network Analysis. Centrality measures explain the dynamics between actors within a network. Key ones are Degree and Betweenness.

a. Degree indicates the number of connections a person (*ego*) has through giving to, or receiving, interactions from others (*alters*). Degree relates to the notion of influence and power and to *Social Capital.* An actor receiving more ties (in-degree) than others appears to be *'prominent'* and is said to have *'high prestige'* and *'importance'*. However, Actors giving out more ties than others (out-degree) are said to be *'influential'* as they are able to spread their views across the network with speed.

a. Betweenness indicates how a person positions in a network vis-à-vis others and refers to the extent to which the person is able to serve as an intermediate point of contact between any two other persons. Such an actor will thus present him/herself as a broker between all his/her connections. Closeness was not explored in this research as it indicates how close

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a person is to all others in the network. This measure applies best in kinship and affiliation network analysis, whereby distances between actors are analysed, yet it is not the focus of the research.

To keep consistent with the systemic approach of this research, whole networks will be our focal analysis point more than ego networks, and therefore graphs will be extensively used to visually present network dynamics among the five Actors emerging from this research.

```
ucinetlog76 - Notepad
File  Edit  Format  View  Help
MULTIPLE CENTRALITY MEASURES
--------------------------------------------------------------------------------

Input dataset:                        PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL
                                      (C:\PhD\PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL)
Output dataset:                       PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL-cent
                                      (C:\PhD\PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL-cent)
Treat data as:                        Auto-detect
For valued data:                      Use tie strengths when possible
Type of scores to output:             Normalized
Undefined dist in closeness:          replace with max dist + 1

Network Sheet1 is directed? YES

Value of Beta was:                    0.102452146261237
Centrality Measures

                                 1     2     3     4     5     6     7
                               OutDe Indeg OutBe InBet OutCl InClo Betwe
                               ----- ----- ----- ----- ----- ----- -----
       1            Businesses 1.570 4.146 2.280 4.019 1.000 1.000 0.000
       2 International Community 2.254 1.000 2.354 0.995 1.000 1.000 0.000
       3            Government 1.944 1.339 2.100 1.301 1.000 1.000 0.000
       4       Local Community 1.741 1.136 1.903 1.140 1.000 1.000 0.000
       5               Tourists 2.442 2.329 2.496 2.207 1.000 1.000 0.000
```

Table 32: Frequency of partners' annual meetings– Multiple Centrality Measures

Table 32 shows that while the International Community and Tourists have the highest Out-degree and OutBetweenness (i.e. meet the most partners) Businesses have the highest In-degree as they are the most solicited by all stakeholders. These businesses mostly include hotels for tourists' accommodation, and transport agencies, which tourists use to move around. As suggested by interviewed respondents, tourists rely more on hotels for not only accommodation but also for information and their security guidance. Businesses and Tourists

are the only ones with high betweenness scores, meaning they serve as the link between all other partners in the system, as can be seen in the cluster analysis section.

3. Cluster Analysis

From the Cluster analysis, the emerging cluster is made up of three actors: Businesses, International Community and Tourists, with the best normalised network density (fit): 1.812. Density btween Businesses and Tourists is high (3.0) as it shows a firm linkage btween these two actor groups. The graph is said to be dense when the most points (actors are connected). The smaller the fit value, the better clustered the actors are. Clustering computes the shortest paths between nodes (geodesic distances) and works out network density.

Density, calculated as n(n-1)/2, is the sum total of existing network connections divided by the total connections the network can possibly have. The maximum possible number of ties is not only dependent on the links but also on the number of actors in the network. Density determines intensity in relationships within a network. The higher the intensity figures, the looser the network holds together, and henceforth prone to breaking up. Two factors can bring a network about breaking up: Intensity and Quality of the relationships.

This cluster suggests that clustered actors frequently meet one another, more than others do between them. From *Figure 28* we can see that Urban Elite (controlling most businesses) have easy access to all stakeholders, yet decide who they want to interact with. It is clear from the findings and from the named author that Local Communities are visited the least and are thus cut off from the tourism community.

```
ucinetlog49 - Notepad

File   Edit   Format   View   Help

Diagonal valid?                        NO
Number of clusters:                    3
Type of data:                          Similarities/Strengths/Cohesion
Method:                                correlation
Input dataset:                         PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL
                                       (C:\PhD\PARTNERS MEETING FREQUENCY AUTO SUMMARY FINAL)

Starting fit: 1.423
Starting fit: 0.537
Fit: 0.537
Fit: 0.537
Fit: 0.537
Fit: 0.537 (smaller values indicate better fit.
r-square = 0.215

Clusters:

    1:   Businesses International Community Tourists
    2:   Government
    3:   Local Community


                                    1     2     5       3        4
                                  Busin Inter Touri   Gover    Local
                                 -----------------------------------
    1               Businesses | 6.000 1.000 3.000 | 1.134 | 1.145 |
    2 International Community | 3.515 6.000 3.000 | 1.285 | 1.215 |
    5                 Tourists | 6.000 1.000 6.000 | 1.731 | 1.038 |
                                 -----------------------------------
    3               Government | 3.629 1.000 2.000 | 6.000 | 1.146 |
                                 -----------------------------------
    4         Local Community | 3.440 1.000 1.317 | 1.208 | 6.000 |
                                 -----------------------------------
Density Table
              1     2     3
           ----- ----- -----
    1      2.919 1.383 1.133
    2      2.210       1.146
    3      1.919 1.208
```

Table 33: Frequency of partners' annual meetings - Cluster Analysis

These three actor groups stand at the centre of the tourism industry in the D.R. Congo as there is trust between them. As discussed earlier, the level of trust between the people or organisations forming relationships should be understood as the lifeblood of any network.

4. Visual Presentation (NetDraw)

Through NetDraw graphing presentation, Centrality Measures come to light at network level.

Considering actors who receive visits from more than two actors a year, we find that the network evolves only around Businesses, with tourists visiting the most. All others tend to visit businesses at the same rate. The low number of interactions (ties) between Actors indicates that the relationship between actors is rather very weak as the network density stands at 30%, i.e. 6 ties out of the 20 ties this network can possibly have.
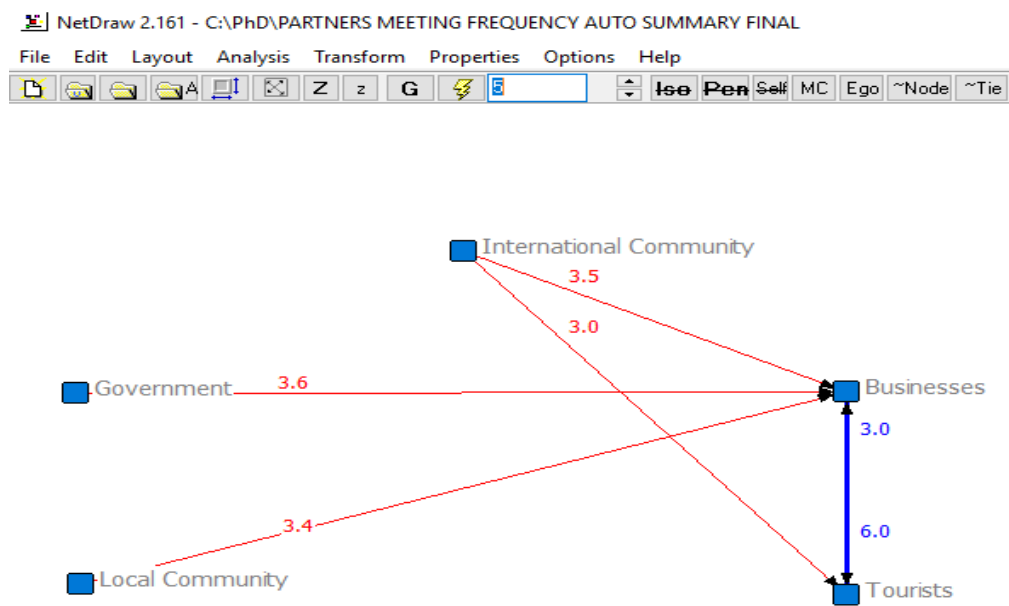
Figure 26: Frequency of partners' annual meetings (>2 visits)

Brokerage: Businesses stand out as the Bridge between all Actors, i.e. they connect the rest of the network. Being part of the same 'social' network. Businesses stand as Co-ordinators. By visiting all stakeholders, Businesses would easily circulate messages across the network and hence make their views known to all stakeholders.

Reciprocity: The blue line indicates actors with birectional ties (relationship). Tourists and Businesses do visit each other more than twice a year. We can see that Governmental

Institutions and Local Communities visit Businesses but the these seldom receive visits from Governmental Institutions and Local Communities. As indicated by interviews, Governmental institutions visit Businesses to claim taxes from hotels and transport agencies. Local Communities visit Businesses (mainly transport agencies) to look for casual jobs (as porters) when tourists arrive in the villages but these are seldom visit the parks, and those that do are briefed for caution due to rampant insecurity in the region. This very lack of jobs made the NGO the Pole Pole Foundation start bargaining with businesses in favour of local populations in order for these to stop these poaching and start protecting, but faced with job scarcity, local community members told the NGO leader:

> *"as you know we are hungry. If we stop entering the park, what do we do*
>
> *instead? Give us jobs and we'll stop going into the park illegally" (Local*
>
> *Community member)*

In the same vein, Businesses view Governmental Institutions' visits as very unwelcome, and this situation is far from leading to network cohesion and sustainability. Furthermore, Local Communities, neighbouring gorilla parks have been threatened by Governmental Authorities to vacate the land they had been occupying for a very long time, upholding this unpopular piece of legislation stating that since Law nr 385 was promulgated all land became state property, more so with pygmy communities as they do not settle down in one single location but are always on the move in search for new food opportunities. The tensions have been permanent in most LDCs between local communities and local administration and thus call for deeper thinking about the legal practices in the DR Congo.

In any normal society or network, it is important for actors to visit one another to strengthen their bond, exchange value and thus develop common goals, leading to a sustainable society.

However, this research has shown that the Congolese tourism network is weak and henceforth unsustainable because its stakeholders visit one another very sparingly, due to the afore-mentioned reasons.

The following section discusses the findings about the number of actors visiting other actors and thus engaging in this social exchange.

7.4.1. Objective 2: Number of Partners each Stakeholder Group Meets Annually

7.4.1.1. Tie Strength - Number of Partners Each Stakeholder Group Meets Annually

Number of partners each stakeholder group meets annually – tie strength	Businesses	International Community	Government	Local Communities	Tourists
Businesses		1.2	1.0	1.2	3.0
International Community	3.6		1.0	1.3	3.0
Government	3.4	1.3		1.2	2.0
Local Communities	3.8	1.2	1.0		1.3
Tourists	3.2	2.5	1.0	1.5	

Table 34: Number of partners each stakeholder group meets annually – tie strength

The question asked here was: *'how many partners (name stakeholder) did you meet over the last 12 months?'*

It appears, from *Table 34* that on average, Businesses is the group most visited by all stakeholders. Three partners a year have paid them a visit, mostly Governmental Institutions which, in turn, are the least visited actors, except by Tourists. This limited number of stakeholders visiting others is in line with the previous Sustainability Indicator: visit frequency. Governmental Institutions tend to have a set and limited number of officials who visit local communities on a regular basis to try and enforce their 'obsolete' laws.They also make several visits to Businesses as taxes are claimed and collected in person. As discussed earlier, benefits from the business industry do not trickle down to villagers neighbouring the two gorilla parks, as stated by this respondent:

"There is little we can do about it; the government has a role to play. We pay high taxes and expect the money to be invested in and around the park so that more tourists can come and stay longer in our hotels here in Bukavu" (Businesses – hotel owner)

Very little investment has been made in the vicinity of the parks, due to established insecurity, poor/inexistent infrastructures and obsolete policies. This has caused villages neighbouring parks to be cut off from all business activity, and thus miss out from the post-war development momentum.

Local Communities would seldom visit Governmental Institutions as the these demand local communities to provide evidence of their land tenure. Even some Governmental Officers and Tourism respondents acknowledge that:

"this is unfair on these poor villagers. New legislation needs to be put in place to take into account the fact that villagers had never needed land documents, and thus give them back their land" (Institutions -Conservation respondent)

Ever since their ancestors occupied the land, villagers never required any legal or formal papers to prove land ownership.

These uncertainties have exacerbated the already thin trust Local Communities would hold towards Governmental Institutions. Yet, some Local Communities members can also be blamed for their involvement into poaching, leading governmental authorities to track them down. Customers for poached products would neither be identified, investigated, nor even procecuted should they be identified. It is widely acknowledged in the local areas that some guards from local communities have also been involved in poaching in the Virunga gorilla park, yet the intention is to stop that happening in the future.

2. Centrality Measures

```
ucinetlog18 - Notepad
File   Edit   Format   View   Help
MULTIPLE CENTRALITY MEASURES
--------------------------------------------------------------------------------

Input dataset:                      NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL
                                    (C:\PhD\NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL)
Output dataset:                     NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL-cent
                                    (C:\PhD\NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL-cent)
Treat data as:                      Auto-detect
For valued data:                    Use tie strengths when possible
Type of scores to output:           Normalized
Undefined dist in closeness:        replace with max dist + 1

Network Sheet1 is directed? YES

Value of Beta was:                  0.13102410000452
Centrality Measures

                             1     2     3     4
                         OutDe Indeg OutBe InBet
                         ----- ----- ----- -----
    1          Businesses 1.588 3.514 1.937 3.300
    2 International Community 2.225 1.557 2.502 1.840
    3          Government 1.991 1.001 2.262 1.224
    4   Local Communities 1.841 1.295 2.084 1.537
    5            Tourists 2.050 2.329 2.351 2.619
```

Table 35 : Number of partners each stakeholder group meets annually - Centrality Measures

As seen in **Table 35,** Businesses hold the highest *In-degree and Inbetweenness*. This suggests that they are the most central actors in this network as they are visited by most stakeholders. This is accounted for by the variety of services Businesses offer, such as hotels, restaurants and catering, events organisers, travel agencies and transport companies (by air, road and lake), mobile phone operators, bars/clubs and shops.

However, International Community actors hold the highest *Outdegree* and *Outbetweenness*. This indicates that they go out to visit the most stakeholders in the tourism sector. Their positive role is widely acknowledged in the area, especially by this park ranger supervisor stating that

> "*since 1980, Kahuzi Biega is among the five UNESCO world heritage sites in the DRC. It is no longer the property of the DRC but belongs rather to the international community*" because "*during the war against ADFL rebellion, the Eastern Congo was cut off from Kinshasa the capital*

city, the international community gave rations, medicines, everything needed ... and ensured that

people working in the park could continue to work despite the war as it is a world heritage.

Otherwise the park couldn't exit today. That's what was labelled the 'green power'"

(Conservation – NGO International respondent).

This is a testimony to the hard work and commitment by the conservation community, essentially made up of international NGOs and co-operation, as reported by the Chief Park Warden for Kahuzi-Biega.

"We were very happy to see that all the efforts that our staff and partners have been taking are

leading to a growth in the population" (Conservation – NGO Local respondent).

This is well backed up by the 2010 census indicating an increase in Eastern gorilla numbers: from 168 in 2004 to 181 in 2011 within the Kahuzi-Biega park (kahuzibieganationalpark, accessed on June 10, 2018), yet this a fall from the 600 in the pre-war period. However, mountain gorilla numbers increased from 480 in 2010 to over 604 in 2017 (The Guardian, accessed 10 June, 2018) despite the decade-long war and overall insecurity within the park. This rise is attributed to various initiatives.

Locally, the role of the International Community to sustain conservation is widely acknowledged. Local communities feel the positive impact of an organisation like GIZ without which, as they say, *"there would be no conservation in the park. GIZ accompanies us in all ways"* (Local Communities Respondent). Likewise, Governmental Institutions acknowledge the vital role played by various international bodies in supporting conservation as

"they support the UNESCO protected sites. WWF is operational in Tombo, GIZ in the PNKB and

WCS as well. WCS even does more because it pays our office night guards. They also pay all water

and electricity bills". (Institutions – Conservation Tourism respondent).

3. Cluster Analysis

The emerging cluster from this indicator (Number of Partners met annually) is made of Businesses, the International Community and Tourists with the best network density (fit): 1.690 Stand-alone actors are Governmental Institutions as well as Local Communities with very high (loose) densities respectively, standing at 3.463 and 3.123. As mentioned previously, Governmental Institutions have, for a long time, been repressive to all other institutions by enforcing obsolete legislation, which penalises businesses and communities alike.

```
ucinetlog2 - Notepad
File  Edit  Format  View  Help
TABU SEARCH OPTIMIZATION (TSO)
--------------------------------------------------------------------------------
Diagonal valid?                         NO
Number of clusters:                     3
Type of data:                           Similarities/Strengths/Cohesion
Method:                                 correlation
Input dataset:                          NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL
                                        C:\PhD\NUMBER OF PARTNERS METANNUALLY AUTO SUMMARY FINAL)
Starting fit: 1.506
Starting fit: 0.469
Fit: 0.469
Fit: 0.469
Fit: 0.469
Fit: 0.469          (smaller values indicate better fit.
r-square = 0.282

Clusters:
    1:  Government
    2:  Local Communities
    3:  Businesses International Community Tourists
                                  3       4       1      2     5
                                Gover   Local   Busin Inter Touri
                               ------------------------------------
    3            Government | 3.829 | 1.211 | 3.440 1.315 2.000 |
                               ------------------------------------
    4     Local Communities | 1.002 | 3.829 | 3.829 1.217 1.317 |
                               ------------------------------------
    1            Businesses | 1.000 | 1.152 | 3.829 1.198 3.000 |
    2 International Community | 1.000 | 1.270 | 3.631 3.829 3.000 |
    5               Tourists | 1.000 | 1.548 | 3.154 2.500 3.829 |
                               ------------------------------------
Density Table
           1     2     3
         ----- ----- -----
    1          1.211 2.252
    2    1.002       2.121
    3    1.000 1.324 2.747
```

Table 36: Number of partners each stakeholder group meets annually - Cluster Analysis

This cluster (*Table 36*) suggests that clustered actors (Businesses, International Community and Local Communities) visit one another more than they do with Governmental Institutions and Local Communities.

4. Visual Presentation (NetDraw)

As we can see from the graph below, at value +2, network density stands at 35% (7 ties out of 20 possible ties) indicating a very weak network. The contribution of governmental institutions and local communities is quite minimal in this network. This network is weak when assessed at over 2-point value, i.e. more than 2 stakeholders visiting a year, we find that the network evolves only around businesses, more strongly visited by the international community and tourists. We can notice strong ties between International Community and Tourists.
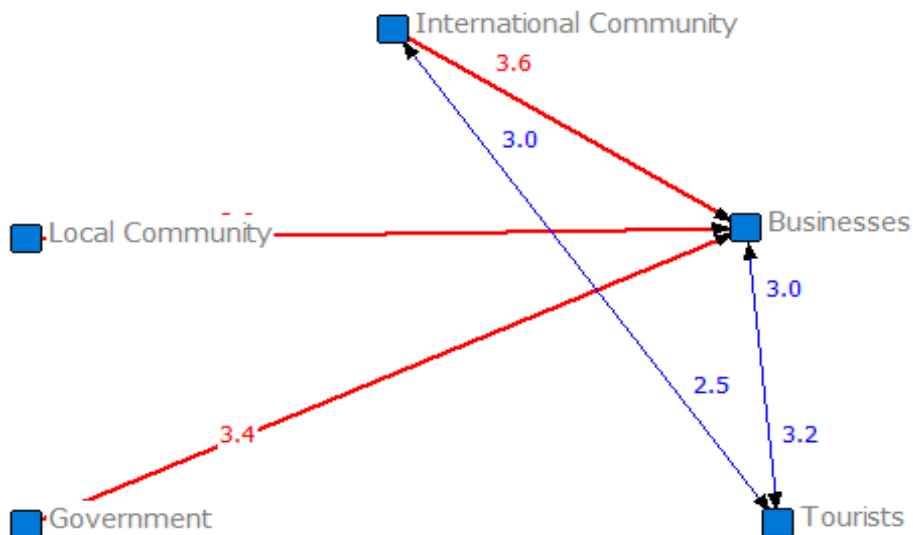
Figure 27 Number of partners each stakeholder group meets annually (**>2 visits**)

Behind poor numbers of stakeholders visiting one another lie systemic issues that have, for over two decades, characterised Eastern Congo, the war and its corollaries: famine, insecurity and violence. Issues in the Kivu regions are mainly ethnic and they are derived from the

precarious political situation in the Kivu regions. People try to keep safe from unkowm individuals as the situation is the political situation has been precarious for over a decade. Relationship can be limited in time, and wear can occur to people whilst trying to maintain or grow their relations. These relations can even become looser with the increase in number of contacts. Therefore, it is wise to make fewer new relations could reduce investments in time so that the costs of maintaining those relationships do not outweigh the rewards from them. Yet this the case does not aply to the Congolese tourism sector, due to insecurity; and tourism could further develop if stakeholders made more visits to one another.

This ethnic upheaval has brought about violence among the Eastern Congo's communities as the violence was perpetrated by local and foreign militia having easy access to light weapons. De Merode, the current Virunga park Director, suggests that the way out of this conundrum is to make the park start contributing to the economic development of the region.

Yet, close communities manage to meet albeit in small frequency and numbers, due to the mentioned reasons. The next section will look at the very benefits exchanged by stakeholders when they meet.

7.4.1.2. Objective 2: How Much Benefit have Stakeholders Received from One Another?

Measuring intensity of a relationship requires that all major exchanges between concerned stakeholders be assessed in terms of their perceived worth by the receiving party in the relationship. In the same vein, if the receiving party assesses the exchanged values as positive, he or she is most likely going to sustain the relationship and reciprocate, and thus further sustain the system that generated the values in the first place.

Exchanges of benefits are of particular interest to this research, as only these can determine whether a system (tourism in the present case) is sustainable or not. Analysing the

stakeholders' exchanges is therefore key to identifying the perceived strength of the value, which is generated and received by different actors within the sector. We assessed perceived value by asking respondents whether they received, over the past year, one of the below-mentioned benefits (Sustainability Indicators) from other stakeholders:

1. Tax and Finance Policies	13. Education Provision
2. Financial Support & Funding	14. Health Provision
3. Physicl Protection and Security	15. Farming Provision
4. Legal Protection	16. New Investments
5. Gorilla Protection	17. Local Culture Support / Protection
6. Forest Protection from Illegal Occupation	18. Tourism Development
7. Capacity Building	19. New Job Opportunities
8. Infrastructure and Road Improvements	20. Decent Salaries
9. Clean Water Provision	21. Consultation in Decision-making
10. Electricity Provision	22. Value for Money Services
11. Transport Safety	23. Training Quality for Staff
12. Housing Provision	24. Honest Staff

Table 37: Benefits (Sustainability Indicators) within D.R. Congo Tourism

Each of these indicators was presented to respondents as one separate question. The results were then aggregated to form the *'Intensity of Value Received'* indicator. The obtained numbers were weighted from 302 respondents down to five main stakeholder groups, as informed by the

qualitative section of this research (Chapter 6). We then proceeded to operations such as summing up and averaging figures from all the rosters keeping respondent cells aligned across all the Excell spreadsheets. These are appropriate procedures in manipulating social network data. It is worth of note is the fact that we applied data aggregation and averaging from the 24 Sustainability Indicators down to one tie: 'Intensity of value received'. The same process has been applied to all SIs, henceforth to all research objectives.

Whilst previous indicators (pertaining to visits) have shown that actors in this tourism sector seldom visit one another, the result analysis of the *'Intensity of Value Received'* indicator shows that exchanges and resulting value have been perceived to be very low, hence very weak as actors claim to have received very little of the benefits (indicators) from their counterparts, except from Businesses and Tourists. Like the International Community, Local Communities neighbouring the parks share only weak relationships (values) with other stakeholders. As it has been reported:

> *"the DRC is stuffed full of resources the rest of the world wants, but none of that wealth finds its way down to where it is so desperately needed" (The Telegraph newspaper, accessed on 28 May, 2018)*

To further assess the strength of relationships between actors in the tourism sector of the gorilla parks of the D.R. Congo, below detailed analsyis cover the following sections: Intensity of Value Received by Stakeholders, Centrality Measures, Cluster analysis, Brokerage and Reciprocity.

2. Tie Strength - Intensity of Value Received by Stakeholders

As stated earlier, value is referred to here as the Intensity of all benefits stakeholders acknowledge to have received from other stakeholders in the tourism sector. These benefits (as listed in *m*) are the key Sustainability Indicators as validated by this research in the D.R. Congo tourism sector. The figures in

Table 38 below indicate tie strength between each pair of actors, i.e. the higher the figure the stronger the relation between them. This also means that actors in line row cells acknowledge receiving as much benefit from the ones in columns.

Total Intensity Received -Tie Strength	Businesses	International Community	Governmental Institutions	Local Communities	Tourists
Businesses		2.8	1.8	1.5	2.0
International Community	2.7		1.8	1.9	2.1
Governmental Institutions	2.5	3.1		1.3	2.2
Local Communities	1.7	3.5	1.4		1.8
Tourists	2.5	3.1	1.6	1.3	

Table 38: Intensity of Value Received by Stakeholders – tie strength

From *Table 38*, it appears that Businesses and International Community are the main value receivers and the International Community plays the pivotal role as they give the most benefits (value) to all other stakeholders, especially to Local Communities, Governmental Institutions and to Tourists.

3. Centrality Measures

Below multiple centrality measures indicate that most rich exchanges (>2) are shared around the International Community and Businesses. These two receive the most exchanges whilst the stakeholders receiving the least value are Local Communities.This is well evidenced by all the measures below, especially through Indegree and Outdegree, where we can see International Community faring better than all others, as receiver (highest Indegree) of benefits from most other actors.

```
ucinetlog6 - Notepad
File  Edit  Format  View  Help
MULTIPLE CENTRALITY MEASURES
--------------------------------------------------------------------

Input dataset:                          BENEFIT AMOUNTS RECEIVED ALL
                                        (C:\PhD\BENEFIT AMOUNTS RECEIVED ALL)
Output dataset:                         BENEFIT AMOUNTS RECEIVED ALL-cent
                                        (C:\PhD\BENEFIT AMOUNTS RECEIVED ALL-cent)
Treat data as:                          Auto-detect
For valued data:                        Use tie strengths when possible
Type of scores to output:               Raw scores
Undefined dist in closeness:            replace with max dist + 1

Network OVERALL is directed? YES

Centrality Measures

                              1      2      3      4      5      6      7
                            OutDe  Indeg  Out2l  In2lo  OutCl  InClo  Betwe
                            -----  -----  -----  -----  -----  -----  -----
   1          Businesses     8.10   9.52  70.05  70.05   4.00   4.00   0.00
   2 International Community  8.55  12.47  72.68  72.68   4.00   4.00   0.00
   3          Government      9.16   6.60  76.98  76.98   4.00   4.00   0.00
   4     Local Communities    8.38   6.05  71.77  71.77   4.00   4.00   0.00
   5             Tourists     8.56   8.10  72.81  72.81   4.00   4.00   0.00
```

Table 39: Intensity of Value Received by Stakeholders - Multiple Centrality Measures

4. **Cluster Analysis**

From the cluster analysis in ***Table 40*** it appears that this network is very loose and henceforth very weak as it has a very high density score: 1.551 (>1). This very high network density indicates that all actors in this network are far apart from one another. The most central (connecting) actors in the network are: Businesses, Governmental Institutions and Tourists with the best (lowest) normalised network density: 1.477 suggesting that intensity of interactions is higher than with other actors; it also means that some value is shared between these actors, yet not enough as the cluster fit is above 1. Stand-alone actors are the International Community with 5.125 network density and Local Communities with 4.452 network density.

Whilst Local Communities suffer from rampant insecurity, they also are threatened by Governmental authorities with deprivation of their land as supported by ***Figure 28***. Local Communities, namely rural ones in Eastern Congo, do not hold steady relationships with other stakeholders. They are disconnected from land authorities as well as from the urban elite, and even from traditional authorities who are meant to be their representatives at all spheres of national level.
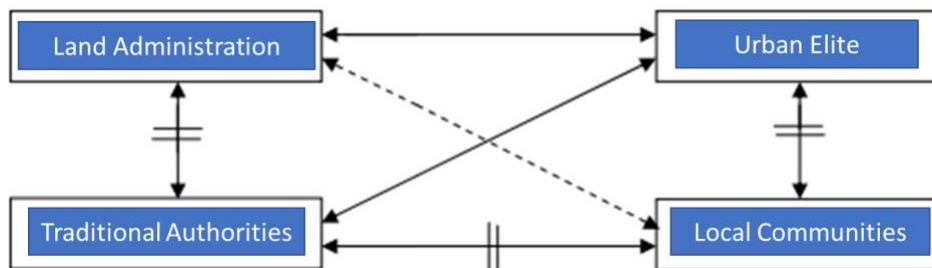
Figure 28 : Social and Land Crisis Dynamics in Eastern Congo, Mugangu (2003)

Figure 28 shows disconnect between local communities and all other stakeholders. Further barriers to value sharing between stakeholders in this tourism sector are poverty, lack of local

businesses and jobs as well as insecurity, substantiated by the recorded killing of 140 park rangers since 1994 (www://npr.org/ ,accessed on 9 April 2018).

However, the Virunga park Director, de Merode, has put in place an ambitious project aimed at providing jobs to local communities and incentivising businesses to come closer to the park. The named director also has a USD 200 million hydroelectric project, 'Matebe', which he sees as the solution to current state of unsustainability in the tourism sector. He wants to further convert current park destroyers into its protectors.

```
ucinetlog24 - Notepad
File  Edit  Format  View  Help
Fit: 0.157
Fit: 0.157
Fit: 0.157          (smaller values indicate better fit.
r-square = 0.710

Clusters:

    1:  Local Community
    2:  International Community
    3:  Businesses Government Tourists

                                    4      2       1     3     5
                                  Local  Inter   Busin Gover Touri
                                  ----------------------------------
    4        Local Community    | 3.000 | 1.000 | 1.147 0.911 1.317 |
                                  ----------------------------------
    2 International Community    | 1.215 | 3.000 | 0.759 1.285 1.000 |
                                  ----------------------------------
    1            Businesses      | 0.882 | 1.000 | 3.000 1.134 3.000 |
    3            Government      | 1.146 | 0.667 | 2.500 3.000 2.000 |
    5              Tourists      | 1.038 | 1.500 | 2.000 1.731 3.000 |
                                  ----------------------------------


Density Table

            1      2      3
          ----- ----- -----
    1     3.000 1.000 1.125
    2     1.215 3.000 1.014
    3     1.022 1.056 2.374
```

Table 40: Intensity of Value Received by Stakeholders – Cluster Analysis

These stand-alone actors with the poorest scores (very high idensity n this case) indicate that they either receive too little value from the network (Local Communities) or too much of it (International Community) when compared to the rest of network actors. The graph in *Figure 29*) presents a better picture of the figures in *Table 40*.

5. Visual Presentation (NetDraw)
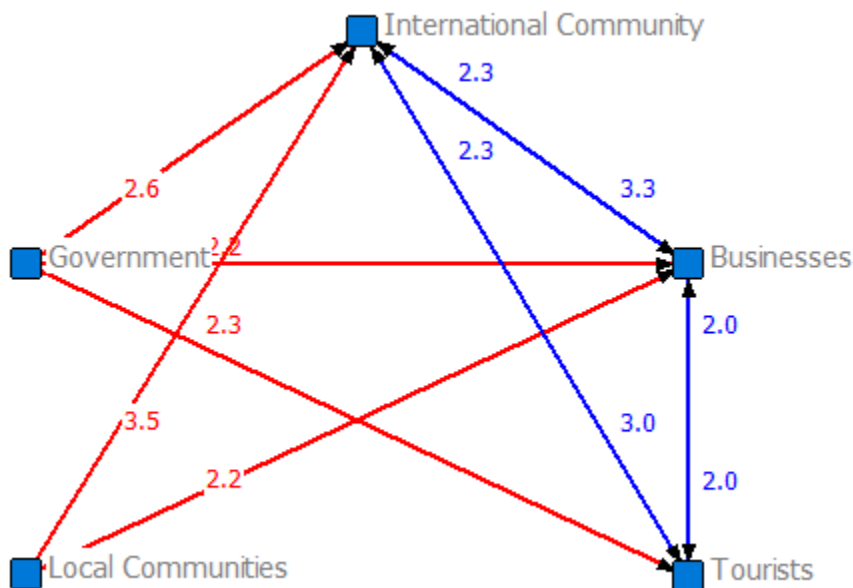
Figure 29 : Value Received by Stakeholders – Visual Presentation

Brokerage: At value +2, network density stands at 55% (11 ties out of 20 possible ties) as most actors are connected (have received ties from one another) albeit with limited reciprocal ties. International Community and Businesses appear to be the brokers in this network as they hold averyone together, with the International Community having stronger relations with other actors than Businesses do with other actors. With 55% network density, intensity of the received value in this network is somewhat weak.

Reciprocity: There is a significant cluster arising with reciprocated (bidirectional) exchanges (in blue) between three main actors: International Community, Businesses and Tourists. Governmental Institutions interact with all other actors except with Local Communities who, in turn, do not exchange values with Tourists.

7.4.1.3. Findings from Individual Sustainability Indicators

Figure 27 and *Figure 31* indicate that most actors in this tourism network have exchanged benefits with their counterparts, yet with limited reciprocity of exchanges. This has been further confirmed by cluster analysis fndings from individual Sustainability Indicators.

As further detailed in *Table 41*, the numbers indicate the clusters which each actor group belongs to, either individually or shared. Overall, actors find themselves as single cluster member in 35.0% of total SIs, indicating network unconnectedness. The analysis below shows how individual Sustainability Indicators are shared between stakeholders.

a. *International Community* is a unique cluster in 4 Sustainability Indicators (16.6% of total SIs) including: Education Provision, Legal Protection, Local Culture Support and Protection, and Tax & Finance Policies. This stakeholder group is more concerned with non-physical indicators.

b. *Governmental Institutions* have 12 unique clusters (50.0% of total SIs) including: Capacity Building, Decent Salaries, Forest Protection from Illegal Occupation, Gorilla Protection, Health Provision, Honest Staff Provision, Housing Provision, New Investments, New Job Opportunities, Physicl Protection and Security, Tourism Development, Transport Safety. These Governmental Institutions are regional officials managing the gorilla tourism operations. They feel the do not receive adequate support from the central administration.

c. *Local Communities* have 18 unique clusters (75.0% of total SIs) including: Capacity Building, Clean Water Provision, Consultation in Decision Making, Education Provision, Electricity Provision, Farming Provision, Financial Support & Funding, Forest Protection from Illegal Occupation, Gorilla Protection, Health Provision, Honest Staff Provision, Housing Provision, Legal Protection, New Investments, Physical Protection and Security, Tax and Finance Policies, Tourism Development, Training Quality for Staff. These stakeholders feel left aside with no support from governmental authorities.

d. *Tourists* have 8 unique clusters (33.3% of total SIs) including: Clean Water Provision, Consultation in Decision Making, Farming Provision, Financial Support & Funding, Infrastructure and Road Improvements, New Job Opportunities, Training Quality for Staff, Transport Safety. Tourists' assessment of current tourism sector is based mostly on the services they receive. These services are perceived to have poor value for money.

e. *Businesses* share all Sustainability Indicators with other actors and have reciprocal ties with International Community as well as with Businesses.

It is worth remembering that Sustainability Indicators are key to this research. They evidence the level of collaboration between actors within a network sharing one same goal.

The goal related to here in this chapter is the sustainability level attained by the network. Yet, as discussed earlier, sustainability has not been achieved in this network. Some stakeholders hardly discuss around issues deemed very important to their relationship and sector. This is shown by the number of Sustainability Indicators shared by stakeholder groups. As an example, Governmental Institutions and Local Communities share only one single Sustainability Indicator (SI) '*local culture support and protection*'. Comparatively to others, this SI bears little importance to Local Communities with regards to the burning issues their members face, like policy on land ownership, water, electricity, eduction, to name but a few.

These mechanisms can turn decisions into actions. A further example shows, from ***Figure 28*** that *'Consultation in decision making'* is not shared with Local Communities. These villagers are left aside when issues regarding their utmost interests are discussed. Governmental Institutions rather discuss the issues with all others stakeholders (except with Tourists). Such a situation can only exacerbate the already weak relationships between Governmental Institutions and Local Communities.

A summary of individual Sustainability Indicators and related clusters is presented in . It shows which clusters these actors have shared and those in which they are found alone. Colour coding is only for ease of cluster identification. However, matching colours across each SI helps identify actors sharing the same Sustainability Indicator.

As an example, the "Capacity Building' indicator is shared with Businesses, International Community and Tourists whilst Governmental Institutions and Local Communities stand alone, i.e. do not share this indicator as it has a colour of its own.

Nr	Benefits Received - Sustainability Indicators	Businesses	International Community	Government	Local Communities	Tourists
1	Capacity Building	2	2	1	3	2
2	Clean Water Provision	2	2	2	3	1
3	Consultation in Decision Making	2	2	2	1	3
4	Decent Salaries	1	2	3	1	2
5	Education Provision	3	1	3	2	3
6	Electricity Provision	2	1	2	3	1
7	Farming Provision	2	2	2	3	1
8	Financial Support & Funding	3	3	3	2	1
9	Forest Protection from Illegal Occupation	1	1	2	3	1
10	Gorilla Protection	1	1	3	2	1
11	Health Provision	1	1	3	2	1
12	Honest Staff Provision	2	2	1	3	2
13	Housing Provision	2	2	3	1	2
14	Infrastructure and Road Improvements	2	3	3	2	1
15	Legal Protection	2	1	2	3	2
16	Local Culture Support / Protection	1	3	2	2	1
17	New Investments	1	1	3	2	1
18	New Job Opportunities	2	2	3	2	1
19	Physicl Protection and Security	3	3	1	2	3
20	Tax and Finance Policies	1	3	1	2	1
21	Tourism Development	2	2	3	1	2
22	Training Quality for Staff	2	2	2	3	1
23	Transport Safety	2	2	3	2	1
24	Value for Money Services	3	3	1	2	3

Table 41: Individual Sustainability Indicators – Cluster Analysis – Intensity of Exchanges

Table 41 indicates various clusters shared by each actor category. It emerges that while Businesses share all Sustainability Indicators with other actors, either in giving or receiving a tie, all other stakeholders have individual clusters for some or most of Sustainability Indicators. This suggests that these actors find themselves in either of the following positions:

a. They do not share ties with other actors on those very Sustainability Indicators or share the least ties and therefore contribute little to the network, making it rather loose and weak.

b. They hold the most ties in the network, and henceforth contribute a lot more than any other actor, as can be seen in *Table 42*:

```
1:  Tourists
2:  Businesses International Community Government
3:  Local Communities
```

		5	2	1	3	4
		TOUR	INTE	BUSI	GOVE	LOCA
5	Tourists	2.80	1.50	2.80	1.50	1.50
2	International Community	1.30	2.80	2.23	2.00	1.30
1	Businesses	1.50	2.00	2.80	2.80	1.50
3	Government	2.04	2.50	2.06	2.80	1.50
4	Local Communities	1.75	2.19	2.14	1.37	2.80

Density Table

	1	2	3
1		1.933	1.500
2	1.613	2.265	1.433
3	1.750	1.901	

Table 42: Cluster Analysis - Sustainability Indicators – Clean Water Provision

Unfortunately, none of these clusters have a good density fit: Tourists: 3.433, Businesses.

International Community and Governmental Institutions: 1.770, Local Communities: 3.651

Taking 'clea water provision' as an example, we have a visual picture showing the numbers (value) and the ties wherever available. From the graph below, we can see that Local Communities and Tourists stand each in their individual clusters as they have the least ties with network members, and they do not have any ties between them.
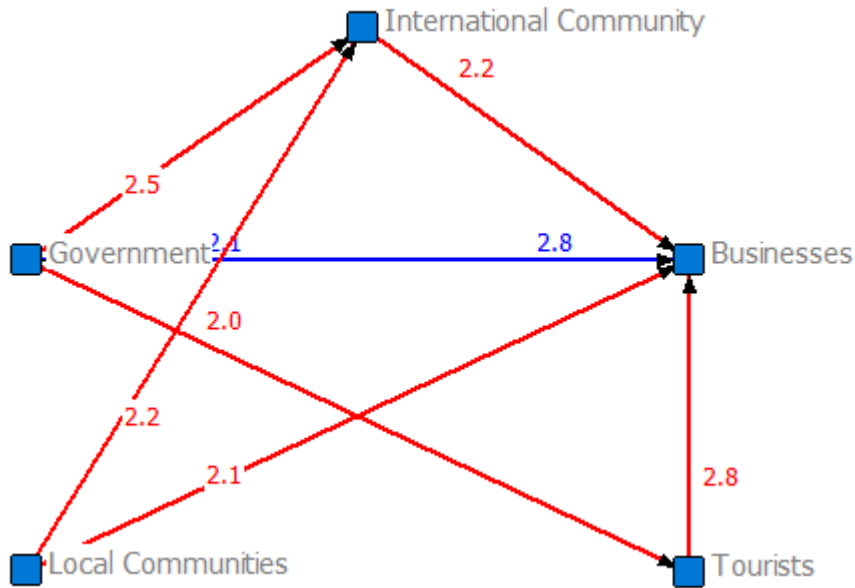
Figure 30 : Sustainability Indicator: Clean Water Provision

As a summary, the following actors make up their own unique cluster in respective Impact domain of Sustainability Indicators, as summarised in *Table 43*

IMPACT DOMAINS - INTENSITY	International Community	Government	Businesses	Local Communities	Tourists	Total
Socio-Cultural	1	4	0	8	4	**17**
Economic	1	6	0	7	2	**16**
Environmental	0	2	0	1	1	**4**
TOTAL	**2**	**12**	**0**	**16**	**7**	**37**

Table 43: Intensity Assessment: Unique Clusters

tThese unique Sustainability Indicators provide more evidence of the fragility of this network, evidence of an unsustainable network as it can easily fall apart since its actors contribute little to the network cohesion.

7.4.1.4. Objective 2 - Summary

The above sections have measured the intensity of the relationships between stakeholders in the gorilla tourism sector of the D.R. Congo. Results have shown that this tourism network is fragile as relationships between its stakeholders are equally weak: Stakeholders visit one another very rarely and only very limited numbers of them pay visits to other stakeholders. Likewise, benefits exchanged between stakeholders are limited. Several factors can explain this limited exchange flow of value between actors:

1. *Low frequency of visits stakeholders have made to one another*: We can clearly see that this network is weak. Findings indicate that stakeholders tend to visit one another a maximum of six times a year. Tourists tend to be visited the most times, Businesses come second. Tourists visit Businesses and use their services more often than anyone else. Local Communities are visited the least and are thus cut off from the tourism community. We have therefore found that the network evolves only around Businesses, with tourists visiting the most. All others tend to visit Businesses at the same rate.

2. *Low numbers of stakeholders visiting one another*: the findings have shown that only Businesses have been visited by all stakeholders. Three partners a year have paid them a visit, mostly Governmental Institutions which, in turn, are the least visited actors, except by tourists. This limited number of stakeholders visiting others is in line with 'visit frequency' between these actors within the gorilla tourism sector in the D.R. Congo.

3. *Weak exchanges between stakeholders*: actors claim to have received very little of the benefits (Sustainability Indicators) from their counterparts, except *from International Community, Businesses and Tourists. Local Communities and Governmental Institutions share value with everyone else in the network except with each other.*

These three indicators have faired poorly: visits made by stakeholder to one another, number of stakeholders visiting one another and exchanges between stakeholders. We can therefore infer that this tourism network is very weak and henceforth unstainable, as not only does it evolves only around three actors (Businesses, Tourists and the International Communty) out of the five actors the network comprises but exchanges between them are very weak, as discussed earlier. The two other actors are, for varying reasons, either net users of network resources (Governmental Institutions) or ignored altogether (Local Communities) by most network actors.

Although weak as a whole, this network actors share exchanges between them with varying intensity. However, we do not know yet how these exchanges are perceived by the concerned stakeholders. The next section sheds light on this very question of quality in relationships, assessing how happy actors felt about received value.

7.5. OBJECTIVE 3: TO MEASURE THE QUALITY (DEPTH) OF EXCHANGES BETWEEN STAKEHOLDER GROUPS

7.5.1. Introduction

Quality of social interaction can be good or bad (Brink, 2010), positive or negative with regards to the standard attained from a process (Harvey & Newton, 2004). Quality is said to be a key determinant for individuals' participation in various daily activities and appears to be a higher level of measurement of social exhanges than the quantitative assessment.

While 'Quality of Exchanges' has been referred to as the degree to which two actors in a relationship display mutual respect, trust, and obligation, it is said to be one of the key ways of assessing social exchanges in relationships as it leads to reciprocative behaviours which, in turn, can lead to sustainability attainment of any such relationship, network or system.

This research has assessed a group of Sustainability Indicators: 'Quality of received benefits' which measures the depth of the relationship between stakeholders. This assessment builds on the previous section 'Intensity of received benefits' which refers to the strength of the exchanges between the network actors. Whilst complementary, these two sets of Sustainability Indicators display a consistent assessment leading to overall assessment of exchanges between various stakeholders in the gorilla tourism sector of the D.R. Congo.

Quality is said to be a complex concept, like beauty that *lies in the eye of the beholder*. As with all social indicators, quality needs to be associated with something else for it to be operationalised. Yet, as subjective as it can be, measuring indicators, essentially qualitative ones, is instrumental for stakeholders to ascertain the distance towards attaining quality, and henceforth sustainability of any system. This is in agreement with Senge et al. (1994) when they link the structure of a system to the quality of perceptions of the same system by its actors.

The named author also argues that those elements would, in the end, self sustain to support their network. To assess quality of exchanges, the same indicators (as with the strength assessment) have been used with the question differently phrased. Instead of asking respondents about the Intensity of benefits they had received, we rather asked them *how happy* they felt with those benefits. As an example, the Business Community may have received benefits from Tourists with a high level of intensity, yet this Business Community might have felt unhappy with those benefits. Assessment of quality, unlike that of quantities, is value-laden and thus depends on the assessor's own judgement of his or her level of satisfaction with the benefits they received. Network connections result from the weighting of responses from all Business respondents, i.e. total values divided by total number of Business respondents. Different people will always hold similar views about quality, albeit not identical.

To obtain the final assessment results, we applied the Combination approach by aggregating the 24 Sustainability Indicators describing how these actors perceived the benefits they had received from other stakeholders. From the groupings, we obtained a single index of multiplex relations. A cut-off point level was applied to determine good and bad quality exchanges, strong and weak ties.

Whilst bad quality relations will be from value point 2 and below (<=2), good ones will be above value 2 (>2). The following Sustainability Indicators were used as individual rosters to all respondents. Respondents were asked" *how happy are you with the benefits you received from (named stakeholder)?"* This question aims to assess how they felt upon receiving the benefits. As a reminder, SIs in **Table 44** are the benefits respondents were asked to assed the quality upon.

1. Tax and Finance Policies	13. Education Provision
2. Financial Support & Funding	14. Health Provision
3. Physicl Protection and Security	15. Farming Provision
4. Legal Protection	16. New Investments
5. Gorilla Protection	17. Local Culture Support / Protection
6. Forest Protection from Illegal Occupation	18. Tourism Development
7. Capacity Building	19. New Job Opportunities
8. Infrastructure and Road Improvements	20. Decent Salaries
9. Clean Water Provision	21. Consultation in Decision Making
10. Electricity Provision	22. Value for Money Services
11. Transport Safety	23. Training Quality for Staff
12. Housing Provision	24. Honest Staff

Table 44: Benefits (Sustainability Indicators) within D.R. Congo Tourism

The results were then aggregated to form the '*Quality of value received'* indicator. The obtained numbers were weighted from 302 respondents down to five main stakeholder groups, as informed by the qualitative section of this research (Chapter 6). This is in line with SNA data manipulation procedure.

As with previous objective (strength of ties), the following analysis levels will be applied: Cluster Analysis, Brokerage and Reciprocity. In addition, Centrality measures will be presented and, wherever relevant, explored.

7.5.2. Objective 3 - Whole Network

1. Tie Strength - Quality of Benefits Received by Stakeholders

The figures in *Table 45* indicate tie strength between each pair of actors, i.e. the higher the figure the stronger the relation between them. This also means that actors in line-cells acknowledge receiving as much quality benefit from the ones in column-cells.

QUALITY OF RELATIONS – TIE STRENGTH	BUSINESSES	INTERNATIONAL COMMUNITY	GOVERNMENT	LOCAL COMMUNITIES	TOURISTS
BUSINESSES		2.1	1.1	0.8	1.4
INTERNATIONAL COMMUNITY	2.0		1.1	1.2	1.5
GOVERNMENT	1.9	2.5		0.6	1.5
LOCAL COMMUNITIES	1.0	2.9	0.7		1.0
TOURISTS	1.7	2.5	0.9	0.6	

Table 45: Quality of Benefits Received by Stakeholders

Table 45 shows that most stakeholders have rated the quality of the benefits they receive from other stakeholders as very bad, except for some who claim to have received a few good exchanges from Businesses and International Community.

All stakeholders are happy with services provided by the International Community. No other stakeholder appreciates the quality of received benefits. Local Communities are the least happy with benefits received from all other stakeholders.

2. Centrality Measures

Like with previous Sustainability Indicator (Received Benefits by stakeholders), this one shows the emergence of three central players: International Communiy, Businesses and Tourists. As can be seen in *Table 45,* these three actors rank highest on *Degree Centrality*, especially on In-degree, indicating that these actors have received high rates from other actors. Governmental Institutions and Local Communities have perceived the quality of benefits they received from other actors as the poorest of all, despite a good level of intensity of those benefits. Local Communities and Businesses' quality of benefits shared to other stakeholders are the least appreciated as they bear the lowest out-degree scores.

```
ucinetlog4 - Notepad

File   Edit   Format   View   Help
MULTIPLE CENTRALITY MEASURES
------------------------------------------------------------------------

Input dataset:                     HAPPY WITH BENEFITS ALL (C:\PhD\HAPPY WITH BENEFITS ALL)
Output dataset:                    HAPPY WITH BENEFITS ALL-cent (C:\PhD\HAPPY WITH BENEFITS ALL-cent)
Treat data as:                     Auto-detect
For valued data:                   Use tie strengths when possible
Type of scores to output:          Raw scores
Undefined dist in closeness:       replace with max dist + 1

Network OVERALL is directed? YES

Centrality Measures

                           1     2     3     4
                         OutDe Indeg Out21 In2lo
                         ----- ----- ----- -----
    1          Businesses  5.36  6.66 31.69 31.69
    2 International Community  5.80  9.98 33.33 33.33
    3          Government  6.57  3.84 37.03 37.03
    4   Local Communities  5.63  3.27 32.67 32.67
    5            Tourists  5.74  5.35 33.17 33.17
```

Table 46: Quality of Value Received by Stakeholders – Multiple Centrality Measures

3. Cluster Analysis

The main cluster emerging from *Table 47* is made of Businesses, Tourists and International Community, with a poor normalised network density (fit): 1.259 suggesting that only the three actors marginally appreciate the quality of shared benefits between them. This high-density score indicates that the actors' interactions between them are very loose as they are above score 1.

```
HAPPY WITH CLUSTER ANALYSIS - Notepad
File   Edit   Format   View   Help
TABU SEARCH OPTIMIZATION (TSO)
-----------------------------------------------------------------------

Diagonal valid?                           NO
Number of clusters:                       3
Type of data:                             Similarities/Strengths/Cohesion
Method:                                   correlation
Input dataset:                            HAPPY WITH BENEFITS ALL
                                          (C:\PhD\HAPPY WITH BENEFITS ALL)
Matrix: OVERALL
Starting fit: 1.554
Starting fit: 0.598
Fit: 0.598
Fit: 0.598
Fit: 0.598
Fit: 0.598            (smaller values indicate better fit.
r-square = 0.162
Clusters:
    1:   Government
    2:   Local Communities
    3:   Businesses International Community Tourists
                                 3      4      1    2    5
                               GOVE   LOCA   BUSI INTE TOUR
                             -----------------------------------
3               Government | 2.90 | 0.65 | 1.92 2.49 1.50 |
                             -----------------------------------
4       Local Communities | 0.70 | 2.90 | 1.00 2.90 1.02 |
                             -----------------------------------
1               Businesses | 1.05 | 0.85 | 2.90 2.11 1.36 |
2 International Community | 1.15 | 1.18 | 2.00 2.90 1.47 |
5                  Tourists | 0.94 | 0.60 | 1.73 2.47 2.90 |
                             -----------------------------------
Density Table
|          1      2      3
       ----- ----- -----
    1         0.646 1.973
    2   0.700        1.643
    3   1.048 0.874 1.857
```

Table 47: Quality of Value Received by Stakeholders – Cluster Analysis

Two Stand-alone actors: Governmental Institutions with 2.619 and Local Communities with 2.343 network density, i.e. they significantly diverge from the main network as their assessment of the quality of received benefits from other actors is very poor (way over score 1). They have

been very keen on assessing what is so important to their very existence as network actors. As discussed previously, actors easily sustain positive relations, mostly 'loving' ones, those with high emotional investment, and are most likely to have the lowest density, henceforth a positively stronger network. However, relations involving only awareness between actors are weak and lead to unsustainable networks as only some level of acquaintance is shared between these stakeholders. A visual presentation of *Table 47* further evidences how unsustainable the sector is.

4. Visual Presentation (NetDraw)
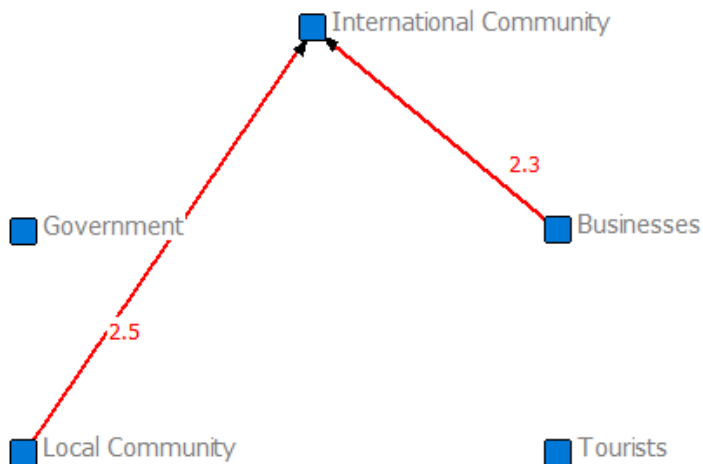
Figure 31: Quality of Value Received by Stakeholders – Visual Presentation

Brokerage: At value +2, network density stands at 10% (2 ties out of 20 ties the network can possibly have), only 3 actors are connected with single ties: International Community is connected, i.e. they have positively appreciated the quality of received Value from the only two other actors they are connected to: Businesses and Local Communities, albeit at a lesser degree. International Community stands out as the bridge between these two actors, yet hardly ever reaches the two isolates (stand alone): Governmental Institutions and Tourists. Achieved

scores display marginal positive assessment of the relationships. As seen previously with clusters, this network is even weaker as it hardly has any **reciprocity** between the linked actors. This poor network cohesion (10%) evidences the state of the current gorilla tourism sector in the D.R. Congo. Assessment of individual Sustainability Indicators (below) will further explain how fragile and henceforth unsustainable this network is.

7.5.3. Objective 3 - Individual Sustainability Indicators

While all discussions have focussed on actors and their relationships within the whole network i.e. the sum of all exchanged benefits, this section looks at how these same actors have interacted around each individual sustainability indicator of the 24 which have been identified for this tourism sector.

Table 48 shows a list of 24 Sustainability Indicators (SI) and the five actors this network comprises. It presents three clusters for each SI and indicates the cluster each actor belongs to. Looking at the first SI (capacity building), we can see that Tourists are found alone in cluster 3 and Governmental Institutions in cluster 1, while cluster 3 is shared by the remaining three actors: Businesses, International Community and Local Communities. A summary of all SIs displays a rather disconnected network. Only Businesses share nearly all SIs (except for 1) with other actors and International Community shares 20 out of 24. However, Governmental Institutions is found alone in 13 SIs, Local Communities in 18 and Tourists in 9 sustainability indicators. This suggests that the network is not coherent enough as actors' assessment of how happy they feel about received benefits diverge significantly from one another, making the network loose and the tourism sector rather fragile and henceforth unsustainable as indicated in the detailed list of SIs comprising only one actor per cluster.

a. International Community is a unique cluster in four Sustainability Indicators (16.6% of total SIs) including: Education Provision, Legal Protection, Local Culture Support and Protection,

and Tax & Finance Policies. These stakholders are mainly concerned with the above specific Indicators, as they would like them provided by the Government.

b. Governmental Institutions have 13 unique clusters (54.2% of total SIs) including: Capacity Building, Decent Salaries, Forest Protection from Illegal Occupation, Gorilla Protection, Health Provision, Honest Staff Provision, Housing Provision, New Investments, New Job Opportunities, Physicl Protection and Security, Tourism Development, Transport Safety and Value for Money Services. Although they are custudians for most of these SIs, Governmental Institutions at regional level, complain about central administration not providing required support to the 'decentralised' administrative regions.

c. Local Communities have 18 unique clusters (75.0% of total SIs) including: Clean Water Provision, Consultation in Decision Making, Electricity Provision, Farming Provision, Financial Support & Funding, Forest Protection from Illegal Occupation, Gorilla Protection, Health Provision, Honest Staff Provision, Housing Provision, Infrastructure and Road Improvements, Legal Protection, New Investments, Physical Protection and Security, Tax and Finance Policies, Tourism Development, Training Quality for Staff and Value for Money Services. This big number of SIs indicate that Local Communities feel they are not part of the tourism sector.

d. Tourists have nine unique clusters (37.5% of total SIs) including: Capacity Building, Clean Water Provision, Farming Provision, Financial Support & Funding, Infrastructure and Road Improvements, New Job Opportunities, Training Quality for Staff, Transport Safety, Value for money services. Tourists feel directly concerned with some Sustainability Indicators such as 'Training Quality of Staff' as they receive below standard customer service from hotel, restaurant and transport staff.

e. Businesses have two unique clusters (8.3% of total SIs) including: consultation in Decision Making and Electricity Provision. They would have appreciated being involved by Governmental services in decisions which impact their operations. Additionally, the electricity supply the receive is infrequent and of poor quality when available.

A summary of individual Sustainability Indicators and related clusters is presented in *Table 48*. It shows which clusters these actors have shared and those in which they are found alone. Colour coding is only for ease of cluster identification.

QUALITY

Nr	Benefits Received - Sustainability Indicators	Businesses	International Community	Government	Local Communities	Tourists
1	Capacity Building	2	2	1	2	3
2	Clean Water Provision	2	2	2	3	1
3	Consultation in Decision Making	3	2	2	1	3
4	Decent Salaries	1	2	3	1	2
5	Education Provision	3	1	3	3	2
6	Electricity Provision	2	3	3	1	3
7	Farming Provision	2	2	2	3	1
8	Financial Support & Funding	3	3	3	2	1
9	Forest Protection from Illegal Occupation	3	3	1	2	3
10	Gorilla Protection	1	1	3	2	1
11	Health Provision	1	1	3	2	1
12	Honest Staff Provision	2	2	1	3	2
13	Housing Provision	2	2	1	3	2
14	Infrastructure and Road Improvements	2	3	3	2	1
15	Legal Protection	1	2	1	3	1
16	Local Culture Support / Protection	1	2	3	3	1
17	New Investments	3	3	1	2	3
18	New Job Opportunities	3	3	2	3	1
19	Physicl Protection and Security	3	3	1	2	3
20	Tax and Finance Policies	2	3	2	1	2
21	Tourism Development	3	3	2	1	3
22	Training Quality for Staff	3	3	3	1	2
23	Transport Safety	2	2	3	2	1
24	Value for Money Services	3	3	1	2	3

Table 48: Individual Sustainability Indicators – Cluster Analysis of Quality of Exchanges

Table 48 indicates that very few clusters are shared by actors and explains the disconnect between actors in this network. It clearly appears that Businesses stand alone in their assessment of 'Electricity provision' SI as they strongly hold the view that the Government is doing very little to improve this utility which is vital for them as businesses. As one respondent rightly said: *"I have to run my hotel 24/7 on petrol. This eats a lot of our already reduced income"* (Businesses - hotel owner). This cluster analysis suggests that these actors find themselves in either of the following situations:

a. They do not share ties with other actors on those very Sustainability Indicators or share the least ties and therefore contribute little to the network, making it rather loose and weak. It also means that actors' assessment of their mutual relationship is rather negative as they hold different views and do not pull together on key issues in the tourism sector.

b. They hold the most ties in the network, and henceforth contribute way more than any other actor, and henceforth do not mingle with others. This situation, as well, weakens the network.

As can be seen in the 'Clean Water provision' SI in the table below the biggest cluster has a better fit level, i.e. lower density (<1). This means that the majority of actors are in agreement about the quality level of the benefits they have received from one another: Businesses, International Community and Governmental Institutions have a density fit of 0.770 together, which indicates very good cohesion between them. This indicates that they agree about the fact that the quality of their exchanged benefits is poor as their scores are below 2-point level, i.e. they claim to be not happy with the clean water provision they have received from their one another.

As a summary (*Table 49*), the following actors make up their own unique cluster in respective Impact domain of Quality Sustainability Indicators:

IMPACT DOMAINS - QUALITY	International Community	Government	Businesses	Local Communities	Tourists	Total
Socio-Cultural	3	5	0	11	6	**25**
Economic	1	6	0	6	2	**15**
Environmental	0	2	0	1	1	**4**
TOTAL	**4**	**13**	**0**	**18**	**9**	**44**

Table 49: Quality Assessment: Unique Clusters

```
Clusters:
    1:  Tourists
    2:  Businesses International Community Government
    3:  Local Communities
                               5     2    1    3     4
                             TOUR   INTE BUSI GOVE  LOCA
                             ------------------------------
    5                Tourists | 1.80 | 0.50 1.80 0.50 | 0.50 |
                             ------------------------------
    2 International Community | 0.30 | 1.80 1.23 1.00 | 0.30 |
    1              Businesses | 0.50 | 1.00 1.80 1.80 | 0.50 |
    3              Government | 1.04 | 1.50 1.06 1.80 | 0.50 |
                             ------------------------------
    4       Local Communities | 0.75 | 1.19 1.14 0.37 | 1.80 |
                             ------------------------------

Density Table
            1     2     3
          ----- ----- -----
    1           0.933 0.500
    2     0.613 1.265 0.433
    3     0.750 0.901
```

Table 50: Cluster Analysis - Sustainability Indicators – Happy with Clean Water Provision

Graphically, we have a picture giving evidence the complete disconnect in this nework around this one signle SI. No single actor is related to any others, as they do not have ties (>2) between them.

Figure 32: Sustainability Indicator: Clean Water Provision

7.5.4. Summary – Objective 3 - Findings and Discussion

The completed section has measured the quality of the relationships between stakeholders in the gorilla tourism sector of the D.R. Congo. Quality of relationships has been ascertained by measuring actors' qualitative assessment of the benefits they had received from their counterparts. Results have shown that this tourism network is very fragile as relationships between its stakeholders are found to be of very poor quality: With poor network cohesion (10%), the only 2 existing ties between actors (International Community and Businesses) are of marginal positive value (2.3 and 2.5). This fragility is also explained by the presence of three isolated actors, i.e. having no link with any other actor. This indicates that they hold very poor assessment of the quality of the benefits they received from one another. Worst still, there is no single reciprocal relationship between actors in this network.

The poor network performance evidences the weak state of the current gorilla tourism sector in the D.R. Congo. Furthermore, a detailed analysis of individual Sustainability Indicators (benefits) has shown that Local Communities and Governmental Institutions, the two key

players of the sector, are the most disconnected stakeholders from the rest of the network. While Local Communities doe not share clusters with anyone else in the network (18 SIs out 24), Governmental Institutions are found alone in 13 SIs out of 24. This is evidence of the fact that important issues (SIs) in this sector are seldom addressed by and between the very concerned stakeholders. This further reinforces the fragility or unsustainability of this network.

CHAPTER 8: TOOL DEVELOPED FOR MEASURING SUSTAINABILITY

8.1. INTRODUCTION

Tools for measuring sustainability abound (Dalal Clayton and Sadler, 2005; Luda, 2006) and each one has its own merit in resolving specific issues. Sustainability measurement can be defined as a

> *"systematic and iterative process for the exante assessment of the likely economic, social and environmental impacts of policies, plans, programmes and strategic projects, … and where the stakeholders concerned participate pro-actively"* (Arbter, 2003, p.17).

This research aim is to design a tool for measuring sustainability through a more inclusive approach linked to systems thinking (Ko, 2001) which encourages reflecting about cause and effect inter-relationships between elements, and calls for a holistic approach to measuring sustainability. Sustainability Indicators (SIs) have thus been advocated for as the best way to comprehend complexity by de-constructing its elements into items, which can be measured to ascertain achieved progress. SIs are hence perceived to be the way to evidence the attainment of objectives in various development projects as they confer a practical nature to the concept they are derived from. Seen through the lens of Sustainability Indicators, sustainability becomes a target to achieve as they bring simplicity into the complexities in most methodologies.

It is widely agreed that the methodology and procedures for carrying out sustainability measurement are as important as stakeholder's involvement (Senge, 1994; crowther, 2008) Unfortunately, most of frameworks used to date are said to be too complex and too long for policy-makers because they have attempted to measure sustainability on basis of observed effects/impacts. This research has helped solve this conundrum. It has posited that sustainability requires a holistic approach based on *forward sustainability assessment*, instead of the *reactive sustainability assessment*, as practised to date. While *reactive sustainability*

assessment (expost) appraises the effects of human activity, our *forward sustainability assessment* (exante) measures the causes for sustainability or the lack of it, which creates imbalance within the system. This research argues that forward sustainability assessment evaluates a system/network in a holistic and proactive manner by analysing all the exchanged value accrued among its actors, the very agents and custodians of the system meant to be sustained. In so doing, resulting conclusions from this assessment could be used by policy-makers to pre-empt unsustainability in the following cycles of action.

Different models for measuring sustainability have used transactional approaches based on quantifiable outputs as observed in targeted sectors. However, Sustainability has never been measured by means of a relational model. The present research has set itself the task of designing a tool for assessing sustainability by analysing all the relational exchanges occurring within the tourism sector in order to ascertain how sustainable the sector is. The following tool, the Sustainability Value Model (SVM) is based on relational interactions around stakeholder-identified Sustainability Indicators in our targeted research areas.

Proactive participation, as has been advocated for by several authors (McKercher, 1993; Mitchell & McDonald, 1995; Mowforth & Munt, 2016), demands for stakeholders' readiness for contributions and active participation in sustainability achievement. These *exante* contributions cannot be assessed in an isolated manner, they call for a holistic approach for capturing parts, which already make up the whole (Senge, 1994). To this end, a rigourous methodological approach was applied by the present research at all levels of data collection, data analysis and model design.

It is worth noting that we aggregated related responses to make one single measurement from the identified 24 sustainability indicators. Final results were then drawn by averaging all the

scores thus aggregated. These exchanges are based on actors' own perception of their environment, 'social space'.

Consistent with our holistic approach to measuring sustainability, key analysis was drawn at network level. The following key analysis measures were used: cluster analysis and network density, brokerage and reciprocity. Additionally, centrality measures were analysed whenever required.

Through the following results we will argue that Intensity is determined by the strength of relations between network actors conveyed, in Social Network Analysis, by 'degree' (Intensity) of exchanges between them. This degree of strength is conveyed by values (in valued data) which convey the strength of a relation and not just its presence, as conveyed by binary data.

8.2. SUSTAINABILITY VALUE MODEL (SVM)

8.2.1. Introduction

Sustainability Value Model (SVM) is a relational tool for measuring sustainability. It has developed from the findings of this research. The tool Comprises both the relational method of data analysis and the stakeholder-based approach for measuring sustainability. It assesses the strength and quality of value deriving from stakeholders' interactions and exchanges which, if positive, can help sustain the network (system), else destroy it altogether. The model is built around the following two main network dimensions: Strength and Quality. 'Strength' refers to a more quantitative assessment of stakeholders' exchanges and 'Quality' to how stakeholders felt while receiving the exchanges; it assesses whether stakeholders are happy or not with those exchanges. As discussed earlier, Quality relates to well-being which mostly determines the level of quality of life. It is

> *"the extent to which pleasure and satisfaction characterize human existence and the extent to which people can avoid the various miseries which are potentially the lot of each of us"*
>
> *(Andrews, 1997, p.280).*

Andrews (1997) reports that some commentators have suggested perceptual indicators suffer from methodological weaknesses associated with their validity, interpretability, completeness, and utility. However, he argues that none of these presumed weaknesses is sufficient to invalidate the development and use of perceptual indicators (Andrews, 1997). Therefore, SVM, a stakeholder-based tool, assesses these stakeholders' perceptions. The tool measures Sustainability at Global level (all SIs included) and at Sustainabilty Impact level (Socio-cultural, Economic and Environmental). Additionally, a comparative presentation is made between the intensity and quality across each sustainability indicator**.**

8.2.2. Designing the tool

Sustainability Value Model (SVM) has been designed to display both Strength and Quality of network exchanges. Through the quality lens, the model achieves a more refined assessment of sustainability. Levels of analysis can be either *Global* or *Sustainability Indicator* based with all stakeholders included. While *Global assessment* looks at all Sustainability Indicators, *Sustainability Indicator assessment* only looks at individual Sustainability Indicators or a meaningful group of SIs. Additionally, a comparative analysis is presented; and for each sustainability indicator, it compares the strength and the quality of relationships amongst all stakeholders. Whichever level is concerned, the analysis will look at the following key measures from Ucinet and NetDraw, its related graphing software:

3. Clusters (ucinet) are drawn to provide evidence of network actors sharing the most value together.

4. Density (ucinet) evidences how strong the network is by displaying the actual connection value as compared to the total connections the network can possibly have. Network Density is also displayed within Netdraw when presenting all network relationships.

5. Reciprocity (NetDraw): displays all relationships between actors, highlighting mutual relations between actors. Actors missing relations are displayed as isolates, those not connected with any other actors in the network.

8.2.3. Presenting the Results

In addition to statistics, graphical presentation of results has been advocated to be the best way of presenting sustainability assessment as it provides more intuitive interpretation (Kelly and Baker, 2002) and easy for policy-makers to quickly spot areas of concern (MacRae, 2008). Below are two representative ways for presenting sustainability results:

1. **AMOEBA:** In order to present the measurement of sustainability through indicators, Bell & Morse (1999) have suggested the use of AMOEBA (a Dutch acronym meaning general method for ecosystem description and assessment). The authors suggest that a perfect kite shape (see *Figure 33*) indicates that the activity is more balanced and henceforth more sustainable. In the same vein, the more the AMOEBA points to one particular factor, the more unsustainable the activity is, as shown in *Figure 33*.
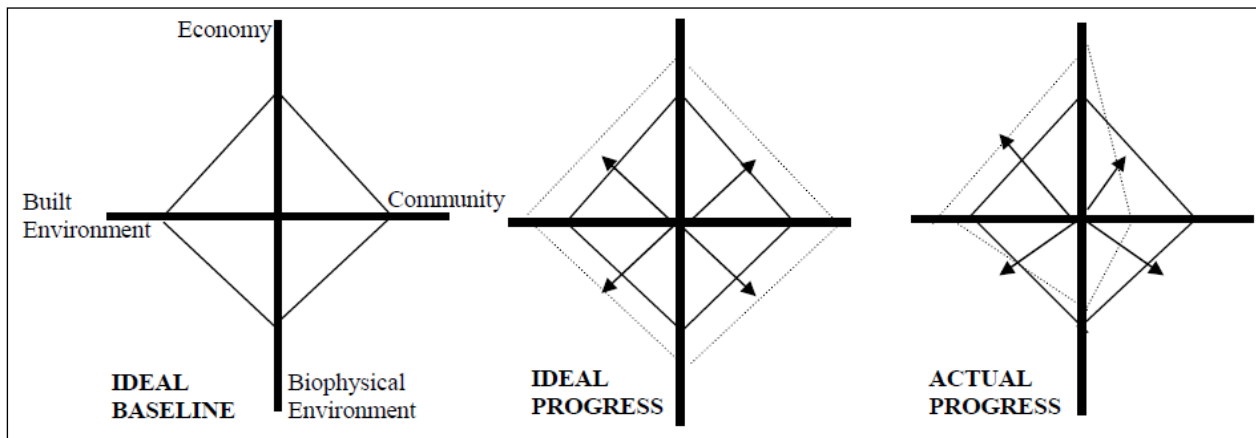
Figure 33: Example of AMOEBA (DSCWG, 2001; Bell & Morse, 1999).

2. **STRETCHING THE WEB:** DEFRA (The British Department for Environment, Food and Rural Affairs) has produced a tool for graphically representing the impact of a policy proposal on the three pillars of sustainable development, called "Stretching the Web"

(Defra, 2007), which indicates where the 'web' needs to be stretched in order to optimise the impact (Macrae, 2008) and has been widely used by the United Nations.
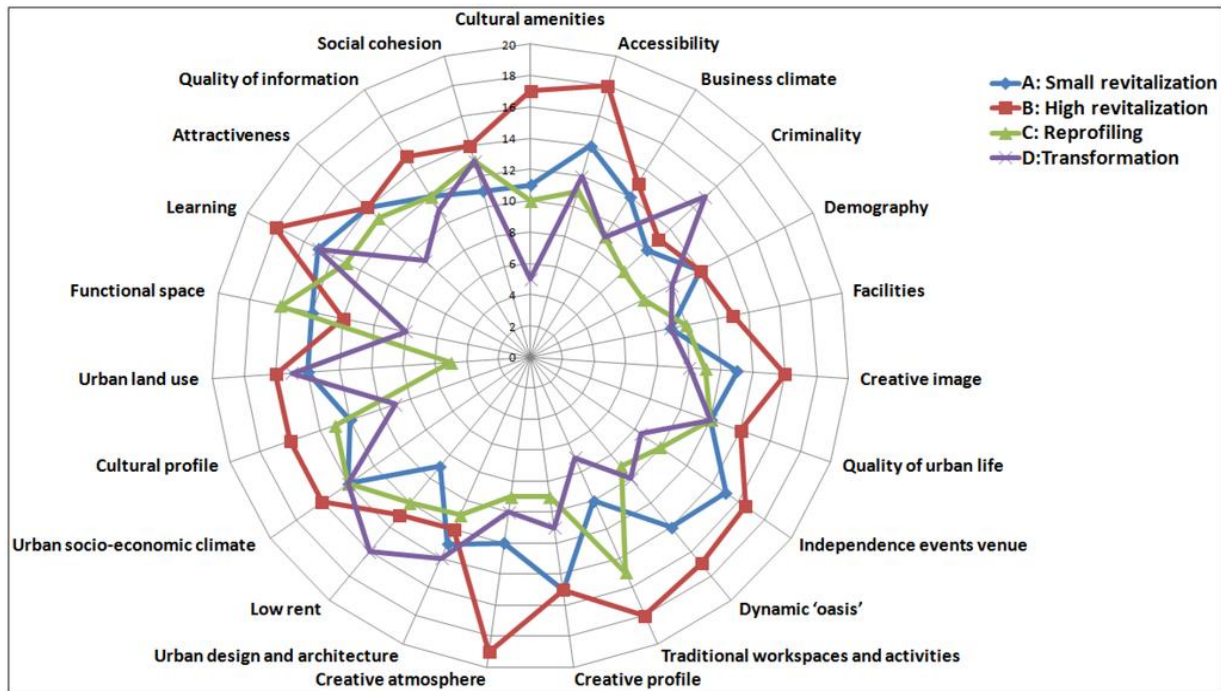
Figure 34: The criteria scores of the urban faces (Kourtit and Nijkamp, Sustainability 2013)

From the two models in *Figure 33* and *Figure 34*, we have designed our bespoke Sustainability Value Model (SVM), which encapsulates the essence of sustainability as it presents results in a holistic manner, i.e. stakeholder based with all sustainability Impacts included yet making provision for detailed insight. The model is flexible and can mix and assess sustainability at granular level, i.e. individual sustainability indicator and stakeholder.

8.3. THE TOOL - SUSTAINABILITY VALUE MODEL (SVM)

As a first stakeholder-based tool for sustainability assessment using Social Network Analysis method, Sustainability Value Model is a holistic measurement tool. Relational softwares have been put to contribution both for computing the data and for presenting results. Whilst Ucinet software provides statistical results from network relations, NetDraw software graphically presents the relations to visually spot the links, their weight as well as the reciprocal connections. Clusters and density are automatically derived from routines in Ucinet and results are presented graphically in NetDraw. Density can further be visible in NetDraw after cut-off points have been applied, i.e. >2 for determining a strong tie.

The Sustainability Value Model is based on the idea that strong ties are evidence that actors hold a strong bond between them, which by the same token, leads to a sustainainable relation. This strong relation leads, in the long run, to a strong and sustained network. A strong network endures time pressure and sustains itself to achieve the desired outcomes each system has set itself to attain. These outcomes encompass all aspects of social life: socio-cultural, economic and environmental facets of human activity. A strong network also includes all key stakeholders in the microcosm or macrocosm under research. Sustainability is henceforth achieved when all sustainability indicators, as defined by network actors themselves, are shared between the actors to such an extent that these stakeholders would do anything to protect and support the network which provides them with the security they need for their own living as well as their children's.

The tool (SVM) presents sustainability at global level (Sustainability Assessment) and Impact level (Sustainability Indicator Assessment). It highlights Sustainability attainment in terms of Strength/Intensity and Quality, as further explained below.

Sustainability Value Model (SVM) looks at two network dimensions: Strength and Quality of interactions within the network. While Strength refers to the value resulting from stakeholders' exchanges, Quality, a more refined measure, assesses the degree to which these stakeholders are happy with the value derived from their mutual exchanges. Quality indicators assess sustainability best as they better provide "*direct measures of individuals' evaluations of their own well-being*" (Andrews, 1997, p. 283) within the system they live.

To assess the level of sustainability (or unsustainability) the following standard grading system will be used:

From	To	Assessment
0%	20%	Very Unsustainable
>20%	<50%	Unsustainable
50%	60%	Somewhat Sustainable
>60%	<80%	Sustainable
80%	100%	Very Sustainable

Table 51: Sustainability Grading System

As visually shown by the graphs in *Figure 37*, Strength assessment displays very different sustainability performance from Quality assessment. They highlight various single and reciprocal ties as well as isolates in the networks. In addition, the density figure further explains how the network holds together (the higher the better, and 1 is the maximum).
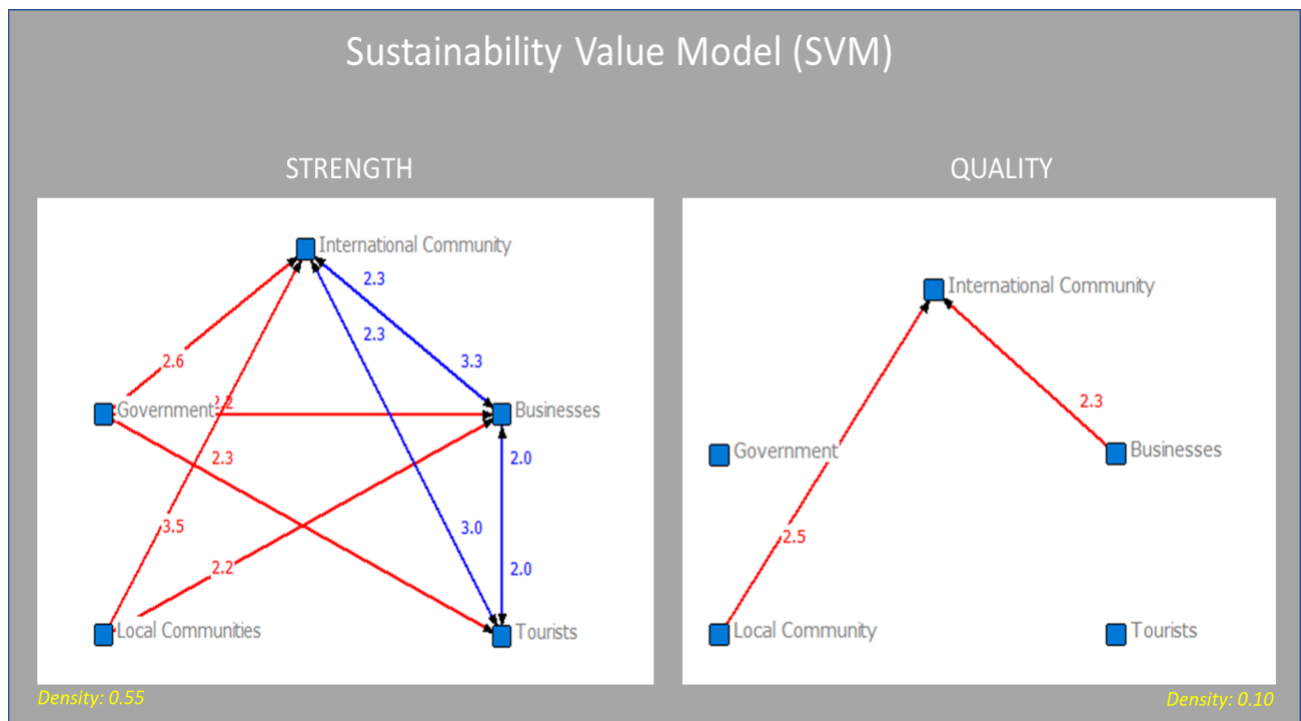
Figure 35: Sustainability Value Model (SVM) – Global Level

The Sustainability Value Model (SVM) in **Figure 35** clearly shows that the mountain gorilla tourism sector of the D.R. Congo is **Somewhat Sustainable** from the Strength dimension and **Very Unsustainable** at the Quality dimension. While blue arrow lines represent reciprocated exchanges between stakeholders, red lines indicate one-directional relations. Following is the key information to be derived from the model:

1. *Strength dimension*: stakeholders in the tourism sector share some strong exchanges (density: 0.55) but only three of them have strong mutual exchanges (International Community, Businesses and Tourists). Therefore, we could conclude that this dimension indicates that the tourism sector has achieved 55% sustainability level and is therefore **Somewhat Sustainable**

2. *Quality dimension*: those stakeholders hold very little appreciation of the quality of the benefits they have received from one another (density: 0.10). Only International Community,

Local Community and Businesses have some positive appreciation of their exchanges. Governmental Institutions and Tourists' exchanges are not valued by anyone in the whole tourism sector. Therefore, we could conclude that this dimension indicates that the tourism sector has achieved 10% sustainability level.

As Quality is a more refined sustainability measure (Miell and Dallos, 1996), we can conclude that **this network overall sustainability level stands at 10% and is thus Very Unsustainable**.

Therefore, a lot of effort is required to get the Quality assessment to at least 50% (0.50 density level). Policy makers and project leads' efforts need to focus on areas of low performance, more specifically in Quality, as indicated by the Impact assessment in *Table 52*.

Nr	SUSTAINABILITY IMPACTS	DENSITY		TIES	
		Strength	Quality	Strength	Quality
1	Socio-Cultural Impacts (13 SIs)	0.85	0.45	17	9
2	Economic Impacts (9 SIs)	0.70	0.60	14	12
3	Environmental Impats (2 SIs)	0.70	0.50	14	10
	TOTAL	0.55	0.10	11	2

Table 52: Sustainability Value Model (SVM) – Sustainability Impacts

Table 52 provides more insight on the tourism sector sustainability attainment by showing how each of the sustainability impacts has performed in this network. These are specific areas for improvement. We can clearly see that:

1. Environmental Impacts have contributed to this network in a significant manner as their Strength performance (70%) is too far from the Quality performance (50%)

2. Economic Impacts have equally contributed in Strength performance (70%) yet lower than in Quality (60%). '*Tourism Development*' is the only SI with 50% sustainability score.

3. Socio-Cultural Impacts are the best performing in Strength (85%) yet the least performing in Quality (45%).

Furthermore, the Sustainability Value Model focusses on each of the three sustainability domains (impacts) by providing a more detailed analysis of the contribution of each individual SI to the Impact group, and henceforth to the whole tourism sector sustainability performance. To this end, an overview of all 24 SIs is presented in *Figure 37*, and individual Impacts provide more detailed analysis of each sustainability indicator, yet still within the holistic approach, i.e. stakeholder-based.

8.3.2. Impact Assessment – Sustainability Indicators (SI)

Each table lists out all sustainability indicators and for each one, compares the densities of their Strength and Quality dimensions, indicating areas of similarities and differences between the two. Colour coding indicates SIs faring at par in both dimensions (Strength and Quality).

For consistency, we recommend that the order of all SIs remain unchanged, for ease of reference across subsequent assessment periods.
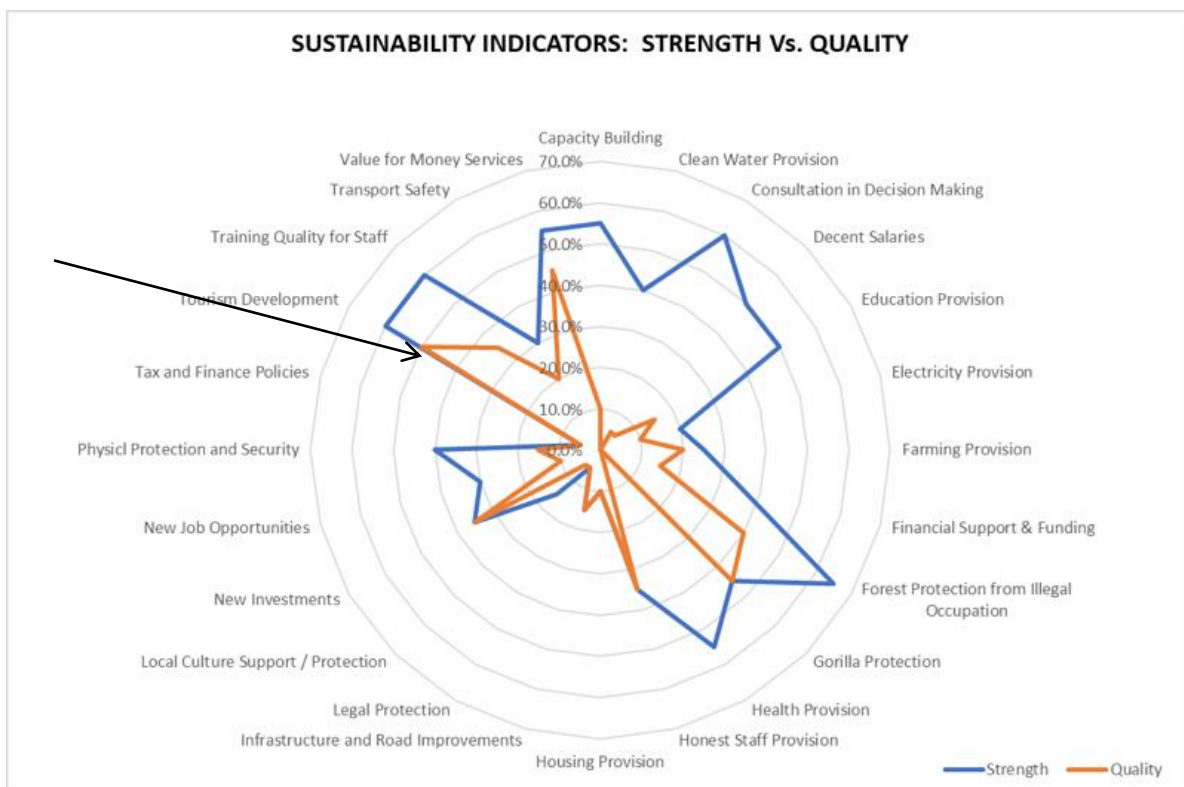
Figure 36: Sustainability Value Model (SVM) – Sustainability Indicator Level

From **Figure 38**, we can see that only "*Tourism Development*" Sustainability Indicators reached the 50% level (indicated by black arrow) of sustainability in this sector, i.e. all other exchanged benefits (SIs) have been poorly appreciated by stakeholders receiving them. To further see the

contribution of each sustainability indicator in its impact group, further analysis has been carried out by zooming into each of the three impact groups:

8.3.2.1. Socio - Cultural Indicators

Socio-cultural Sustainability Indicators *"tend to be the hardest indicators to assess"* (Colantonio, 2009, p.4), yet their impacts are the cornerstone of sustainability achievement for any society. As unsustainability has been brought about by human activity (FAO 2002a; Pikitch et al 2004), it is important that the same humans define which SIs are critical, in their space and time, to revert to a sustainable state. Several models have attempted to measure sustainability but were faced with the limitation of assessing socio-cultural impacts (Colantonio, 2009). They therefore ended up assessing *'reactive'* or *expost* sustainability approach which measures the effects of human activity on the environment. The models failed to assess *'proactive'* or *exante* sustainability, which assesses the actual causes of unsustainability. This research is positing that only proactive (*exante*) sustainability measurement by means of a holistic approach (stakeholder based), can pre-empt unsustainability by identifying its causes. Proactive sustainability assessment can thus help decision-makers to put in place appropriate policies and measures for a more sustainable society, network.
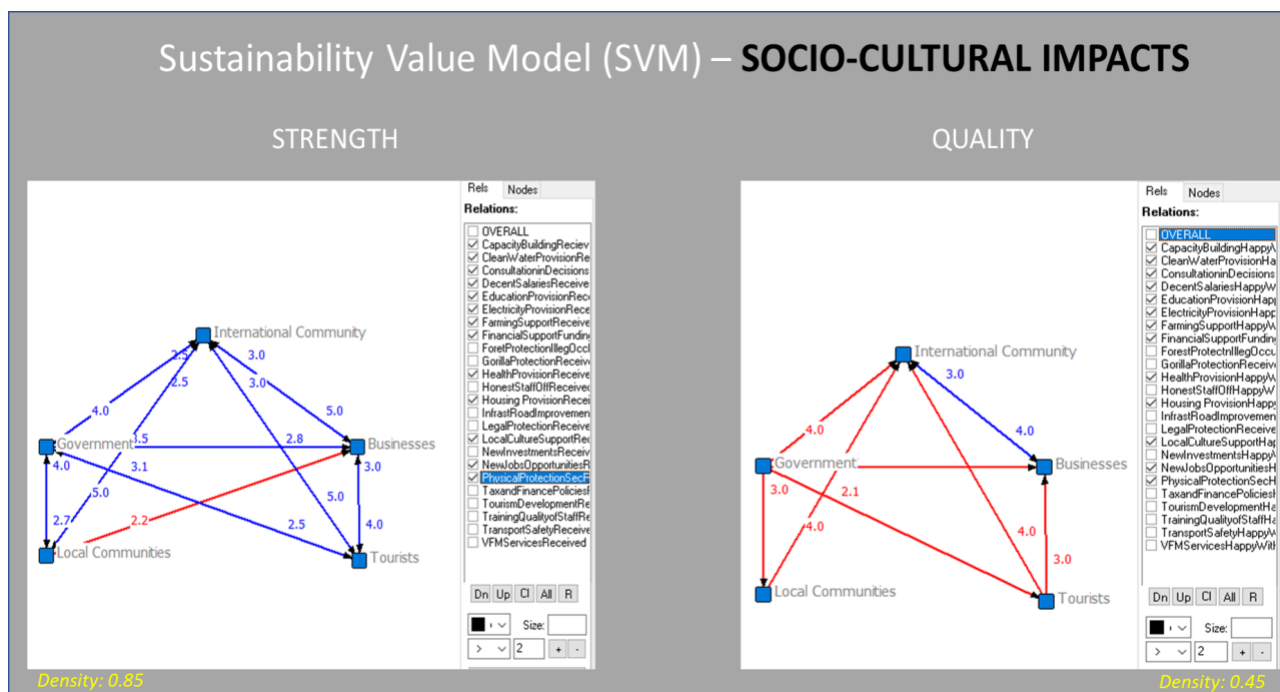
Figure 37: Sustainability Value Model (SVM) – Socio-cultural Impacts

Figure 37 system-generated graphs show how stakeholders have shared socio-cultural impacts. Whilst Strength exchanges have been reciprocated between most stakeholders, only International Community and Businesses have reciprocated Quality exchanges. It is worth noting the absence of Quality appreciation between Local Communities and two other stakeholders: Businesses and Tourists. Worth of note is the de-selection of non relevant SIs (panels on the right side of the graphs) to allow only concerned sustainability indicators to be computed and displayed.

Nr	SOCIO-CULTURAL IMPACTS - SUSTAINABILITY INDICATORS	DENSITY		TIES	
		Strength	Quality	Strength	Quality
1	Capacity Building	0.55	0.10	11	2
2	Clean Water Provision	0.40	-	8	0
3	Consultation in Decision Making	0.60	0.05	12	1
4	Decent Salaries	0.50	0.05	10	1
5	Education Provision	0.50	0.15	10	3
6	Electricity Provision	0.20	0.10	4	2
7	Farming Provision	0.25	0.20	5	4
8	Financial Support & Funding	0.35	0.15	7	3
11	Health Provision	0.55	-	11	0
13	Housing Provision	0.10	0.10	2	2
16	Local Culture Support / Protection	0.15	0.05	3	1
18	New Job Opportunities	0.30	0.10	6	2
19	Physicl Protection and Security	0.40	0.15	8	3
	TOTAL	0.85	0.45	17	9

Table 53: Sustainability Value Model (SVM) – Sustainability Indicator – socio-Cultural Impacts Comparative densities

From

Table 53 displaying socio-cultural impact assessment we can see an overall sustainability score of 45%. There is a very big gap between Strength and Quality appreciation (85% Vs. 45%). Only *'Housing Provision'* SI has been consistently appreciated both in terms of Strength and Quality of exchanges and hold the lowest scores, indicating that the SI is not addressed at all. For all other SIs in this impact group, Quality of exchanges is much lower than Strength assessment. With 45% Quality assessment, the socio-cultural impacts of this tourism sector are **Unsustainable**.

8.3.2.2. Economic Impacts
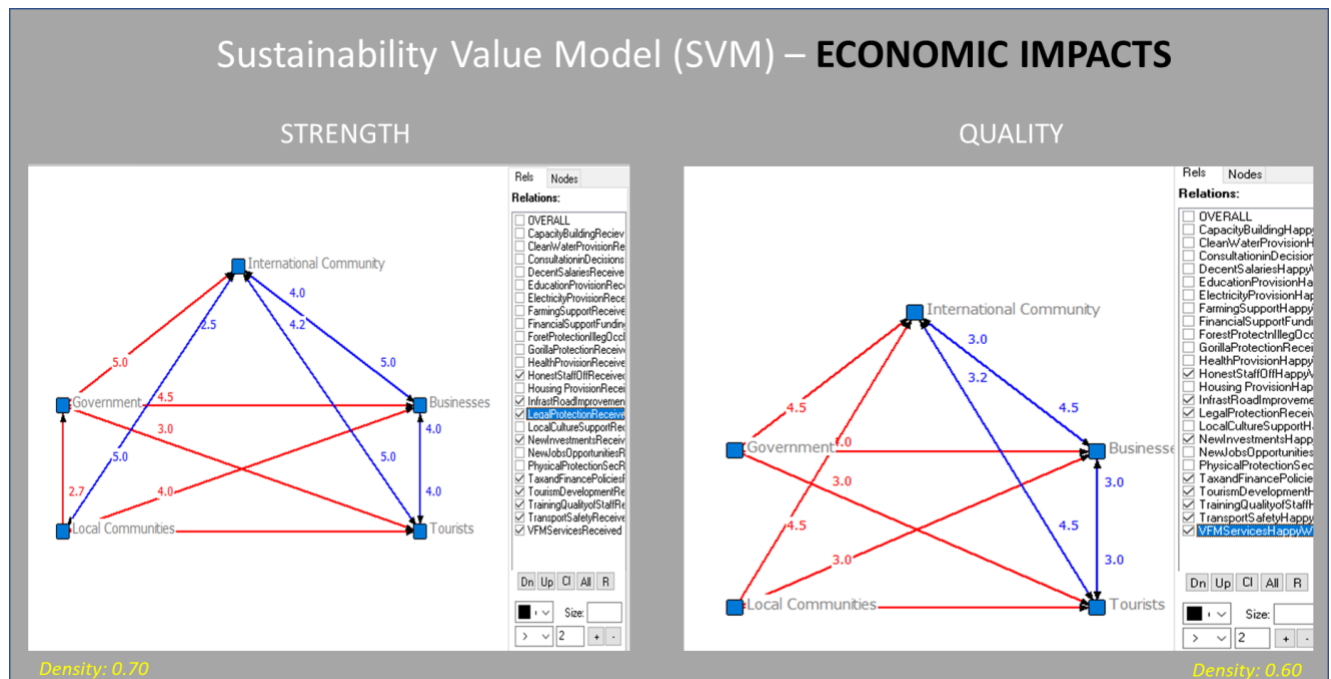
Figure 38: Sustainability Value Model (SVM) – Economic Impacts

Figure 38 displays system-generated graphs. The graphs indicated how stakeholders have shared Economic impacts. Whilst this impact group has the highest ratings (Strength: 70% and Quality: 60%) and all stakeholders hold exchanges between them, only International Communities, Businesses and Tourists reciprocated their appreciation of Quality interactions. It is worth to note the absence of Quality appreciation between Local Communities Governmental Institutions.

Nr	ECONOMIC IMPACTS - SUSTAINABILITY INDICATORS	DENSITY		TIES	
		Strength	Quality	Strength	Quality
12	Honest Staff Provision	0.35	0.35	7	7
14	Infrastructure and Road Improvements	0.15	0.15	3	3
15	Legal Protection	0.05	0.05	1	1
17	New Investments	0.35	0.35	7	7
20	Tax and Finance Policies	0.05	0.05	1	1
21	Tourism Development	0.60	0.50	12	10
22	Training Quality for Staff	0.60	0.35	12	7
23	Transport Safety	0.30	0.20	6	4
24	Value for Money Services	0.55	0.45	11	9
	TOTAL	0.70	0.60	14	12

Table 54: Sustainability Value Model (SVM) – Sustainability Indicator – Economic Impacts - Comparative densities between Strength and Quality of exchanges amongst stakeholders

From the economic impact assessment (*Table 54*) we can see very unsustainable Economic Impact group with good performance in Strength (70%) and lower in Quality (60%) with the top 5 SIs being consistently appreciated across both dimensions: Strength and Quality of exchanges. For all other SIs in this impact group, Quality of exchanges is lower than Strength assessment. With 60% Quality assessment, the Economic impacts of this tourism sector are **Somewahat Sustainable**.

8.3.2.3. Environmental Impacts
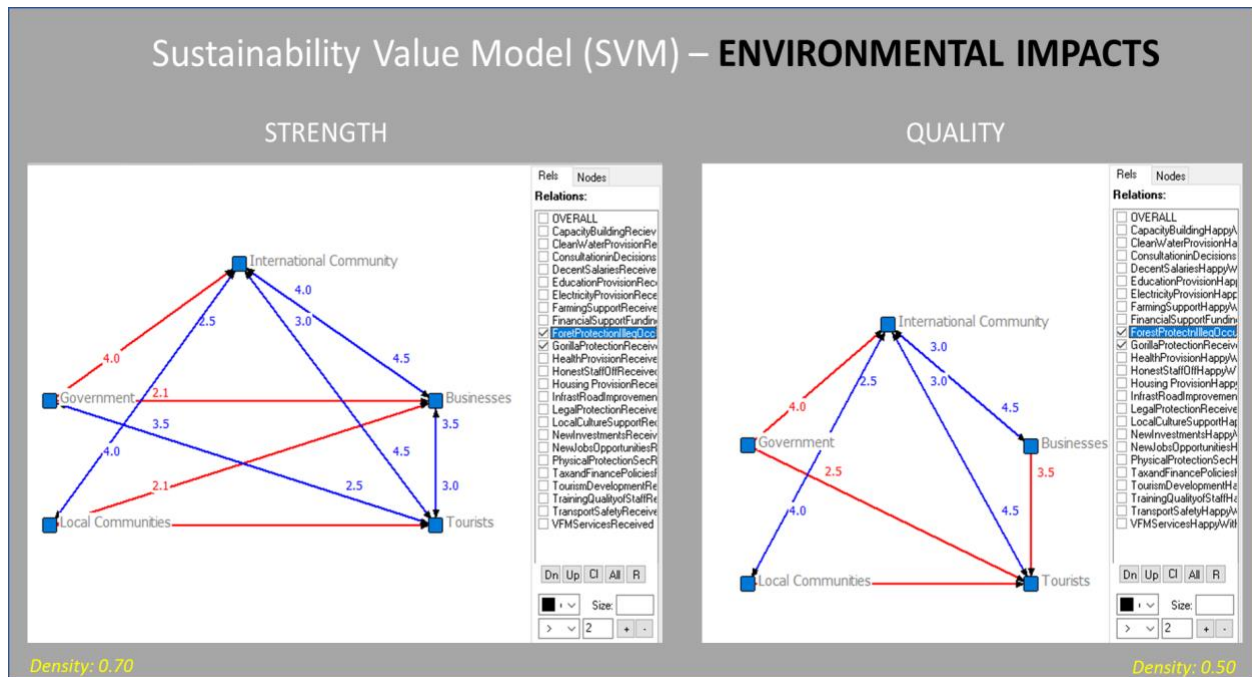
Figure 39: Sustainability Value Model (SVM) – Environmental Impacts

Figure 39 displays system-generated graphs. The graphs indicate how stakeholders have shared environmental impacts. This is a more balance impact group as nearly the equal number of exchanges exists between stakeholders. Additionally, there is a high number of reciprocated exchanges both in strength and in quality. Only missing ties are noticed between Governmental Institutions and Local Communities. It is worth to note that, from the Quality dimension, the International Community plays a key role in this impact group as all reciprocal exchanges evolve around them.

Nr	ENVIRONMENTAL IMPACTS - SUSTAINABILITY INDICATORS	DENSITY		TIES	
		Strength	Quality	Strength	Quality
9	Forest Protection from Illegal Occupation	0.65	0.40	13	8
10	Gorilla Protection	0.45	0.45	9	9
	TOTAL	0.70	0.50	14	10

Table 55: Sustainability Value Model (SVM) – Sustainability Indicator – Environmental Impacts - Comparative densities between Strength and Quality of exchanges amongst stakeholders

From the environmental impact assessment report (*Table 55*) we can see that this impact group performs much better than the other two impact groups and that the *'Gorilla Protection'* SI has been consistently appreciated both in strength and quality of exchanges, albeit at a lower rate (45%). This impact group is the only one with such high ratings. It indicates that most stakeholders in the gorilla tourism network appreciate the work done in the sector. Overall, Quality of exchanges is much lower than Strength assessment, with average (50%) performance score. There is consistency in the appreciation of hard work done in the sector, especially with regard to gorilla protection. With 50% Quality assessment, the Environmental impacts of this tourism sector are **Somewhat Sustainable**.

CHAPTER 9 – CONCLUSION AND RECOMMENDATIONS

9.1. CONCLUSION

The main question the present research has solved is to how to measure sustainability in Less Developed Countries, more specifically, gorilla tourism sustainability in the D.R. Congo. Measuring sustainability would sound like measuring the immeasurable (Bell & Morse, 2003), because sustainability, like beauty, lies in the eye of the beholder. As subjective as it can be, such a complex concept can be hard to be defined and measured, unless done by the very agents meant to give it substance because it is *"politically constructed and reflects the interests and values of those involved"* (Mowforth & Munt, 2016, p.22).

Sustainability appears to be a key concept in modern management. Yet it is a contentious concept as it is hard to define. Whilst several definitions of the term exist, none of them has captured the true meaning of the concept a its meaning lies in its practice. This concept has been closely linked to three dimensions: Econominc, environmental and socio-cultural. These dimensions have made it easy to assess sustainability, and several models have been proposed to date; yet sustainability measurement has been focussing on ex-post assessment instead of looking at the causes of unsustainability, i.e. ex-ante assessment. Ex-ante assement measures human's intentions for behaving in an inducing manner to behaving sustainably, i.e. ensure the continuity of the system they rest upon.

The research aim was reached by carrying out research in two areas surrounding the gorilla parks: The Virunga National Park and the Kahuzi-Biega National Park. While research on gorilla parks in neighbouring countries exist, there is hardly any academic research on D.R. Congo's tourism. The country has attracted little interest from academics, due to rampant insecurity and lack of reliable data on the sector. This research is thus the first academic research to discuss and measure sustainability in these reseach areas. Additionally, it is the first research to measure sustainability in a holistic manner, i.e. addressing all sustainability dimensions through a relational stakeholder-based approach.

In order to achieve the all stated aims and objectives, a mixed-methods approach was applied to data collection, data processing and analysis of the research findings. 13 semi-structured interviews were administered to different stakeholders in the Congolese gorilla tourism sector. Resulting insight consisted of the identification of 5 key stakeholder groups as well as 24 Sustainability Indicators locally generated and validated by the afore-mentioned stakeholders. The gained insight was then used for survey questionnaires administered to 302 respondents in the two research areas, the Virunga and the Kahuzi-Biega gorilla parks. However, a pilot research preceeded the survey questionnaires. It consisted of sample questions from the quantitative stage and aimed to test the assessment tool that would then be used for measuring sustainability of the Congolese gorilla tourism sector. The pilot stage was important to the process as it enabled us to test the data collection process using a roster instead of a standard questionnaire. Collected data from the pilot stage was processed and analysed by means of the relational software. This stage was even more important as it evidenced at early stage, the design of the model to be used in order to measure sustainability of the Congolese gorilla tourism sector in a holistic manner, the Sustainability Value Model (SVM).

Two theories underpin the construction of Sustainability Value Model: Stakeholder Theory and Social Exchange Theory. Stakeholders's exchanges determine the level of attained sustainability, which is built upon the nature and quality of the created value within a system, but more so with quality. We concur with Cropananzo et al. (2010, p.602) when they assert that "*Quality of exchanges stands as one of the key ways of assessing social exchange relationships as it leads to reciprocative behaviours*".

This research has attained its stated objectives as follows:

Objective one aimed at measuring the strength of exchanges between stakeholder groups. First of all, frequency of visits stakeholders have made to one another have clearly indicated that the D.R. Congo tourism network is weak. Findings have evidenced that stakeholders tend to visit one another very sparingly; but more so with Local Communities. These have received the least visits of alland are thus cut off from the tourism sector. Secondly, in addition to scarce number of visits, only few of these stakeholders have visited one another: This limited number of stakeholders visiting others is in line with 'visit frequency' between these stakeholders within the gorilla tourism sector in the D.R. Congo.

Objective two aimed at measuring the quality of exchanges between stakeholder groups. This was achieved by ascertaining the quality of exchanges as perceived by receiving stakeholders. Results have shown that this tourism network is very fragile as relationships between its stakeholders are found to be of very poor quality. Findings have shown that only 2 existing ties exist between actors (International Community and Businesses).

We have therefore posited that the gorilla tourism sector is likely to achieve sustainability only if its stakeholders are supportive of it. For these to support the sector, the perceived quality of the benefits (value) they receive from the sector needs to be high enough to incentivise them to support the sector, otherwise they will be the very destroyers of it. Using a stakeholder-centred approach, Sustainability Value Model computes all exchanges, representing Sustainability Indicators, and displays how various stakeholders share and appreciate the generated value between them.

This research has evidenced the level of unsustainability in the gorilla tourism sector of the D.R. Congo on Strength and Quality respectively as *Somewhat Sustainable* and *Very Unsustainable*. The tool then applies a cut-off point to determine the sustainability threshold. The threshold level demarcates unsustainability from the sustainability level. A sustainable network would thus have values above the cut-off point. Additionally, the tool provides further analysis highlighting which of the three sustainability impacts (socio-cultural, economic and environmental) has contributed to the performance.

Sustainability Value Model (SVM), is the first in its kind, and presents four major contributions to the application and practice of sustainability measurement as follows:

1. Unlike all existing frameworks, especially the acclaimed 'Amoeba' and the 'Stretch the Web' currently in use by the UNWTO, SVM measures sustainability *ex-ante using holistic, stakeholder-based approach.*

2. The tool solves the conundrum of ex-ante sustainability measurement through its relational approach (rather than transactional), thus opening new doors to research and practice of sustainability measurement.

3. SVM uses readily available relational softwares, and measures sustainability at three levels: overall, individual impact (economic, environmental and socio-cultural) and individual Sustainability Indicator. The tool uses graph and table reporting and is, in this respect, a better option than the newest around 'Stretch the Web'.

4. Finally, using the flexibility relational softwares provide, SVM is flexible as it allows multiple level analysis both at Stakeholder level and Sustainability Indicator level.

In addition, following successful application of SVM to measuring sustainability of the tourism sector, the tool can well be applied to any other sector. Following are specific recommendations for the use of SVM.

9.2. RECOMMENDATIONS

Appropriate fund allocation is key to the sustainability discourse. In fact, as the OECD (2012) states, funds have been allocated to stakeholders where they should not, for lack of precise information. This has led to the same causes of unsustainability occurring as only effects had been analysed, assessed and presented. It therefore appears that SVM is going to tell organisations and public institutions which stakeholders contribute the most (or the least) to sustainability. It will also point to the very Sustainability Indicators needing support and the magnitude of that support. In taking targeted actions, the tool will help organisations and public institutions save money and time, and ultimately contribute to sustainability.

The big positive of the Sustainability Value Model is that is does not require any new software development. It is based on the widely used Social Network Analysis (SNA) softwares: UCINET and NetDraw. It can also be run through any other proven SNA softwares (Pajek, Siena, Mage …) for which training is readily available. Furthermore, the model is interactive as it allows for direct engagement of both the presenter and the audience and allows various levels of analysis to be presented straight from the software, making results more reliable and trustworthy for decision-makers and users alike. By selecting all SIs, the global dimension of the network sustainability is obtained. By grouping only SIs related to each Impact category, the impact analysis is ready. Furthermore, by selecting each SI, a granular reading of individual SIs is produced. Likewise, stakeholder selection can also be progressively applied to suit specific decisions geared towards achieving sustainability.

9.3. RESEARCH IMPLICATIONS

The stakeholder-centred tool for assessing sustainability (SVM) is a proactive and interactive measurement tool. It is going to be of a great interest to both policy and decision-makers, both in public and private organisations, as well as non-profits. More specifically, we trust the United Nations World Tourism Organisation (UNWTO) will integrate our bespoke measurement tool, the Sustainability Value Model (SVM), into their tourism assessment and thus solve the conundrum of assessing non-financial indicators, especially socio-cultural ones. Finally, this research will open up new opportunities for academics to further engage in sustainability measurement in their respective areas of research, using Social Network Analysis.

9.3.1. Theoretical Contribution

The findings present some theoretical contribution, albeit lower than the managerial one. Sustainability Value Model opens new doors for academics wanting to assess the sustainability of various research areas. The relational approach provides not only a method for measuring sustainability but also a tool for ready application in their various fields. Using Social Network Analysis to explore interactions between actors in relationship is yet to be widely explored by social researchers.

Sustainability Value Model will be of great interest to users of transactional approach and to those using relational approach for collecting, processing and analysis their data. Up until now, academics have mostly used the transactional approach to assess relationships between actors. Sustainability Value Model opens doors for assessing and categorising reciprocity and brokerage more easily than with transactional approach, as can be seen throughout our findings and discussions chapter. Furthermore, Social Network Analysis users have mostly restricted themselves to the analysis of kinship and affiliation (Scott, 2012). Beyond its relational nature,

Sustainability Value Model presents these academics with a measurement tool for use beyond the two areas researched by SNA to date (kinship and affiliation). Beyond the assessment of Strength of relatioships, these academics will be able to assess the quality of those relationships, mostly if based on actors' interactions.

9.3.2. Managerial Implications

As important as it is to assess the level of achieved sustainability in projects, managers and policy ans well as decision makers have found it hard to assess sustainability in the holistic manner, especially when it comes to socio-cultural indicators. Sustainability Value Model, owing to its relational and stakeholder-centric nature, achieves this assessment as does not associate social performance to financial one (Raggamby & Turnpenny, 2006). It rather analyses stakeholders' interactions and assesses their identified Sustainability Indicators to measure the strength and quality of these stakeholders' relationships and henceforth the sustainability level attained by the whole network.

Practioners will start designing sustainability projects which includes social-cultural indicators., which are the hardest to assess as they do not require any financial performance. It will help these practioners to better assess their projects. The tool fills the gap in the sustainability assessment arena, more so with the tourism sector as it SVM assesses sustainability through a holistic approach,

Additionally, the tool assesses all the pillars of sustainability by means of a relational methodological approach for collecting and analysing data. It also uses a visual tool for presenting results. Results are presented in a clear way so that policy-makers and any other

users can quickly spot areas of concern and engage in detailed analysis of various impacts

before any decisions are taken.

9.4. RESEARCH LIMITATIONS AND AVENUES FOR FUTURE RESEARCH

This research presents a few limitations. It has restricted its scope only to the gorilla tourism and to only one country. However, the research has helped to design a tool for assessing the sustainability attained by the gorilla tourism sector in the D.R. Congo: Virunga and Kahuzi-Biega. Research would therefore use the tool and extend to other countries, more specifically to those sharing gorilla park borders with the Virunga National Park: Rwanda and Uganda. It could also apply to other types of tourism, even further in all Less Developed Countries. Data collection method was another limiting factor in this research. Owing to the large amount of data to collect on roster questionnaires, paper and pen method was highly time consuming, and computer-assisted personal interviews (CAPI) would have been more appropriate. CAPI was not used due to financial limitations for purchasing digital devices and to interviewers' limited computer expertise.

Further research would thus seek to measure sustainability of other sectors such as the hospitality industry, education etc., using the Sustainability Value Model.

REFERENCES

Adedeji, B., & Olufemi, A. O. (2007). *Computational Economic Analysis for Engineering and Industry*. New York: CRC Press.

Akehurts, G. (Ed.) (1992). *European Community Tourism Policy Perspectives on Tourism Policy,* . London: Mansell.

Allee, V. (2008). Value Network Analysis and value conversion of tangible and intangible assets. *Journal of Intellectual Capital, 9*(1), 5-24.

Allen, J., & Massey, D. (Eds.). (1995). *Geographical Worlds*. Milton Keynes: Open University Press.

Ambrosi, P., & Capoor, K. (2009). *State and Trends of the Carbon Market 2009*. Retrieved from

Andriof, J., & McIntosh, M. (2001). *Perspectives in Corporate Citizenship*. Sheffield: Greenleaf.

Ap, J. (1992). Residents' Perceptions of Tourism Impacts. *Annals of Tourism Research, 19*(4), 665-690.

Bakkes, J. (1997). Conclusion. In B. Moldan, S. Billharz, & R. Matravers (Eds.), *Sustainability Indicators: A report on the project on Indicators of Sustainable Development* (pp. 396-398). Chichester: John Wiley and Sons.

Bartelmus, P. (1997). Measuring Sustainability: Data Linkage and Integration. In B. Moldan & S. Billharz (Eds.), *Sustainability Indicators: Report of the project on indicators of sustainable development* (pp. 116-118). Chichester: John Wiley and Sons.

Bartels, G. B., Norton, B. E., & Perrier, G. K. (Eds.). (1990). *The applicability of the carrying capacity concept in Africa*. London: PDN paper 30e.

Bell, S., & Morse, S. (2000). *Sustainability Indicators, Measuring the Immeasurable,* . Guilford Earthscan.

Bell, S., & Morse, S. (2003). *Measuring sustainability : learning by doing*. London ; Sterling, VA: Earthscan.

Bell, S., & Morse, S. (2008). *Sustainability indicators : measuring the immeasurable?* (2nd ed.). London: Earthscan.

Besleme, K., & Mullin, M. (1997). Community Indicators and Healthy Communities. *National Civic Review, 86*(1), 43-52.

Bryman, A., & Bell, E. (2007). *Business Research Methods* (2 ed.). Oxford, New York: Oxford University Press.

Buchholz, T. (1999). *New ideas from Dead Economists: An introduction to modern economic thought*: Penguin Books.

Buckley, R. (2000). Tourism in the most fragile environments. *Tourism Recreation Research, 25*, 31-40.

Butler, R. (1993). Tourism - an evolutionary perspective. In J. Nelson, R. Butler, & G. Wall (Eds.), *Tourism and Sustainable Development: Monitoring, Planning and Managing* (pp. 27-43). Ontario: Department of Geography, University of Waterloo.

Butler, R., & Pearce, D. (Eds.). (1995). *Change in tourism : people, places, processes*. London ; New York: Routledge.

Buttler, R. (1991). Tourism, environment and sustainable development. *Environmental Conservation, 18*(3), 201-209.

Capra, F. (1996). *The Web of Life: a sysnthesis of mind and matter*. London: Harper Collins.

Carr, A. (1968). Business Bluffing Ethical. *Harvard Business Review, 46*(January-February), 143-153.

Carroll, A. B. (1999). Corporate social responsibility - evolution of a definitional, construct. *Business & Society, 38*(3), 268-295.

Carson, P., & Moulden, J. (1991). *Green is gold: business talking to business about the environmental revolution*. Toronto

New York: HarperBusiness.

Ceron, J. P., & Dubois, G. (2010). Tourism and Sustainable Development Indicators: The Gap between Theoretical Demands and Practical Achievements. *Sustainable Development I.*

Chambers, R. (1992). [Rural Appraisal: Rapid, Relaxed and Participatory].

Chambers, R. (1997). *Whose Reality Counts? Putting the First Last*. London: Intermediate Technology.

Chambers, R., Pacey, A., & Thrupp, L. A. (1989). *Farmers First: Farmer Innovation and Agricultural Research*. London: Intermediate Technology.

287

Chang, N. (2001). Welcome to Thighlandia. *New Frontiers, May-June*(6).

Choi, C., & Murray, I. (2009). Resident attitudes towards sustainable community tourism. *Journal of Sustainable Tourism, 18*(4), 575-594.

Christie, I., & Crompton, D. E. (2001). Tourism in Africa. *Africa Region Working Paper Series*. Retrieved from http://.worldbank.org/afr/wps/wp12.pdf

CI, & IUCN. (2008, August 6, 2008). More than 100,000 rare gorillas found in Congo. Retrieved from http://edition.cnn.com/2008/WORLD/africa/08/05/congo.gorillas/ - cnnSTCText

CIA. (2011). The World Fact Book. Retrieved February 22, 2011 https://cia.gov/library/publications/the-world-factbook/geos/cg.html

CInternational. (2008a). Eastern Gorillas. Retrieved from http://conservation.org/learn/biodiversity/species/profiles/gorillas/Pages/gorillas.aspx

CInternational. (2008b). Saving Congo Forest Benefits Gorillas. Retrieved from http://conservation.org/FMG/Articles/Pages/saving_congo_forest_benefits_gorillas.aspx

Clark, J. R. (1991). *Carrying Capacity: Defining the Limits to Tourism.* Paper presented at the Congress on Coastal and Marine Tourism Honolulu, Hawaii Natl. Cstl. Resources Research Center.

Collis, J., & Hussey, R. (2009). *Business research : a practical guide for undergraduate & postgraduate students* (3rd ed.). Basingstoke ; New York: Palgrave Macmillan.

Cox, P. G., MacLeod, N. D., & Shulman, A. D. (1997). *Putting sustainability into practice in agricultural research for development*. New York, London: Plenum Press.

Crabtree, R., & Bayfield, N. (1998). Developing sustainability indicators for mountain ecosystems: a study of the Cairngorms, Scotland. *Journal of Environmental Management 52*, 1-14.

Crilly, M., Mannis, A., & Morrow, K. (1999). Indicators for change: Taking a Lead' Local Environment. *42*, 151-168.

Crowther, D. (2008). The Maturing of Corporate Social Responsibility: A Development Process. In A. Ashgate (Ed.), *The Ashgate Companion to Corporate Social Responsibility* (pp. 19-30). Aldershot: Ashgate Publishing Limited.

Crowther, D., & Capaldi, N. (2008). A Social Critique of Corporate Reporting, . In A. Ashgate (Ed.), *The Ashgate Companion to Corporate Social Responsibility*. Hampshire: Ashgate Publishing Limited.

Crowther, D., & Raymaan-Bacchus, R. (2004). Induction perspectives on corporate social responsibility. In D. Crowther & R. Rayman-Bacchus (Eds.), *Perspectives on Corporate Social Responsibility* (pp. 1-17). Aldershot: Ashgate Publishing Limited.

Cukier, J. (2002). Tourism Employment Issues in Developing Countries: Example from Indonesia. In R. Sharpley & D. J. Telfer (Eds.), *Tourism and Development Concepts and Issues* (pp. 165-201). Clevedon: Channel View Publications.

Curran, J., & Blackburn, R. A. (2001). Older People and the Enterprise Society: Age and Self-employment Propensities. *Work, Employment and Society*.

Daly, E. (1995). Towards some operational principles of sustainable development. *Ecological Economics, 2*, 1-6.

Daniel, E. M., Hoxmeier, J., White, A., & Smart, A. (2004). A framework for the sustainability of e-marketplaces. *Business Process Management Journal, 10*(3), 277-289.

Daniels, P., Bradshaw, M., Shaw, D., & Sidawaj, J. (2001). *Human Geography: Issues for the 21st Century*. Harlow: Prentice-Hall.

Das Gupta, A. (2008). Governance, Sustainable Development and Social Responsibility: Towards Future Mapping. In D. Crowther & N. Capaldi (Eds.), *The Ashgate Companion to Social Corporate Responsibility*. Aldershot: The Ashgate Publishing Company.

Davis, M. (2002). *Dead Cities and Other Tales*. New York: The New Press.

De Kruijf, A., & Van Vuuren, D. p. (1998). Following Sustainable Development in Relation to the North-South Dialogue: Ecosytem Health and Sustainability Indicators. *Ecotoxicology and Environmental Safety, 40*, 4-14.

Dieke, & Peter, U. C. (2004). Tourism in Africa's Economic Development: Policy Implication. *Journal of Management Decision, 41*(3), 287-295.

Donne, J. (1624). Devotions upon emergent occasions and seuerall steps in my sicknes. In (Vol. Meditation XVII).

DSCWG, D. S. C. G. (2001). Douglas Shire Sustainable Futures Draft Strategy. In K. Sherlock (Ed.). Douglas Shire Council: Mossman.

Earthscan. (2008). Sustainability and Sustainability Indicators, 10. Retrieved from http://earthscan.co.uk/Portals/0/Files/Sample Chapters/9781844072996.pdf,

Easterby-Smith, M., Thorpe, R., & Lowe, A. (1991). *Management research : an introduction*: Sage.

Eckhart, G., & Lanjouw, A. (2008). *Mountain gorillas : biology, conservation, and coexistence*. Baltimore: Johns Hopkins University Press.

Edward R., C., Philip , M., Sara, C., Mary, C. T., Natalie, K. J., & Justin, R. (2007). Applying DPSIR to sustainable development. *International Journal of Sustainable Development & World Ecology 14*, 543-555.

EEA. (2006(a)). DPSIR. Retrieved from http://glossary.en.eea.europa.eu/terminology/terminology_sources_html

Ehrenfeld, D. (2000). War and peace and conservation biology. *Conservation Biology, 14*(1), 105-112.

Elkington, J. (1997). *Cannibals With Forks: The Triple Bottom Line of 21st Century Business.:* . London: John Wiley and Sons.

Elkington, J. (2004). Enter the Triple Bottom Line In A. Henriques & J. Richardson (Eds.), *The Triple Bottom Line: Does It All Add Up?* London: Earthscan.

Etinga, S. (2005, July 15, 2005). The tourism and hospitality challenges in the DR Congo. *Le Potentiel*. Retrieved from http:// lepotentiel.com/afficher_article.php?id_edition=&id_article=10340

EU, C. o. t. E. C. (2002, July 2nd, 2002). *Communication from the Commission concerning Corporate Social Responsibility: A Business Contribution To Sustainable Development.* Paper presented at the A Business Contribution To Sustainable Development, Brussels.

FCO. (2008). Country Profile The Dmocratic Republic of the Congo - Economy. Retrieved from http://fco.gov.uk/en/travel-and-living-abroad/travel-advice-by-country/country-profile/sub-saharan-africa/congo-democratic-republic?profile=economy

Feather, N. (1980). Value Systems and Social Interaction: A Field Study in a Newly Independent Nation. *Journal of Applied Social Psychology, 10*(1), 1-19.

Feather, N. (1994). Values, National Identification and Favoritism towards the In-Group. *British Journal of Social Psychology, 33*, 467-476.

Fennell, D. (2003). *Ecotourism: An Introduction*. New York: Routledge.

Fennell, D. (2006). *Tourism Ethics*. Clevedon: Channel View Publications.

Fennell, D., & Dowling, R. K. (Eds.). (2003). *Ecotourism Policy and Planning*. Wallingford: CABI Publishing.

Fortune, & Hughes. (1997). Modern academic myths. In F. A. Stockwell, R. L. Ison, F. A. Stowell, R. L. Ison, A. R, Holloway, S. Jackson, & S. McRobb (Eds.), *Systems for Sustainability: People, Organisations and Environments*. New York, London: Plenum Press.

Francol, M., & Estevão, C. (2009). The role of tourism public-private partnerships in regional development: a conceptual model proposal. Retrieved from http:// scielo.br/scielo.php?pid=S1679 39512010000400003&script=sci_arttext&tlng=en

Freeman, R. E. (1984). *Management: A Stakeholder Approach*. Boston: Pitman.

Friedman, M. (1970, Sept. 13, 1970). The Social Responsibility of Business is to Increase its Profits. *New York Times Magazine*.

Gahin, R., Veleva, V., & Hart, M. (2003). Do indicators help create sustainable communities? . *Local Environment 8*(6), 661-666.

Gale, T., & Hill, J. (2009). The Context of Ecotourism and Environmental Sustainability: Ecotourism and environmental sustainability: an introduction. In T. Gale & J. Hill (Eds.), *Ecotourism and Environmental Sustainability, Principles and Practice*. Aldershot: Ashgate.

Gerosa, V. (2003). *Pro-Poor Growth Strategies in Africa, Tourism: A Viable Option for Pro-Poor Growth in Africa?* Paper presented at the Expert Group Meeting Munyonyo Speke Resort Kampala, Uganda

Ghimire, S. K., & Parajuli, D. B. (2001). Indigenous knowledge and practice on pasture resource management among the Pungmo people of the Shey Phoksundo National Park, Dolpa. *The Wildlife*(3), 7-14.

Gilpin, R. (2000). *The Challenge of Global Capitalism: The World Economy in the 21st Century*. Princeton NJ: Princeton University Press.

Gray, R., & Bebbington, J. (2001). An account of sustainability: failure, success and reconceptualization. *Critical Perspectives on Accounting, 12*, 557-587.

Guba, E. G., & Lincoln, S. (Eds.). (1994). *Competing Paradigms in Qualitative Research*. California: Thousand Oaks.

Gunderson, L., & Holling, C. S. (2001). *Panarchy*. Washington D.C.: Island Press.

Haas, P. M., Levy, M. A., & Parson, E. A. (1992). Appraising the Earth Summit: how should we judge UNCED's success? *Environment 34*(8), 6-11, 25-33.

Hall, C. M., Jenkins, J., & Kearsley, G. (Eds.). (1997). *Tourism Planning and Policy in Australia and New Zealand: Cases, Issues and Practice*. Sidney: Irwin Publishers.

Harrington, L., Jones, G., & Wino, M. (1993). *Measurements and Indicators of Sustainability*. Retrieved from Cali:

Harrison, D. (1992). Tourism to Less Developed Countries: the Social Consequences In D. Harrison (Ed.), *Tourism and the Less Developed Countries* (pp. 121-178). London: Belhaven Press.

Hart, S. (1997). Strategies for a sustainable world. *Harvard Business Review*(Jan - Feb), 67-76.

Harvey, D. (1989). *The Condition of Postmodernity*. Oxford: Blackwell.

Hatfield, R., & Malleret-King, D. (2003). *The economic value of the mountain gorilla protected forests (the virungas and bwindi impenetrable national park)*. Retrieved from http://google.co.uk/search?q=The+economic+value+of+the+mountain+gorilla+protected+forests+%28the+virungas+and+bwindi+impenetrable+national+park%29&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-GB:official&client=firefox-a

Henderson, (2006). *Ethical Markets: Growing the Green Economy*. White River Junction. : Chelsea Green.

Hettne, B. (1995). *Development Theory and the Three World: Towards an International Political Economy of Development*. Harlow: Longman.

Hill, C. L. (2001). *Global business today* (2nd ed.). Boston: Irwin/McGraw-Hill.

Homer, P., & Kahle, L. (1988). A Structural Equation Test of the Value-Attitude-Behavior Hierarchy. *Journal of Personality and Social Psychology, 54*, 638-646.

Honey, M. (2008a). *Ecotourism and Sustainable Development* (2nd ed.). Washington DC: Island Press.

Honey, M. (2008b). *Ecotourism and Sustainable Development: Who Owns Paradise?*

Hosseini, & Albadvi. (2010). Customer Value Network Analysis: Improving Ways to Compute Customer Life-Time Value. *nternational Journal of Electronic Commerce Studies, 1*(1), 15-24.

Hussey, J., & Hussey, R. (1997). *Business Research*. London: Macmillan Press Ltd.

ICLEI. (1999, April 30, 1999). Sustainable Tourism: A Local Authority Perspective. Retrieved from http://un.org/esa/sustdev/csd/iclei.pdf

IMF. (2010). Democratic Republic of the Congo: Poverty Reduction Strategy Paper - Progress Report - Joint Staff Advisory Note. October 2010. Retrieved from http://imf.org/external/pubs/ft/scr/2010/cr10327.pdf

International, S. (1995). *Touism and tribal people*. Retrieved from London:

Jacobs, M. (1991). *The Green Economy - Environment, Sustainable Development and the Politics of the Future.* London: Pluto.

Jallow, K. (2008). Sustainability and its Place in CSR research. In A. Ashgate (Ed.), *The Ashgate Companion to Corporate Social Responsibility*. Aldershot: Ashgate Publishing Limited.

Jay, S., Jones, C., Slinn, P., & Wood, C. (2007). Environmental impact assessment: Retrospect and prospect". Retrieved from http://aseanenvironment.info/Abstract/41015052.pdf

Jenkins, M. (2008, July 2008). Who murdered the Virunga Goillas? Retrieved from http://ngm.nationalgeographic.com/2008/07/virunga/jenkins-text/1

Karageorgis, A., Kapsimalis, V., Kontogianni, A., Skourtos, M., Turner, R., & Salomons. (2006). Impact of 100-year human interventions on the deltaic coastal zone of the Inner Thermaikos Gulf (Greece): A DPSIR framework analysis. . *Environmental Management 38*(2), 304-315.

Kasemir, B., Van Asselt, M. B. A., & Durrenberger, G. (1999). Integrated Assessment of Sustainable Development: Multiple Perspectives in Interaction , . *International Journal of Environment and Pollution, 11*(4), 407-425.

Kelly, G., & Baker, B. (2002). An evaluative framework and performance measures for the sustainable regions programme. Final Report to the Department of Transport and Regional Services, Canberra

Kernagham, K. (1993). Partnership and public administration: conceptual and practical considerations. *Canadian Public Administration, 36*, 57-76

Kezio-Musoke, D. (2008). Tourism Rwanda's top earner, with $80m in half year Retrieved from http://theeastafrican.co.ke/news/-/2558/462374/-/s2iw0mz/-/index.html

Kimbu, A. (2011). The role of transport and accommodation infrastructure in the development of eco/nature tourism in Cameroon. *Cognizant Communication Corporation Tourism Analysis, 16*(2), 137-156.

Ko, T. G. (2001). Assessing progress of tourism sustainability. *Annals of Tourism Research, 28* (3), 817–820.

Ko, T. G. (2005). Development of a tourism sustainability assessment procedure: a conceptual approach. *Tourism Management, 26*, 431–445.

Koeman, A. (1989). Sustainable Tourism and Eco-Tourism. In.

Kopachevski, J., & Watson, G. L. (1996). Interpretations of Tourism as Commodity. In Apostolopoulos (Ed.), *The Sociology of Tourism* (pp. 281-297). London: Routledge.

Krippenhorf, J. (1987). *The Holidaymakers: Understanding the Impact of Leisure and Travel*. London: Heinneman.

Kuo, I.-L. (2002). The effectiveness of environmental interpretation at resourcesensitive tourism destinations. *International Journal of Tourism Research, 4*, 87-101.

Lawrence, G. (1997). *Indicators for sustainable development*. London: Earthscan.

Lele, S. M. (1991). Sustainable Development: A Critical Review." *World Development, 19*(6), 607-621.

Lim, C. (1997a). Review of international tourism demand models. *Annals of Tourism Research*(24), 835-849.

Lincoln, S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills: Sage Publications, Inc.

MacRae, R. j., Hill, S. B., Henning, J., & Mehuys, g. r. (1989). Agricultural science and sustainable sgriculture: a review of the existing scientific barriers to sutainable food production and potential solutions. *Biological Agriculture and Horticulture, 6*, 173-219.

Martin, J. (2005). China is well on its way to being the other superpower. Retrieved from http://guardian.co.uk/world/2005/dec/08/china.comment

McKercher, B. (1993). Some Fundamental Truths About Tourism: Understanding Tourism's Social and Environmental

Impacts. . *Journal of Sustainable Tourism, 1*(1), 6- 15.

McKercher, B. (2003). [sustainable tourism development - guiding principles for planning and management].

Meadows, D. (1998). *Indicators and Information Systems for SustainableDevelopment: A report to the Balaton Group*. Retrieved from Hartland Four Corners:

Medlik, S. (2001). *Understanding Tourism*. Oxford: Butterworth-Heinemann.

Miller, G. (2001). The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers. *Tourism Management, 22*, 351-362.

Miller, G. (2007). The Development of Indicators for Sustainable Tourism: Results of a Delphi Survey of Tourism Researchers. *Tourism Management, 22*, 351-362

Mitchell, G., May, A., & McDonald, A. (1995). PICABUE: a methodological framework for the development of indicators of sustainable development. *International Journal of Sustainable Development and Ecology, 2*, 104-123.

Moldan, B., Billharz, S., & Mattravers, R. (Eds.). (1997). *Sustainability Indicators: A Report on the Project on Indicators of Sustainable Development*. Chichester: John Wiley and Sons.

Mowforth, M., & Munt, I. (2009). *Tourism and sustainability : development, globalisation and new tourism in the Third World* (3 ed.). London New York: Routledge.

Mowforth, M., & Munt, I. (2016). *Tourism and sustainability : development, globalisation and new tourism in the Third World* (4 ed.). London New York: Routledge.

Mubalama, K. L. (2010). *Monitoring law enforcement effort and illegal activity in selected protected areas: Implications for management and conservation, Democratic Republic of Congo.* (PhD), Ghent University, Ghent.

Munt, I. (1992). A great Escape? *Town and Country Planning, 61*(7-8), 212-214.

Murphy, P. E. (1985). *Tourism: A Community Approach*. London: Routledge.

Nawijn, J., Peeters, P., & Van Der Sterren, J. (2008). The ST-EP Programme and Least Developed Countries: is Tourism the Best Alternative? In P. M. Burns & M. Novelli (Eds.), *Tourism development. Growth, myths and inequalities* (pp. 1-10). Wallinford CABI International.

Norman & MacDonald. (2003). *Getting to the Bottom of "Triple Bottom Line"*. Retrieved from

OECD. (1998). Sustainable Development Indicators. *OECD Expert Workshop*(8-9 October).

OECD. (2003). OECD Annual Report. *OECD Publications*.

Oh, C. O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management, 26*, 39-44.

Okello, M. M., & Kiringe, J. (2004). Threats to biodiversity and their implications in protected and adjacent dispersal areas of Kenya. , . *Journal of Sustainable Tourism, 1*(12), 54-69.

Oury, J. (2007). *A Guide to Corporate Social Responsibility, ,* . London: British Standard Institution.

Page, S., & Connell, J. (2009). *Tourism : a modern synthesis* (3rd ed.). London: Cengage Learning.

Pearce, D. G. (1995). *Tourism Today: A Geographical Analysis* (2 ed.). Harlow: Longman.

Pearce, F. (1990, 13 April). Exchanging Chances. *Guardian*.

Peppard, J., & Rylander, A. (2006). From Value Chain to Value Network: Insights for Mobile Operators'. *European Mamagement Journal, 24*(2-3), 128-141.

Plog, S. (1972). Why destination areas rise and fall in popularity. *Cornell HRA Quarterly, November*(November), 13-16.

Pratt, M. L. (2003). *Imperial Eyes, Travel Writing and Transculturation*. London: Routledge.

Ramalingam, B. (2011). *Mind The Network Gap*. Retrieved from

Rechatin, C. (1997). *Les Indicateurs Comme Outils de Communication sur l'Environnement*. Orleans: Ifen.

Reed, M. S., & Doughill, A. J. (2003). *Facilitating grass-roots sustainable development through sustainability indicators: a Kahalahari case study.* . Retrieved from Tenerife:

Rees & Wackernagel, M. (1996). Urban ecological footprints: Why cities cannot be sustainable - And why thery are key to sustaibaility. *Environmental Impact Assessment Review, 16*, 223-248.

Reid, D. (1995). Sustainable Development: An Introduction Guide. In S. Bell (Ed.). London: Earthscan Publications.

Reid, D. (2003). *Tourism, Globalisation and Development: Responsible Tourism Planning*. London: Pluto Press.

Rekolainen, S., Kämäri, J., Hiltunen, M., & Saloranta, T. (2003). A conceptual framework for identifying the need and role of models in the implementation of the Water Framework Directive. 2003;. *International Journal of River Basin Management 1*(4), 347-352.

Reuters, T. (2010). Tourism & economic growth on the agenda at Andorra forum. Retrieved from http://theneweurope.co.uk/feature-566/tourism-economic-growth-on-the-agenda-at-andorra-forum.html

Riege, A., Perry, C., & Go, F. (2001). Partnerships in international travel and tourism marketing: a systems-oriented approach between Australia, New Zealand, Germany and the United Kingdom. *Journal of Travel & Tourism Marketing, 11*(1,1.), 59-77.

Ruitenbeek, (1991). Indicators of Ecologically Sustainable Development: Towards New Fundamentals. *Canadian Environmental Advisory Council.*

Rutherford, I. D. (1998). Pieces of a greater picture. . In B. B. Moldan, S. Bilharz, & R. Matravers (Eds.), *Sustainability indicators: Report of the project on indicators of sustainable tourism* (pp. 149-156). Chichester: John Wiley& Sons.

Ryan, C., Hughes, K., & Chirgwin, S. (2000). The gaze, spectacle and ecotourism. *Annals of Tourism Research, 27*, 148-163.

Saayman, M., Saayman, A., & Naude, A. (2000). The Impact of Tourist Spending in Southern Africa: Spatial Implications. *South African Journal of Economic and Management Sciences, 3* (3), 369-386.

Sabapathy, J. (2007). Geographical Information Systems (GIS). In D. Matten, Visser, M. Poh, & N. Tolhurst (Eds.), *The A to Z of Corporate Social Responsibility* (pp. 125). Chishester: John Wiley & Sons.

Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research Methods for Business Students* (4th ed.). Harlow: Financial Times Prentice Hall.

Schaller. (1993). The concept of agricultural sustainability. *Agriculture, Ecosystems and Environment, Vol 46*, 89-97.

Scoones, I., & Thompson, J. (1994). *Beyond Farmer Forst: Rural People's Knowledge, Agricultural Research and Extension Practice*. London: Intermediate Technology.

Scott, J. (1998). *Social Network analysis, A Handbook*. London: **Sage Publications**.

Senge, P., Ross, R., Roberts, C., Smith, B., & Kleiner, A. (1994). *The Fifth Discipline Fieldbook: Strategies and Tools for building a learning organization*. London: Nicholas Brealey.

Sharpley, R. (2000). Tourism and Sustainable Development: Exploring the Theoretical Divide. *Journal of Sustainable Tourism, 8*(1), 1-9.

Sharpley, R. (2009). Tourism and Development challenges in the Least Developed Countries: the Case of The Gambia. *Current Issues in Tourism 12*(4 .), 337-358.

Sharpley, R., & Telfer, P. (Eds.). (2002). *Tourism and Development: Concepts and Issues*. New York: Channel View.

Simmel, G. (1971). *In Individuality and Social Forms*. Chicago: University of Chicago Press.

Sinclair, M. T. (1998). Tourism and Economic Development: A Survey. *Journal of Development Studies, 34*(5), 1-51.

Singer, P. (2011). Practical Ethics. In B. Encyclopedia (Ed.), *Britannica* (third edition ed.). Cambridge: Cambridge University Press.

Slobodkin, L. B. (Ed.) (1994). *The Connection Between Single Species and Ecosystems*. Ambleside: Freswater Biological Association.

Smeets, E., & Weterings, R. (1999). Environmental Indicators: Typology and Overview. *Technical report - Copenhagen: European Environment Agency, 25*.

Smith, B. (1957). The Effects of Intercultural Experience: A Follow-Up Investigation. *Journal of Abnormal and Social Psychology, 54*, 266-269.

Smith, N. (1984). *Uneven Deelopment: Nature, Capital and the Production of Space*. New York: Blackwell.

Smith, V. (Ed.) (1989). *Hosts and Guests: The Anthropology of Tourism*. Philadelphia: University of Pennsylvania Press.

Smith, V., & Brent, M. (Eds.). (2001). *Hosts and Guests Revisited: Tourism Issues in the 21st Century*. New York: Cognizant.

Stein, J. G., & Stren, R. (Eds.). (2001). *Networks of Knowledge: Collaborative Innovation in International Learning*. Toronto: University of Toronto Press.

Stoeckl, N., Walker, D., Mayocchi, C., & Roberts, B. (2004). Douglas Shire Sustainable Futures: Strategic Planning for Implementation Project Report. *CSIRO Sustainable Ecosystems, Canberra*.

Strirling, A. (1999). The Appraisal of Sustainability: Some Problems and Possible Responses. *Local Environment, 4*(2), 111-135.

SustainableMeasures. (2008). Sustainability Indicators. Retrieved from http://sustainablemeasures.com/company

TCBP, T. (2006). The forests of the Congo Basin. *State of the Forest*, 257.

Telfer, D. (2002). The evolution of toutism and development theory. In R. Sharpley & D. Telfer (Eds.), *Tourism and Development: Concepts and Issues*. Clevedon: Channel View.

Teuwen, A. R. (2011). Equality, equity and salary Justice for all (Reflection about the cinquantenary of the DRC) Retrieved from http://.congoforum.be/fr/analysedetail.asp?id=167306&analyse=selected

TheSouthernTimes. (2010). Let's help DRC harness its potential Retrieved from http://southerntimesafrica.com/article.php?title=Let%27s_help_DRC_harness_its_potential___&id=4370

TheTourismNetwork. (2005, 2011). Ecotourism. Retrieved from http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1157&context=gradconf_hospitality

ThinkQuest. (1998). Congo River. Retrieved from http://library.thinkquest.org/16645/the_land/congo_river.shtml

TIES. (1990). What is Ecotourism? Retrieved from http://ecotourism.org/site/c.orLQKXPCLmF/b.4835303/k.BEB9/What_is_Ecotourism__The_International_Ecotourism_Society.htm

Tomimura, C. (2012). The Future of Tropical Forests in the Tide of Global Climate Change. *Journal of Sustainable Forestry, 31*(1-2), 174.

Topal, R. S. (2005). Sustainable Agriculture and Social Responsibility. NATO Advanced Training Course on Ecological Agriculture. In A. Ashgate (Ed.), *the Ashgate Companion of Corporate Social Responsibility* (pp. 111). Ashgate Publishing Limited: Ashgate Publishing Limited.

Transparency, I. (2010). 2010 Global Corruption Barometer, Corruption Perceptions Index. Retrieved from http://.transparency.org/policy_research/surveys_indices/gcb/2010

Tyteca, D. (1996). On the Measurement of the Environment Performance of Firms: A Literature Review and a Productive Efficiency Perspective. *Journal of Environmental Management, 46*, 281-308.

UN. (1993). Agenda 21- Report of the United Nations Conference on Environment and Development. Rio de Janiero, 3-14 June 1992. *United Nations: New York*

UNWTO. (2001). *The Economic Impact of Tourism*. Retrieved from Madrid:

UNWTO. (2004). *World Tourism Barometer*. Retrieved from

UNWTO. (2005). *World Tourism Barometer*. Retrieved from

UNWTO. (2007). *Compendium of Tourim Statistics: Data 2001-2005*. Retrieved from Madrid:

UNWTO. (2010). Tourism Facts. Retrieved from http://unwto.org/facts/eng/pdf/highlights/UNWTO_Highlights10_en_HR.pdf

UNWTO. (2011). International Tourism 2010: Multi-speed recovery Retrieved from http://85.62.13.114/media/news/en/press_det.php?id=7331&idioma=E

UNWTO. (2012a, June 8, 2012). First Pan-African Conference on Sustainable Tourism Management in National Parks and protected Areas: Challenges and Opportunities in Arusha from 15 to 19 October 2012. Retrieved from http://destination.unwto.org/en/event/first-pan-african-conference

UNWTO. (2012b). World Tourism Barometer 2011.

UNWTO, & WTTC. (1996). *Agenda 21 for the Travel and Tourism Industry: Towards Environmentallly Sustainable Development*. Retrieved from Madrid:

Van den Hove, S. (2000). Participatory approaches to environmental policy making: the European Commission Climate Policy Process as a case study. *Ecological Economics 33*, 457-472.

Velasquez, M., Andre, C., Shanks, T., & Meyer, M. (2010). What is Ethics? *Issues in Ethics IIE, 1*(1).

Wackernagel, M. (1998). The ecological footprint of Santiago de Chile. *Local Environment, 3*, 7-25.

Waldron, D., & Williams, P. (2002). *Steps towards sustainability monitoring: the case of the resort municipality of Whistler. In: . Eds , pp. . :* . Oxford: Elsevier Butterworth-Heinemann.

Wall, G. (1997). Sustainable tourism - unsustainable development. In S. Wahab & J. Pilgrim (Eds.), *Tourism Development and Growth: The Challenge of Sustainability*. London: Routledge.

Watson, G. L., & Kopachevski, J. (1996). Tourist carrying capacity: a critical look at the discursive dimension. In C. Cooper & E. Lockwood (Eds.), *Progress in Tourirm and Hospitality Research*. Chichester: Wiley.

WBCSD, B. C. f. S. D. (2002). *The Business Case for Sustainable Development: Making a Difference Towards the Johannesburg Summit 2002 and Beyond. World Business Council for Sustainable Development,.* Paper presented at the World Business Council for Sustainable Development, Geneva

WCED, C. o. E. a. D. (1987). *Our Common Future*. Oxford: Oxford University Press.

White, V., McCrum, G., Blackstock, K. L., & Scott, A. (2006). Indicators and Sustainable Tourism: Literature Review. *The Macaulay Institute, Aberdeen*.

White, V., McCrum, G., Blackstock, K. L., & Scott, A. (2010). Indicators and Sustainable Tourism: Literature Review, . *The Macaulay Institute, Aberdeen*

Wight, P. (2001). Ecotourists: not a homogenous market segment. In D. B. Weaver (Ed.), *The Encyclopaedia of Ecotourism* (pp. 37-62). Wallingford: CABI Publishing.

Wood, D. (1991). Corporate Social Performance Revisited. *The Academy of Management Review, 16*(4).

WTTC. (1998). *South Africa's travel and tourism: economic driver for the 21st century*. Retrieved from London:

WTTC. (2012, 2012). Travel & Tourism Economic impact 2012, Democratic Republic of Congo. Retrieved from wttc.org/site_media/.../democratic_republic_of_congo2012.pdf

mediacongo (Producer). (2012, 14/05/2012). Le nombre de gorilles augmente dans le parc national de Virunga, selon l'ICCN. Retrieved from http:// mediacongo.net/show.asp?doc=19947

Putnam, R., 1995, Bowling Alone: America's Declining Social Capital, Journal of Democracy 6(1): 65-78.

Klay Kleh, G. and Mukenge, I., Zones of Conflict in Africa, Theories and Cases, Praeger Publishers, Westport, 2002), p.54

Beresford, B., Tozer,R., Rabiee, P., & Sloper, P. (2007 Beresford, B, Tozer, R, Rabiee, P & Sloper, P 2007, 'Desired outcomes for children and adolescents with autistic spectrum disorders' *Children & Society*, vol 21, no. 1, pp. 4-16. DOI: 10.1111/j.1099-0860.2006.00008.x

Cropanzano, Prehar, & Chen, 2002; El Akremi et al., 2010; Masterson et al., 2000; Tekleab et al., 2005; Walumbwa, Cropanzano, & Hartnell, 2009; Wayne et al., 2002

Noha Elassy, (2015) "The concepts of quality, quality assurance and quality enhancement", Quality Assurance in Education, Vol. 23 Issue: 3, pp.250-261 https://doi.org/10.1108/QAE-11-2012-0046

(https://theguardian.com/weather/2018/apr/09/six-virunga-park-rangers-killed-in-drc-wildlife-sanctuary), accessed on April 15th, 2018

Candice Stevens, Conducting Sustainability Assessments, OECD Sustainable Development Studies 2008. P.7)

William E. Rees, 2007, "Are Humans Unsustainable by Nature?", Trudeau Fellow University of British Columbia School of Community and Regional Planning

Andrews, F., Social indicators of perceived life quality, Social Indicators Research I (1974) 279-299.

Hummon, N., Doreian, P., 2003, Some dynamics of social balance processes: bringing Heider back into balance theory, Social Networks 25: 17–49

Verna Allee, (2008) "Value network analysis and value conversion of tangible and intangible assets", Journal of Intellectual Capital, Vol. 9 Issue: 1,pp. 5-24

Rusamira, E., la dynamique des conflits ethniques au nord-kivu: une réflexion prospective, Afrique contemporaine » 2003/3 n° 207, pp.147-163

Sacks, J., 2015, The Age of Development, New York, Columbia University Press

Ashley, C., De Brine, P., Lehr, A., Wilde, 2007, The Role of the Tourism Sector in Expanding Economic Opportunity, Corporate Social Responsibility Initiative Report, No 23, Cambridge MA: Kennedy School of Government, Harvard University

Molm, L. D. 1994. Dependence and risk: Transforming the structure of social exchange. Social Psychology Quarterly, 57: 163-176.

Cropanzano, R., and Mitchell, M., Social Exchange Theory, Journal of Management, Vol. 31 No. 6, pp. 874-900, December 2005

Harrison, S and Wicks, A., 2013, Stakeholder Theory, Value, and Firm Performance, Business Quarterly 23:1 (January 2013, pp. 97-124

Fontaine, C., Haarman, A., Schmid, S., 2006, Stakeholder Theory of the MNC,

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & DeColle, S. (2010). Stakeholder theory: The state of the art. New York: Cambridge University Press.

Cropanzano, R., Mitchell, M., 2005, Social Exchange Theory: An Interdisciplinary Review, Journal of Management. 31 (6): 874–900.

Darzentas J., and Darzentas, J., 2014, Systems Thinking in Design:Service Design and self-Services, Makademisk.org,15 Vol.7,Nr.4,2014,Art.6,1-18

White V., McCrum G., Blackstock K.L., and Scott A., April 2016, Indicators And Sustainable Tourism: Literature Review, The Macaulay Institute, pp.1-8

Hsiang, L., Markiewicz, B., Welch, R., 2009, Indexing Sustainability: Defining, Measuring and Managing the Performance of Urban Development, Yale University, New Haven, CT, USA

Cook, K., and Rice, E., 2003, Handbook of Social Psychology, edited by John Delamater. Kluwer Academic/Plenum Publishers, New York

Ng, I., and Yip, N., 2009, Identifying Risk and its Impact on Contracting Through a Benefit Based-Model Framework in Business to Business contracting: Case of the defence industry, Proceedings of the 1st CIRP Industrial Product-Service (IPS2) Conference, Cranfield University, 1-2 April 2009, pp207

Cropanzano,R., Mitchell, M., Social , 2015, Exchange Theory: An Interdisciplinary Review

 (Raeymaekers, 2004, p.224) CONFLICT AND SOCIAL TRANSFORMATION IN EASTERN DR Congo, Koen Vlassenroot Timothy Raeymaekers, Gent, Academia Press, 2004, p.224

Swarnapali, N., 2017, Corporate sustainability: A Literature review, Journal for Accounting Researchers and Educators (JARE), Vol. 1, Issue 1, pp. 1- 16

Wasserman, S. and Faust, K. (1994) Social Netwotk Analysis. Cambridge: Cambridge University Press.

Colantonio, 2009, A., Social sustainability: a review and critique of traditional versus emerging themes and assessment methods, Oxford Brookes University, UK

Mulligan, M.; Buxton, M.; Lane R.; Neave, M.; Richardson, A., 2015, An Introduction to Sustainability, environmental, social and personal perspectives, Routledge, London and New York.

Isa, Salmi Mohd, 2012, Corporate Social Responsibility: What can we learn from the Stakeholders? Social and Behavioral Sciences, Vol.65, 3 Dec. 2012, pp. 327-337

Sachs, J., 2005, The End of Poverty: How We Can Make It Happen in Our Lifetime, London, Peguin

Nunkooa, R., Toward a More Comprehensive Use of Social Exchange, 2016, in Procedia Economics and Finance 39 (2016) 588 – 596

Maekawa, M., Lanjouw A., Rutagarama, E., Sharp, D., 2015, 'Mountain Gorilla ecotourism: Supporting Macroeconomic growth and providing local livelihoods' in Young and Goldman L. (Ed.), *Livelihoods, Natural Resources and Post-conflict Peacebuilding, Routledge, Milton Park, Abington, pp. 167-185.*

https://npr.org/sections/goatsandsoda/2014/11/07/362084196/how-africas-first-national-park-can-benefit-both-gorillas-and-locals/, accessed on April 9, 2018

https://edition.cnn.com/2015/12/01/africa/virunga-park-gorillas-conservation/index.html/ ,
Accessed on Feb 20, 2018

http://telegraph.co.uk/travel/safaris-and-wildlife/How-to-see-mountain-gorillas-Trip-of-a-Lifetime/, Accessed on Feb 18, 2018

http://analytictech.com/ucinet/help/hs3980.htm/, accessed on Feb 11, 2018

http://faculty.ucr.edu/~hanneman/nettext/C13_%20Structural_Equivalence.html#tabu/, accessed on Feb 2nd, 2018

http://faculty.ucr.edu/~hanneman/nettext/C3_Graphs.html/, accessed on Feb 2nd, 2018

http://businessdictionary.com/definition/cluster-analysis.html/, accessed on Feb 18, 2018

http://businessdictionary.com/definition/cluster-analysis.html/, accessed on Feb 18, 2018

https://theguardian.com/environment/2018/may/31/mountain-gorilla-population-rises-above-1000, accessed on June 10, 2018

http://kahuzibieganationalpark.com/conservation.html, accessed on June 10, 2018

https://edition.cnn.com/2015/12/01/africa/virunga-park-gorillas-conservation/index.html/, accessed on April 10, 2018

https://telegraph.co.uk/travel/safaris-and-wildlife/How-to-see-mountain-gorillas-Trip-of-a-Lifetime/, accessed on Feb 28, 2018

http://databank.worldbank.org/data/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar&d&inf=n&zm=n&country=COD, accessed on June 25, 2018

http://statistics.unwto.org/content/yearbook-tourism-statistics, accessed on June 25, 2018

https://globalwitness.org/en/campaigns/oil-gas-and-mining/protecting-virunga-national-park-oil-companies/, accessed on June 26, 2018

https://theguardian.com/environment/2014/jun/11/soco-oil-virunga-national-park-congo-wwf/ accessed on June 26, 2018

Patera, L., Cristeab, 2016, Systemic Definitions of Sustainability, Durability and Longetvity, Procedia - Social and Behavioral Sciences, Volume 221, 7 June 2016, Pages 362-371

APPENDICES

Appendix 1: Interview Moderator's guide and Pilot Study

Moderator's guide: Measuring Tourism Sustainability in Less Developed Countries, The Case of the Gorilla Parks in the D.R. Congo

Good morning Sir/Madam. My name is Vincent-B Kakuru Luhunde and I'm a PhD research student at the University of Plymouth in the UK. This research aims to establish the best way to assess tourism sustainability in the DR Congo. There are no right or wrong answers, only your opinion matters. You can withdraw at any stage of the interview without causing any prejudice, and collected data would be destroyed immediately. To allow for data analysis, is it fine for me to record this interview on the recorder in front of you? Please be assured that this interview is confidential and your name or personal details will, under no circumstances, be revealed in this research or elsewhere.

To start with,

1. When I say sustainability, what comes to your mind first? Any others?

2. How Important is that (what you've just mentioned) to sustainability?

3. Why do you think it is /or is not that important?

4. Which are the other key factors for sustainability? Why are they important?

5. What is the level of achievement of tourism sustainability here in Congo? How could it be achieved?

6. Which are the barriers to tourism sustainability in the DR Congo? How could they be removed?

7. Who are they key players for the Congolese tourism sustainability?

8. Do you ever communicate, meet up or work with any of the following people?

Key players for the Congolese tourism sustainability	Do you ever meet **Yes/No**	What do you receive from them?	What do you give them?
Global Community (Environmental NGOs) - Greenpeace - WWF - Others			
Institutional Community: - Gouvernemental - Tourism - Conservation			
Business community: - Hotels - Tourism Agencies			
Local Communities - Leaders - Villagers			
Tourist Community			

Key players for the Congolese tourism sustainability	Do you ever meet **Yes/No**	What do you receive from them?	What do you give them?

I'll now read out a list of factors (by the United Nations) that contribute to sustainability.

Please tell me which ones you think would contribute to the Congolese tourism

sustainability; and how you agree they would contribute to it:

Strongly disagree (1) - Disagree (2) – Agree (4) – Strongly disagree (5)

1. Local Communities (Leaders, workers, …)	1-2-4-5	2. Environmental (international NGOs)	1-2-4-5
1.1. Education		2.1. Freshwater/groundwater	
1.2. Employment		2.2. Agriculture/secure food supply	
1.3. Health/water supply/sanitation/		2.3. Coastal Zone	
1.4. Housing		2.4. Marine environment/coral reef protection	
1.5. Welfare and quality of life		2.5. Fisheries	
1.6. Cultural heritage		2.6. Biodiversity/biotechnology	
1.7. Poverty/Income distribution		2.7. Sustainable forest management	
1.8. Crime		2.8. Population Air pollution and ozone depletion	
1.9. Population		2.9. Air pollution and ozone depletion	
1.10. Social and ethical values		2.10. Global climate change/sea level rise	
1.11. Role of women		2.11. Sustainable use of natural resources	
1.12. Access to land and resources		2.12. Sustainable tourism	
1.13. Community structure		2.13. Restricted carrying capacity	
1.14. Equity/social exclusion		2.14. Land use change	
Others		Others	

3. Business (hotels, tourism agencies, …)	1-2-4-5	4. Institutions (national/local)	1-2-4-5
3.1. Economic dependency/Indebtedness/ODA		4.1. Integrated decision-making	
3.2. Energy Capacity building		4.2. Capacity building	

3.3. Consumption and production patterns		4.3. Science and technology	
3.4. Waste management		4.4. Public awareness and information	
3.5. Transportation		4.5. International conventions and cooperation	
3.6. Mining		4.6. Governance/role of civic society	
3.7. Economic structure and development		4.7. Institutional and legislative frameworks	
3.8. Trade		4.8. Disaster preparedness	
3.9. Productivity		4.9. Public participation	
Others		(**Others)**	

CLOSING

Thank you again Sir /Madam, for completing this interview. Let me reassure you, once more, that everything from this discussion will remain confidential, and that all the data will be deleted as soon as the research is fully complete.

Here is my email address, should you need to know the outcome of this research: *Vincent*

5. Visitors (tourists)	**1-2-4-5**
5.1. Information (leaflets, info point, …)	
5.2. Value for money	
5.3. Security / freedom (movement, to take photos)	
5.4. Business development	
5.5. Cultural exchange	
5.6. Linguistic exchange / training	
5.7. Touristic site development	
5.8. Training	

Name:
Gender: Age:

**EXPLORE
WITH
PLYMOUTH
UNIVERSITY**

QUESTIONNAIRE

My name is Vincent-Bouky K. Luhunde, a PhD student from Plymouth University in the

UK.

This is the second part of the research initiated last year. Its aim is to understand whether

and how sustainability applies to the tourism sector in the DR Congo.

It is an academic research and therefore all the information gathered today will be used for

the sole purpose of this research.

Please be assured that your personal details and views will, under no circumstance, be

disclosed to anyone, as all the data will be aggregated with other respondents' data to

allow for a global analysis. Shall we proceed?

Q1.   Have you ever visited a gorilla park in the DR Congo?

    1. Yes   2. No *(Go to Q4)*

Q2.   Which one(s)? *(More than one response possible)*

    1. Kahuzi-Biega   2. Virunga   3. Volcano   4. Bwindi   5. Mgahinga

Q3.   How long ago did you visit the park?

1. Less than a month ago

2. One month to less than three months ago

3. Three months to less than a year ago

4. More than a year ago

*Q4.***a) When I say sustainability in the tourism sector, what comes to your mind first,**

    then, then? *(Write numbers in order of mention)*

b) In your opinion, how well are these factors achieved for the gorilla tourism?

(1) Not at all – (2) Minimally – (3) Well – (4) Very well – (5) Perfectly

	Rank (unaided)	How well achieved
1. Protecting gorillas		
2. Protecting the forest		
3. Improving villagers' livelihoods (including jobs)		
4. Capacity building		
5. Investing locally (e.g.: building hotels)		
6. Improving health		
7. Improving education		
8. Improving road infrastructure / transportation		
9. Improving legislation		
10. Improving Security/safety		
11. Reducing hassle		
12. Other *(write in)* ………………		

Q5.   Have you had any contacts with the following partners over the last 12 months (since August 2011)?

Q5	a) 1 to 10(write nr) OR over => 10+ b) Very rarely (1) – Very Often (5) c) Very bad (1) – Bad (2) – Good (3) – Very good (4) – Excellent (5)	a) How many of them have you met?	b) How often have you met in the last 12 months?	c) Overall, how happy were you with the meeting(s)?
1	Conservation local NGO			

2	Conservation national NGO			
3	Conservation international NGO			
4	Institutions government official			
5	Institutions national tourism officer			
6	Institutions local tourism officer			
7	Institutions national conservation officer			
8	Institutions local conservation officer			
9	Institutions immigration officer			
10	Institutions police officer			
11	Community leader			
12	Community villager salesman			
13	Community villager saleswoman			
14	Community villager handcrafts man			
15	Community villager handcrafts woman			
16	Community villager famer			
17	Community villager teacher			
18	Community villager nurse			
19	Community villager tourist guide			
20	Community villager park guard			
21	Community villager park admin staff			
22	Community villager public sector staff			
23	Community villager faith group			
24	Business hotel			
25	Business travel agency			
26	Business transport provider road			
27	Business transport provider Lake			
28	Business mobile phone operator			
29	Business events organiser			
30	Business restaurant/catering			

Nr		Environment (International & National NGOs)	Institutions (Conservation & Tourism)	Local Communities	Businesses (hotels /restaurants/ travel)	Tourists
31	Business bar/club				
32	Business shop				
33	Tourist				

Q6.   Over the last 12 months, have you (or your sector/local area) received any of the following from these services or partners? If yes, how much of it?

1= Very bad   **2** = Bad   **3** = Good   **4** = Very Good   **5** = Excellent

Nr	Q6	Environment (International & National NGOs)	Institutions (Conservation & Tourism)	Local Communities	Businesses (hotels /restaurants/ travel)	Tourists
1	Positive tax policies					
2	Financial support Funding					
3	Physical Safety/security (e.g. rape)					
4	Legal Safety/security (e.g. land ownership, taxation)					
5	Gorilla protection from poaching					
6	Forest protection from illegal logging/farming					
7	Capacity building					
8	Road improvements / Constuction					
9	Clean water					

10	Electricity					
11	Safe transport					
12	Promoting housing	317				
13	Promoting education					
14	Promoting health					
15	Promoting farming					
16	Promoting Investment					
17	Promoting tourism					
18	Promoting local cultures					
19	New jobs created					
20	Decent salaries					
21	Better consultation in decision making					
22	Value for money services					
23	Trained staff / Officials					
24	Honest staff / Officials					

Q 7	**Overall, how would you rate the amount of benefits you've received from these partners?** *1=very little 5= a great deal*					
Q 8	**Overall, how would you rate the quality of the benefits you received from these partners?**	318				

Q9. **In your opinion, how committed are the following partners to the sustainability of the tourism industry in the DR Congo?**

Q9	Q9a Whether they are committed? Yes (1) No (2)	Q9b How committed (to tourism sustainability) do you think they are?				
		1 Very little	2 A little	3 Somewh at	4 A lot	5 Very much
a. Environment						
b. Institutions						
c. Local Communities						
d. Businesses						
e. Tourists						

Q10. **Gender**

1. Male

2. Female

Q11. **Age**

1. 18 – 24

2. 24+ - 34

3. 34+ - 44

4. 44+ - 54

5. 54+ - 64

6. 64+

Q12. **Education**

1. None

2. Primary

3. Secondary

4. Higher

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Q13.   Job Position (choose from checklist)

(Write in) ……………………………

Q14.   Respondent Type (choose from profile checklist in Q5)

(Write in) ……………………………

Thank respondent and close.

Appendix 3: Roster questionnaire per respondent

Respondent's name: Respondent's category:	Conservation/Environment	Institutions	Businesses	Local Communities	Tourists
Q9. How many of these partners have you met (over the last 12 months)?					
Q10. How often did you meet? 1=Very Rarely 2=Rarely 3=Sometimes 4=Often 5=Very Often					
Q11. How was (the quality of) the meeting(s) you had? 1= Very bad 2 = Bad 3 = Good 4 = Very Good 5 = Excellent					

Q12. How much of these benefits did you (your sector/community) receive from the following partnes?

1= Very little   2 = Little   3 = Some   4 = A great deal   5 = A lot

Q13. And What was the quality of each of these benefits you (your sector/community) received?

1= Very bad   2 = Bad   3 = Good   4 = Very Good   5 = Excellent

Tax policies	How much					
	Quality					
Financial support/Funding	How much					
	Quality					
Physical Safety/security (e.g. rape)	How much					
	Quality					
Legal Safety/security (e.g. land ownership)	How much					
	Quality					
Gorilla protection from poaching	How much					
	Quality					
Forest protection from illegal logging	How much					
	Quality					
Capacity building	How much					
	Quality					
Road improvements/Construction	How much					
	Quality					
Clean water	How much					
	Quality					
Electricity	How much					
	Quality					
Safe transport	How much					
	Quality					
Promoting housing	How much					
	Quality					
Promoting education	How much					
	Quality					
Promoting health	How much					
	Quality					
Promoting farming	How much					
	Quality					
Promoting Investment/enterprise	How much					
	Quality					
Promoting local cultures	How much					
	Quality					
Promoting tourism	How much					
	Quality					
New jobs created	How much					
	Quality					
Decent salaries	How much					
	Quality					
Consultation in decision making	How much					
	Quality					
Value for money services	How much					
	Quality					
Trained staff/Officials	How much					
	Quality					
Honest staff/Officials	How much					
	Quality					
Q14. Overall, how would you rate the amount of benefits you've received from these partners? 1= Very little 2 = Little 3 = Some 4 = A great deal 5 = A lot						
Q15. Overall, how would you rate the quality of the benefits you received from these partners? 1= Very bad 2 = Bad 3 = Good 4 = Very Good 5 = Excellent						
Q16. In your opinion, how are these partners committed to the sustainability of Tourism? 1=Not at all 2=Not 3=Somehow 4=Committed 5=Very Committed						

Appendix 4: United Nations' Sustainable Development Indicators - selection list

List of UN CSD 46 Indicators Vs. 24 Aggregated		Environment (global)	Institutions (nat&local)	Business	Local Communities	Tourists	Total
1. Social Environmental	1.1. Education (Education Provision)	4	4	5	5	4	4.4
	1.2. Employment (New Job Opportunities)	4	4	5	5	4	4.4
	1.3. Health/water supply/sanitation (Health Provision)	4	4	5	5	4	4.4
	1.4. Housing (Provision)	4	4	5	5	4	4.4
	1.5. Welfare and quality of life	1	1	1	1	1	1.0
	1.6. Cultural heritage (Local Culture Support / Protection)	4	4	5	5	4	4.4
	1.7. Poverty/Income distribution (Decent Salaries)	4	4	5	5	4	4.4
	1.8. Crime (Physical Protection and Security)	4	4	5	5	4	4.4
	1.9. Population	1	1	1	1	1	1.0
	1.10. Social and ethical values	1	1	1	1	1	1.0
	1.11. Role of women	3	2	2	1	3	2.2
	1.12. Access to land and resources	4	4	5	5	4	4.4
	1.13. Community structure	1	1	1	1	1	1.0
	1.14. Equity/social exclusion	2	1	1	1	2	1.4
	Financial Support & Funding	4	4	5	5	4	4.4
	Electricity Provision	4	4	5	5	4	4.4
2. Economic Institutional	2.1. Economic dependency/Indebtedness/ODA	1	1	1	1	1	1.0
	2.2. Energy Capacity building	2	1	1	1	2	1.4
	2.3. Consumption and production patterns	1	1	1	1	1	1.0
	2.4. Waste management	2	2	2	2	2	2.0
	2.5. Transportation (Transport Safety)	4	4	5	4	4	4.2
	2.6. Mining	1	1	1	1	1	1.0
	2.7. Economic structure and development	1	1	1	1	1	1.0
	2.8. Trade	2	2	2	2	2	2.0
	2.9. Productivity	2	2	2	2	2	2.0
	Tax and Finance Policies	4	4	5	4	4	4.2
	Infrastructure and Road Improvements	4	4	5	4	4	4.2
	New Investments	4	4	5	4	4	4.2
	Value for Money Services	4	4	5	4	4	4.2
	Training Quality for Staff	4	4	5	4	4	4.2
	Honest Staff Provision	4	4	5	4	4	4.2
3. Environmental	3.1. Freshwater/groundwater (Clean Water Provision)	4	4	5	5	4	4.4
	3.2. Agriculture/secure food supply	2	2	2	2	2	2.0
	3.3. Coastal Zone	3	1	1	1	3	1.8
	3.4. Marine environment/coral reef protection	3	2	2	2	3	2.4
	3.5. Fisheries	3	2	2	2	3	2.4
	3.6. Biodiversity/biotechnology (Gorilla Protection)	5	5	5	5	5	5.0
	3.7. Sustainable forest management (Forest Protection from Illegal Occupation)	5	5	5	5	5	5.0
	3.8. Population Air pollution and ozone depletion	3	1	1	1	3	1.8
	3.9. Air pollution and ozone depletion	3	1	1	1	3	1.8
	3.10. Global climate change/sea level rise	3	1	1	1	3	1.8
	3.11. Sustainable use of natural resources	3	1	1	1	3	1.8
	3.12. Sustainable tourism (Tourism Development)		5	5	5	5	5.0
	3.13. Restricted carrying capacity	1	1	1	1	1	1.0
	3.14. Land use change (Farming Provision)	1	4	4	5	5	4.0
4. Institutional	4.1. Integrated decision-making (Consultation in decision-making)	4	4	5	5	4	4.4
	4.2. Capacity building	4	4	5	5	4	4.4
	4.3. Science and technology	2	1	1	1	2	1.4
	4.4. Public awareness and information	3	1	1	1	3	1.8
	4.5. International conventions and cooperation	1	1	1	1	1	1.0
	4.6. Governance/role of civic society	3	1	1	1	3	1.8
	4.7. Institutional and legislative frameworks (Legal Protection)	4	4	5	4	4	4.2
	4.8. Disaster preparedness	2	1	1	1	2	1.4
	4.9. Public participation	3	1	1	1	3	1.8

Appendix 5: Research authorisation by D.R. Congo Tourism Authority

RE: Your request.

Vincent-Bouky Luhunde

Reply all|
Wed 19/01/2011, 22:51
jean tshali <kingtshali2002@yahoo.fr>;
Desired Luhahi <desire_luhahi@yahoo.fr>;
pkabammis@yahoo.fr;
Tourism Secretariat General <rdcsgtourisme@yahoo.fr>;
Juliet Memery
Sent Items
Dear Mr Jean T,

Thank you for agreeing to undertake the fieldwork of my thesis on sustainable tourism.
Already, please make sure of my cooperation and that of my university, to carry high and far the
voice of Congolese tourism in particular. and that of the Great Lakes subregion, in general.

Sincerely,

Vincent

Vincent-Bouky Kakuru Luhunde
MPhil / PhD Research Student
School of Management
University of Plymouth
Office: 510 - Cookworthy
_____
From: jean tshali [kingtshali2002@yahoo.fr]
Sent: 19 January 2011 16:36
To: Vincent-Bouky Luhunde
Cc: Désiré Luhahi; pkabammis@yahoo.fr; General Secretariat Tourism; Juliet Memery
Subject: Your request.

Mr. Vincent,
Here is an attachment following the Secretary General for Tourism of the DRC at your request.
Good reception.

Jean KINGOMBE TSHALI
E-mail: kingtshali2002@yahoo.fr
Tel: +243 81 35 05 251 / +243 89 83 02 370
Head of Department of Tourism and International Agreements
General Secretariat for Tourism
Ministry of the Environment, Conservation of Nature and Tourism
Kinshasa
Democratic Republic of Congo

Reply all|
Delete
Junk|
RE: Votre demande.

Appendix 6: the researcher visiting Kahuzi-Biega Gorilla park with 6 armed rangers