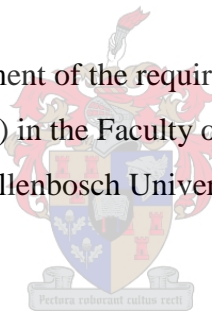


DEVELOPING AN UNDERSTANDING OF AGRICULTURAL  
SUSTAINABILITY IN SUB-SAHARAN AFRICA THROUGH  
AFRICAN RELATIONAL ENVIRONMENTALISM

Adèle Steyn

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Supervisor: Dr. S. Hall, Department of Philosophy, Stellenbosch University

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## **Declaration**

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December 2019

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## ABSTRACT

The objection to anthropocentrism as a worldview is not new to environmental ethics. Many philosophers argue that anthropocentrism is the root cause of humanity's destructive attitude towards the non-human environment. While many Western environmental philosophers have sought for an alternative to anthropocentrism in other traditions, religions and cultures, African thought has largely been overlooked due to the widely held assumption that it is inherently anthropocentric. This study seeks to interrogate this assumption by exploring Kevin Behrens' non-anthropocentric African Relational Environmentalism as one alternative to anthropocentrism. In particular, this study explores whether or not African Relational Environmentalism, could serve as a useful theoretical perspective in developing an understanding of the notion of sustainable agriculture in sub-Saharan Africa, taking into consideration the needs of both current and future generations as well as the non-human environment.

To facilitate this examination, this study considers food insecurity in sub-Saharan Africa and attempts to illustrate the need to adopt a model of sustainable agricultural intensification practices as a means to address food insecurity in the region. This inquiry is explored within two distinct frameworks. Firstly, this study evaluates four Western non-anthropocentric worldviews and considers their problematic dualisms and limitations, which limits the likelihood of serving as the theoretical framework to inform a model of sustainable agriculture which drives an inclusive agenda. Secondly, this study unpacks African Relational Environmentalism and concludes that it implicitly offers a model of sustainability as an "integrated agenda of caring for the community of life on earth" (Hattingh 2002:5) which considers the needs of current and future generations, as well as the non-human environment.

As a result, African Relational Environmentalism is proposed to have the potential to serve as a theoretical framework to inform an African model of sustainable agriculture that could subsequently be applied to overhaul many of the existing policies, institutions and systems impacting the agricultural sector, as a means to address food insecurity in sub-Saharan Africa.

## OPSOMMING

Omgewingsfilosowe maak al vir 'n geruime tyd beswaar teen antroposentriese wêreldbeskouings, en voer aan dat antroposentrisme die oorsaak agter die mens se vernietigende gesindheid teenoor die natuurlike omgewing is. Terwyl menige Westerse omgewingsfilosowe na uitheemse tradisies, godsdiens en kultuur gedraai het in hul soektog na 'n antroposentriese alternatief, is Afrika-denke grotendeels oorgeslaan weens 'n wydverspreide aanname dat dit inherent antroposentrië van aard is. Hierdie studie beoog om bogenoemde aanname te herdink en verwys spesifiek na Kevin Behrens se nie-antroposentrië Afrika-relasionele Omgewingsbeskouing as 'n toepaslike alternatief vir antroposentrisme. Gevolglik, kan Afrika-relasionele Omgewingsbewustheid as 'n teoretiese perspektief dien vanwaar 'n volhoubaarheidsmodel, met spesifieke verwysing na die landbousektor, ontwikkel word wat die behoeftes van die huidige en toekomstige generasies, asook die natuurlike omgewing in ag neem.

Hierdie ondersoek word binne die konteks van sub-Sahara Afrika en die streek se voedselonsekerheid geloods. Eerstens word vier Westerse nie- antroposentrië waarde-teorieë oorweeg met die oog op hul geskiktheid om as teoretiese perspektief te dien vanwaar 'n volhoubaarheidsmodel ontwikkel kan word. Tweedens word Afrika-relasionele Omgewingsbewustheid ontleed en posisioneer as 'n waarde-teorie wat implisiet 'n volhoubaarheidsmodel as 'n "*integrated agenda of caring for the community of life on earth*" (Hattingh, 2002:5) bied en gevolglik die behoeftes van huidige en toekomstige generasies, asook die natuurlike omgewing in ag neem.

Ten slotte word Afrika-relasionele Omgewingsbewustheid aanbeveel as die teoretiese perspektief vanwaar 'n model van volhoubaarheid binne die landbousektor ontwikkel kan word wat die behoeftes van die huidige en toekomstige generasies, asook die natuurlike omgewing in ag neem. Hierdie volhoubaarheidsmodel kan toegepas word om menige bestaande beleide, sisteme en instellings te herdink in 'n poging om voedselonsekerheid in sub-Sahara Afrika aan te spreek.

## TABLE OF CONTENTS

<b>CHAPTER 1. INTRODUCTION AND OUTLINE OF THE PROBLEM STATEMENT .....</b>	<b>1</b>
1.1 INTRODUCTION .....	1
1.2 PROBLEM STATEMENT .....	3
<b>CHAPTER 2. AN INTRODUCTION TO SUB-SAHARAN AFRICA AND AGRICULTURAL PRACTICES IN THE REGION.....</b>	<b>7</b>
2.1. INTRODUCTION .....	7
2.2. THE SUB-SAHARAN AFRICA REGION .....	7
2.2.1. <i>The environmental landscape</i> .....	7
2.2.2. <i>The economic landscape</i> .....	8
2.2.3. <i>The agricultural sector</i> .....	10
2.3. CLIMATE CHANGE AND THE IMPACT ON SUB-SAHARAN AFRICA .....	12
2.3.1. <i>Climate change</i> .....	12
2.3.2. <i>Projected impact of climate change on sub-Saharan Africa</i> .....	13
2.4. ENVIRONMENTAL, SOCIAL AND ECONOMIC CHALLENGES OF THE REGION .....	15
2.4.1. <i>Introduction</i> .....	15
2.4.2. <i>Environmental challenges</i> .....	15
2.4.3. <i>Economic challenges</i> .....	16
2.4.4. <i>Social challenges</i> .....	18
2.5. CONCLUSION .....	19
<b>CHAPTER 3. FOOD SECURITY AND THE NEED FOR SUSTAINABLE AGRICULTURAL PRACTICES .....</b>	<b>21</b>
3.1. INTRODUCTION .....	21
3.2. AN OVERVIEW OF FOOD SECURITY .....	22
3.3. THE ROLE OF AGRICULTURE IN ENSURING FOOD SECURITY .....	23
3.4. AN OVERVIEW OF SUSTAINABILITY .....	24
3.4.1. <i>Sustainability, Sustainable Development and Sustainable Agriculture</i> .....	24
3.4.2. <i>Evaluating Sustainable Development through the Millennium Development Goals and Sustainable Development Goals</i> .....	26
3.4.3. <i>Sustainable Intensification</i> .....	29
3.4.4. <i>Sustainable Intensification in sub-Saharan Africa</i> .....	30
3.4.5. <i>Constraints and opportunities of Conservation Agriculture</i> .....	33
3.5. CONCLUSION .....	33
<b>CHAPTER 4. ALTERNATIVES TO ANTHROPOCENTRISM: AN EVALUATION OF FOUR WESTERN NON-ANTHROPOCENTRIC VALUE THEORIES .....</b>	<b>35</b>
4.1. INTRODUCTION .....	35
4.2. AN OVERVIEW OF ENVIRONMENTAL ETHICS, ANTHROPOCENTRISM AND NON-ANTHROPOCENTRISM .....	36
4.3. AN OVERVIEW OF FOUR WESTERN NON-ANTHROPOCENTRIC VALUE THEORIES .....	39
4.3.1. <i>Zoocentrism: An overview of Tom Regan's Rights View</i> .....	39
4.3.2. <i>Zoocentrism: An overview of Peter Singer's Animal Liberation theory</i> .....	41
4.3.3. <i>Biocentrism: An overview of Paul Taylor's Biocentric approach</i> .....	44
4.3.4. <i>Ecocentrism: An overview of Aldo Leopold's Land Ethic</i> .....	49
4.4. THE IMPLICATIONS AND LIMITATIONS OF THE FOUR WESTERN NON-ANTHROPOCENTRIC THEORIES .....	50
4.4.1. <i>Zoocentrism</i> .....	50
4.4.2. <i>Biocentrism</i> .....	53
4.4.3. <i>Ecocentrism</i> .....	54
4.5. CONCLUSION .....	55

<b>CHAPTER 5. AFRICAN RELATIONAL ENVIRONMENTALISM .....</b>	<b>56</b>
5.1. INTRODUCTION .....	56
5.2. UBUNTU AND RELATIONAL THEORIES DERIVED FROM IT .....	57
5.3. AFRICAN RELATIONAL ENVIRONMENTALISM.....	59
5.3.1 <i>Developing an African environmentalism</i> .....	59
5.3.2. <i>Exploring the concept of moral considerability</i> .....	60
5.3.3 <i>Building up to African Relational Environmentalism</i> .....	66
5.3.4 <i>Similarities shared between African Relational Environmentalism and Western Ecocentrism and Biocentrism</i> .....	68
5.3.5 <i>Applying African Relational Environmentalism</i> .....	72
5.4 CONCLUSION.....	76
<b>CHAPTER 6. CONCLUSION.....</b>	<b>77</b>
<b>REFERENCES.....</b>	<b>82</b>

## CHAPTER 1. INTRODUCTION AND OUTLINE OF THE PROBLEM STATEMENT

### 1.1 INTRODUCTION

The Food and Agriculture Organisation of the United Nations (FAO) reports that since 2014, world hunger increased both in terms of the absolute number as well as the percentage of the population affected (FAO, 2019). It is estimated that globally, there are 821 million undernourished people of which 257 million are based on the African continent. Of the 257 million, 237 million are in sub-Saharan Africa (FAO, IFAD, UNICEF, WFP & WHO, 2018:xii). Furthermore, the region suffers the highest prevalence of undernourishment (PoU) with an estimated 21% of the population affected (FAO, 2018:2). PoU can be defined as “... an estimate of the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels that are required to maintain a normal active and healthy life” (FAO, 2019). This increase in PoU could be ascribed to factors including an increase in food prices, climate change, and a lagging real per capita Gross Domestic Product (GDP)<sup>1</sup> (FAO, 2018:4).

It is reported that climate change is posing an ever-increasing threat to sub-Saharan Africa’s food security. The FAO (2018:xiii) reports that an increase in temperature and a reduction in precipitation is already impacting staple food crop yields in the region. The threat of climate change is further exacerbated in countries reliant on agriculture (FAO, *et al.*, 2018:xiii). While the agricultural sector contributes an average of 15.8% of the total region’s GDP, this figure fluctuates from a 2% contribution in Botswana to a 49.1% contribution in Chad (World Bank Group, 2017<sup>2</sup>). It is estimated that by 2050, a further 71 million people globally will suffer from food insecurity as a direct result of climate change. Of this 71 million, more than half will be based in sub-Saharan Africa (FAO, *et al.*, 2018:xiii).

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<sup>1</sup> GDP: “total market value of the goods and services produced by a country’s economy during a specific period of time: GDP = Consumption + Investment + Government Spending + Net Exports” (Britannica, n.d.)

<sup>2</sup> 2017 is the latest World Bank Group reported figures



The critical role the agricultural sector plays in ensuring food security cannot be over-emphasised. In sub-Saharan Africa, the agricultural sector is dominated by smallholder farms, estimated to account for 80% of all farms in the region (FAO, 2016:60). These farms are characterised by their reliance on rainfall, non-motorised implements, and limited to no use of pesticides or fertiliser (Binswanger-Mkhize, 2009:41; Moyo: 2008:7,13). Furthermore, production on the majority of these farms is mostly for self-consumption or community use (Moyo, 2016:2-3).

Estimated at 950 million people, the sub-Saharan African population is projected to increase to 2.1 billion people by 2050, with food consumption expected to increase by 2.8% per year, and agricultural production by only 2.7% per year (OECD/FAO, 2016:60; Calzadilla, Zhu, Rehdanz, Tol & Ringler, 2013:151). The need to increase agricultural productivity in the region is therefore key if food insecurity is to be addressed. Current smallholder farming practices such as the reliance on rainfall, limited and/or unsustainable use of fertiliser and the prevalence of manual labour is attributed as one of the root causes preventing the region from increasing productivity (FAO, 2006:1). However, it is imperative that increased agricultural productivity does not come at the expense of the environment. In other words, there is a need to focus on sustainable agricultural productivity.

It is worth noting that the terms ‘sustainability’, ‘sustainable development’ and ‘sustainable agriculture’ do not have definitions that are globally agreed upon (Hattingh, 2002:5). As Hattingh (2002:5) points out: “... while the *term* sustainable development has become widespread in recent times, there is little indication that a clear global consensus has also emerged about the *content*, the interpretation and the implementation of this moral imperative”. Chapter Three will further explore these terms, along with a focus on how the chosen interpretation of sustainable development, as example, could drive either a “green agenda of nature conservation”, an “economic agenda of needs satisfaction”, an “integrated agenda of caring for the community of life on earth”, or a “radical political and ethical agenda of transformation” (Hattingh, 2002:6-12).

## 1.2 PROBLEM STATEMENT

In light of the above-mentioned context of food insecurity and the threat of climate change in sub-Saharan Africa, there is a need to develop a model of sustainability, with specific reference to the agricultural sector, which considers both the needs of current and future generations, and the non-human environment. This study will argue that an African environmental ethics, and in particular, African Relational Environmentalism, could serve as a useful theoretical perspective in developing such an understanding of the notion of sustainable agriculture as it overcomes many of the problematic dualisms associated with Western environmental ethics. Such an African model of sustainable agriculture could subsequently be applied to inform and overhaul many of the existing policies, institutions and systems impacting the agricultural sector and smallholder farmers in particular.

To illustrate the above-mentioned need to develop a model of agricultural sustainability, this study will take the form of a conceptual desktop study. It will refer to a range of empirical data sets to describe the current context of sub-Saharan Africa and food security in the region, which is the backdrop against which I wish to explore this problem. Furthermore, this study will refer to philosophical texts on four Western non-anthropocentric theories and Kevin Behrens' African Relational Environmentalism to engage in ethical reflection and evaluation of these theories, with specific reference to whether these theories have the potential to serve as the theoretical framework from which a model of agricultural sustainability can be developed for sub-Saharan Africa. While I wish to investigate this matter with the agricultural context in mind, I hope that the conclusions I reach here could be extrapolated to other contexts in which the development of a model of sustainability is called for.

In order to explore the problem statement as set out above, this study will consider four Western non-anthropocentric theories and their limitations in serving as the theoretical framework from which a model of agricultural sustainability could be developed, and finally propose Kevin Behrens' theory of African Relational Environmentalism as a value theory which could contribute to this task.

The basis for recommending Behrens' theory of African Relational Environmentalism lies in the fact that it implicitly offers a model that corresponds to Hattingh's third notion of sustainability as an "integrated agenda of caring for the community of life on earth" (2002: 5) which considers the needs of current and future generations, as well as the environment, and subsequently overcomes many of the problems associated with Western environmental ethics.

The objection to anthropocentrism as a worldview is not new to environmental ethics. In Lynn White Jr.'s 1967 essay, "The Historical Roots of Our Ecological Crisis", the Judeo-Christian tradition is identified as the source of humanity's ecological problems (White, 1967:1205). White held that the story of Genesis "not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends", and argued that Christianity as such, "the most anthropocentric religion the world has ever seen", is to blame for environmental destruction (1967:1205). According to White (1967:1206), it was this worldview, that when combined with modern technology and science, became the root cause for the environmental degradation we are still seeing today. William Grey (1993:97) holds a similar view and states that anthropocentrism, as "a systematic and unjustified bias in traditional Western attitudes to the nonhuman world", is the "fundamental source of the alienating and destructive attitudes towards the nonhuman world". The South African philosopher, Kevin Behrens, agrees, and points to the fact that much of recent environmental philosophy has focused on challenging the current dominant anthropocentric Western worldview that is materialist and environmentally destructive (Behrens, 2014:63).

In the search for an alternative to anthropocentrism, many Western environmental philosophers have sought answers in other traditions, religions and cultures (Behrens, 2014:63). African thought has mostly been overlooked in this search, as it has been widely assumed to be anthropocentric in nature. I refer to Callicott's (1994:158) claim to illustrate:

Africa looms as a big blank spot on the world map of indigenous environmental ethics for a very good reason. African thought orbits, seemingly, around human interests. Hence one might expect to distil from it no more than a weak and indirect environmental ethic, similar to the type of ecological enlightened utilitarianism,

focused on long-range human welfare ... Or perhaps one could develop a distinctly African stewardship environmental ethic grounded in African monotheism.

This thesis will argue against this kind of dismissal of African thought and will instead attempt to illustrate that African Relational Environmentalism may be of great value in thinking through a notion of sustainability as an “integrated agenda of caring for the community of life on earth” (Hattingh 2002: 5), and may overcome many of the problems associated with Western environmental ethics. As a result, African Relational Environmentalism holds great potential to serve as a theoretical perspective from which a model of sustainable agriculture can be developed.

As acknowledged by Behrens (2010:468), sub-Saharan Africa is home to a diverse collection of societies with varied beliefs and values. Yet, there are similarities, or shared themes, common to the people of the region. Therefore, this study does not attempt to suggest that a single African worldview is common to all people indigenous to sub-Saharan Africa, nor does it attempt to encapsulate all worldviews present in the region. Rather, “[t]he label [African] is ... meant to indicate that a perspective is common among those people and in that space-time in a way it has tended not to be among others” (Metz, 2011:22).

In order to evaluate the proposition that African Relational Environmentalism holds great potential to serve as the theoretical perspective from which a model of sustainable agriculture can be developed, it is necessary to understand the agricultural sector of sub-Saharan Africa, with specific reference to the smallholder sector which accounts for 80% of all farms in the region (FAO, 2016:60). In order to do this, Chapter Two will reference a set of empirical reports and policy documents focussing on the sub-Saharan African landscape, agricultural sector, and the environmental, climate and economic situation. Furthermore, Chapter Two will explore some of the key challenges faced in optimising agricultural productivity.

Chapter Three will be devoted to unpacking the role of sub-Saharan Africa’s agricultural sector in addressing food security, focussing on the apparent need to improve productivity of the agricultural sector, specifically that of smallholder farms.

The notion of sustainability and the prevalence of anthropocentrism in environmental language, concepts and policies will also be touched on.

In an attempt to position African Relational Environmentalism as a valuable theoretical perspective from which a model of sustainable agriculture could be developed in sub-Saharan Africa, Chapter Four will consider four Western non-anthropocentric theories and their possible limitations in considering both the needs of current and future generations, as well as the environment. Firstly, the differences between anthropocentric and non-anthropocentric value theories will be considered, followed by a brief analysis of the four Western non-anthropocentric theories of Tom Regan, Peter Singer, Paul Taylor and Aldo Leopold. The motivation for including Taylor's biocentric approach and Leopold's holist approach is to explore the similarities Behrens (2010:469) acknowledges exist between biocentrism, holism and African Relational Environmentalism, and to evaluate whether the latter theory manages to overcome some of the challenges associated with the former two approaches. The inclusion of Tom Regan and Peter Singer's deontological and utilitarian theories respectively, are to illustrate the limitations preventing these theories from practically serving as the theoretical framework to inform and overhaul many of the existing policies, institutions and systems impacting the agricultural sector and smallholder farmers in particular.

Chapter Five will explore the concept of *Ubuntu* and value theories derived from it, and subsequently evaluate Kevin Behrens' theory of African Relational Environmentalism as a suitable value theory from which a model of sustainable agriculture can be developed for sub-Saharan Africa. Furthermore, it will evaluate the widely held assumption that African thought is inherently anthropocentric and consider Behrens' (2014:63) approach to illustrate that an African environmentalism is to be found in the African belief of interrelatedness. It is then concluded that African Relational Environmentalism has the potential to contribute towards the development of a model of sustainable agriculture.

## **CHAPTER 2. AN INTRODUCTION TO SUB-SAHARAN AFRICA AND AGRICULTURAL PRACTICES IN THE REGION**

### **2.1. INTRODUCTION**

The objective of this study is to illustrate the need to develop a model of sustainability, with specific reference to the agricultural sector, which considers both the needs of current and future generations, as well as the non-human environment. It will argue that an African environmental ethics, and in particular, African Relational Environmentalism, could serve as a useful theoretical perspective in developing such an understanding of the notion of sustainable agriculture which could subsequently be applied to inform and overhaul many existing policies, institutions and systems impacting sub-Saharan Africa's agricultural sector.

In order to elaborate on the need to develop a model of sustainable agriculture, it is important to understand the sub-Saharan African landscape and its agricultural sector, as well as the prominent challenges faced in optimising agricultural productivity in the region. This chapter will therefore focus on the sub-Saharan African agricultural sector against the backdrop of its environmental and economic climate.

### **2.2. THE SUB-SAHARAN AFRICA REGION**

#### **2.2.1. The environmental landscape**

As pointed out by MacIntyre, *et al.*, (2009:8), sub-Saharan Africa can be divided into different regions for different purposes of analysis (social, political, economic or historical). For the purposes of this study, I will consider sub-Saharan Africa according to the International Assessment of Agricultural Knowledge, Science and Technology for Development's (IAASTD)<sup>3</sup> view, where it comprises of six regions, namely Southern Africa (Zimbabwe, Zambia, Swaziland, South Africa, Namibia, Mozambique, Malawi, Lesotho, Botswana, and Angola), West Africa (Sao Tome and Principe, Togo, Sierra Leone, Liberia, Guinea-Bissau, Guinea, Ghana, Gambia, Benin, Cote d'Ivoire and Cape Verde), East Africa (Uganda, Tanzania, Kenya, Eritrea

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<sup>3</sup> The IAASTD applies the Food and Agriculture Organization (FAO)'s agricultural knowledge, science and technology (AKST) approach to divide SSA into six regions.

and Ethiopia), Central Africa (Rwanda, Republic of Congo, Gabon, Equatorial Guinea, Democratic Rep. Congo, Central African Republic, Cameroon and Burundi), Sudano-Sahel (Senegal, Nigeria, Niger, Mali, Chad and Burkina Faso), and the Indian Ocean Islands (Seychelles, Mauritius, Madagascar and Comoros) (MacIntyre, *et al.*, 2009:8)

Sub-Saharan Africa is characterised by its abundance of natural resources, diverse physical features and wealth of biodiversity (MacIntyre, *et al.*, 2009:3-4). Covering an area of  $2.4 \times 10^9$  hectares of land with six of the world's largest river basins, the region is home to a collection of biomes, also known as types of habitats, including savannahs, shrub-lands and xeric shrub-lands, deserts, tropical and sub-tropical grasslands and moist broadleaf forests (MacIntyre, *et al.*, 2009:4). In total, a mere 8% of surface land is arable with permanent croplands, while 35% is being utilised as permanent pasture. A further 20% is forested, with the world's second largest tropical forest found in the Congo basin in Central Africa (MacIntyre, *et al.*, 2009:3,5). MacIntyre, *et al.* (2009:8) classify farming systems in sub-Saharan Africa according to four types. The first is the "maize-mixed system" that constitutes maize, cattle, cotton and goats. The second is the "root/cereal crop-mixed system" that is based on sorghum, maize, millet, yams, cassava and cattle. The third is "irrigated systems" that are constituted by irrigated maize, millet, sorghum, yams, cassava and cattle. The fourth is the "tree crop-based system" that includes coffee, cocoa, oil palm, yams, rubber and maize (MacIntyre, *et al.*, 2009:8). While the region has ample surface and groundwater sources, these, like its mineral deposits, are unevenly distributed and directly impact the type and prosperity of agricultural systems present in a region (MacIntyre, *et al.*, 2009:4). As a result, the sub-Saharan Africa region's richness in resources and varying natural landscape hold both opportunities and challenges for agricultural development and the sustainable intensification of agricultural production.

### **2.2.2. The economic landscape**

Sub-Saharan Africa's economies are experiencing a modest upward-trend, with 2.4% growth seen in 2017, as opposed to 2016's 1.3%. This can be ascribed to recovering commodity prices, slowing of inflation and a favourable global financing environment

(World Bank Group, 2018:137). Whilst the aforementioned growth was driven by the region's three largest economies, Angola, South Africa, and Nigeria, the experienced growth was lower than forecast (World Bank Group, 2018:137). This is evident in negative per capita income growth, declining productivity, and low levels of investment in the region. Despite their recorded growth, all three countries suffered slow social progress as high unemployment rates, and long periods of limited growth prevailed. As a result, per capita GDP declined, with poverty increasing in Nigeria and South Africa. South Africa saw the proportion of poor individuals grow from 53.1% in 2011 to 55.5% in 2015 (World Bank Group, 2018:137). While the World Bank (2018:139) projects current regional growth and per capita growth to continue its upward trend, the rate of growth is not yet sufficient to reduce poverty in the region (World Bank, 2018:139). However, there is potential to address poverty and food insecurity by focusing on skills development, increasing female labour and foreign investment, as well as increasing productivity of the agricultural sector (World Bank Group, 2018:147).

Considered the foundation of developing economies, agriculture is thought to be key to overcoming food insecurity, increasing GDP, ensuring social welfare, and creating ecotourism and employment opportunities (Goldblatt, 2010:2). Contributing an average of 15% towards the region's GDP (~2.3% in South Africa to ~49.1% in Chad) and between seventy and eighty percent of employment opportunities, the importance of the agricultural sector to the majority of sub-Saharan Africa's economies cannot be understated (World Bank Group, 2017; Calzadilla, *et al.*, 2013:150; OECD/FAO, 2016:60). As one of the region's two largest economies, South Africa experienced economic growth of 10,6% average from 2016 to 2017, with the agricultural sector growing at a rate of 7,5% over the same period. Furthermore, in 2018, the estimated value of primary agricultural production in South Africa was estimated at R288,6 billion (Department of Agriculture, Forestry and Fisheries, 2018). Despite a rather small 2.3% share of GDP (as recorded for 2017), the country's agricultural sector plays a crucial role in job creation, specifically in its rural areas (Department of Agriculture, Forestry and Fisheries, 2018).

Notwithstanding the continuous progress sub-Saharan Africa has made, the region's agricultural productivity has stagnated while global yields and food production have



shown rapid growth year-on-year (Calzadilla, *et al.*, 2013:150). The region's agricultural growth has been attributed to the continuous expansion of land use and not due to a rise in productivity (Binswanger-Mkhize, 2009:41). Yet, increasing the productivity of crops and livestock is a far more profitable and sustainable approach as opposed to the current practice of mere land expansion. Some of the key obstacles preventing the development of the agricultural sector and subsequent productivity growth in the region, is said to be the dominance of rainfed farming, low use of fertiliser and poor soil quality, as well as limited access to technology, knowledge and services, a lack of infrastructure, and the absence of investment and funding (Calzadilla, *et al.*, 2013:150). The development of a notion of sustainable agriculture must be underpinned by a recognition of the fact that both the larger human community and the individual farmers are dependent on the environment and the correct management of its resources to ultimately ensure the production of food, and this should inform the policies and institutions impacting some of the above-mentioned challenges while taking the needs of current and future generations, as well as the environment into consideration.

### **2.2.3. The agricultural sector**

In 2017, the World Bank Group (2017, n.d.) reported that 60% of sub-Saharan Africa's population lives in rural areas. Agriculture is the primary source of livelihood in the region, with most rural households earning between 55% and 80% of their income directly from the sector (Holden, 2018:20). Furthermore, an estimated 65% of households solely depend on agriculture to ensure household food security (Tibesigwa & Visser, 2016:33). As a result, agriculture and rural development are reported to be imperative for structural transformation in the region (Economic Report on Africa, 2017:68).

The agricultural sector is dominated by small-scale farms often referred to as "smallholder farms" or "family farms", where both terms refer to small-scale family-managed farms, reliant on family labour, with produce predominantly cultivated for self-consumption (Moyo, 2016:2). As crops are mostly rainfed and the use of technology limited, yields are rather small compared to large-scale commercial farms. These large-scale farms on the other hand, are profit-orientated businesses managed

by families or corporations. Labour is outsourced, the use of irrigation and technology is prevalent, and produce is cultivated to be sold at a formal market level (Moyo, 2016:2).

While certain countries within the region have a greater presence of large-scale commercial farms, sub-Saharan Africa continues to be dominated by smallholder farms with an average size of 1.55 hectares per farm, of which many have declined to a mere 0.5 hectares<sup>4</sup> due to continuous urbanisation and the adverse effects of climate change (MacIntyre, *et al.*, 2009:8). The prevalence of these smallholder farms, characterised by fluctuating and limited productivity, is thought to be one of the root causes for the region's current low yields, estimated at less than a third of the region's maximum potential (Calzadilla, *et al.*, 2013:151).

As global populations continue to grow, the demand for agricultural produce grows with it, placing greater stress on farms to increase productivity and ultimately, output (Agovino, *et al.*, 2018:2). Many farms in other regions are addressing these challenges by industrialising processes and turning to intensified farming methods. This is evident in the widespread use of genetically modified crops, greater deforestation, expanding agricultural surface, the prevalence of irrigation, a lower rotation of crops, and increased mechanised labour (Agovino, *et al.*, 2018:2).

Sub-Saharan Africa is characterised by naturally low soil fertility, with an estimated 25% of soil being acidic, and lacking calcium, magnesium and phosphorus (MacIntyre, *et al.*, 2009:3). Yet the reported use of fertiliser by farmers is the lowest of all regions worldwide. MacIntyre, *et al.* (2009:3) reports that despite the recommended usage of 60kg nitrogen and 30kg phosphorous per hectare, sub-Saharan Africa's use is estimated to be <9kg nitrogen and <6kg phosphorous per hectare. The result is that fewer nutrients are returned to the soil than are removed during harvest, and due to natural occurrences, such as erosion and leaching. Subsequently a negative soil nutrient balance is seen across the region. Concurrently, the growing population's food demands have seen unsustainable practices being deployed in an attempt to increase output (Bingxin & Alejandro, 2011:1). An example is maize and wheat

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<sup>4</sup> About the size of half a European football field.

production in South Africa. Reduced profitability and water scarcity saw the number of farms decline by a third since the start of the 1990s (Goldblatt, 2010:4). Despite a reduced area of cultivated land, output has remained relatively constant, pointing to the fact that farmers are possibly turning to intensified production methods relying on an increased use of fertiliser, mechanisation, genetically modified crops and irrigation to meet the country's growing food demands (Goldblatt, 2010:4). Grazing land is also on the decline as human settlements continue to develop and agricultural land continues to expand. As a result, much of the remaining land is being over-grazed (Goldblatt, 2010:8). While all of these practices can lead to increased productivity, they can have an irreversible environmental impact if mismanaged, leading to soil erosion and reduced fertility, water pollution and toxic working environments (Goldblatt, 2010:4; Tibaijuka, 2004:170). As natural resources are being depleted, the need to optimise the efficient and sustainable use of land and water is imperative in addressing both agricultural productivity and subsequent food security in the region. This is especially important given the likely impact of climate change on the agricultural sector, and vice versa, which I will discuss in the next section.

## **2.3. CLIMATE CHANGE AND THE IMPACT ON SUB-SAHARAN AFRICA**

### **2.3.1. Climate change**

Numerous empirical reports and policy documents acknowledge that the global average temperature is rising, along with increased precipitation, flooding, droughts and severe heat waves (Agovino, *et al.*, 2018:1; MacIntyre, *et al.*, 2009:5). The cause of climate change is largely attributed to the increase in greenhouse gas emissions. Agovino, *et al.* (2018:1) highlights the intricate “cause-effect” relationship between climate change and the agricultural sector. Characterised by generating large amounts of greenhouse gasses through the use of fertilisers, livestock manure, soil's nitrous oxide emission, and deforestation, the agricultural sector is reported to be the largest contributor to climate change and also the sector most vulnerable to its consequences (Agovino, *et al.*, 2018:1).

The impact of climate change is anticipated to be widespread. As greenhouse gasses surge, the average global temperature increases, which causes sea levels to rise and subsequent flooding of low-lying coastal areas, small islands and estuaries. This could

affect fisheries and low-lying farms in particular (Agovino, *et al.*, 2018:2; MacIntyre, *et al.*, 2009:5). Changing temperatures and rainfall patterns are expected to impact freshwater availability as well as crop yields and nutritional value, which in turn could lead to further food insecurity (Agovino, *et al.*, 2018:1). Biodiversity is expected to decline as species fail to adapt to changing and/or loss of habitats. Simultaneously, natural disasters such as cyclones, hurricanes, floods and droughts are predicted to increase in severity and frequency (MacIntyre, *et al.*, 2009:5). While efforts are being made to address climate change by numerous international bodies, including, but not limited to the Intergovernmental Panel on Climate Change (IPCC), the United Nations, and the World Economic Forum, a global rise in temperature and sea levels are expected to continue for the foreseeable future due to the time required to reverse the magnitude of trapped gasses in the atmosphere (MacIntyre, *et al.*, 2009:6).

### **2.3.2. Projected impact of climate change on sub-Saharan Africa**

Sub-Saharan Africa contributes the least amount of greenhouse gasses with 0.8 tonnes CO<sub>2</sub> per capita compared to the global average of 3.9 tonnes and the United States' 19.8 tonnes per capita (MacIntyre, *et al.*, 2009:5). Yet, according to the FAO, Africa will experience the effects of climate change more than any other continent (Tibesigwa & Visser, 2016:36). With widespread poverty and lack of adaptability, sub-Saharan Africa will be especially vulnerable (Calzadilla, *et al.*, 2013:151). Ruppel (2018:670) notes that vulnerability to climate change does not merely relate to how frequent unusual climate conditions such as floods and droughts are, or how long they persist, but also relates to the ability to respond to these conditions. Ruppel (2018:670) distinguishes between two aspects of vulnerability, where the first refers to the probability of either an individual or a group being confronted with and affected by unusual climate conditions. The second aspect relates to the ability to anticipate, manage and recover from the impacts associated with climate change. Being able to manage and recover from the adverse effects associated with climate change relies on the availability of resources. This varies between regions and socio-economic groups, with the regions and groups with the least amount of resources being most vulnerable (Ruppel, 2018:670).

Heavily dependent on environmental conditions, sub-Saharan Africa's agricultural sector is said to be most susceptible to the consequences of climate change (Kanter, 2018:73). Rural and smallholder farms are particularly vulnerable, as 97% of sub-Saharan African croplands are reliant on rainfall (Tibesigwa & Visser, 2016:36). Ruppel (2018:671) notes that "Various studies highlight the vulnerability of Africans that depend primarily on natural resources for their livelihoods, indicating that their resource base – already severely stressed and degraded by overuse – is expected to be further adversely affected by climate change".

It is estimated that by 2050, the region's average temperature would have increased by 0.5 – 2 degrees Celsius with a 10% reduction in rainfall (MacIntyre, *et al.*, 2009:5). The IPCC's findings on Africa state that the land temperatures in Africa, specifically in arid regions, will most likely rise at a faster rate than the average global temperature (Niang, Ruppel, Abdrabo, Essel, Lennard, Padgham & Urquhart, 2014:1202). Reduced precipitation is expected mostly over the Southwestern and Northern regions. An increase in average temperature directly impacts the availability of water and determines the duration of a crop's growing season (Agovino, *et al.*, 2018:1). As precipitation fluctuates with increasing temperatures, it poses serious flooding risks and is expected to impact freshwater availability and soil moisture content (Calzadilla, *et al.*, 2013:151). While irrigated farms will be less susceptible to changes in precipitation and temperature, the need for uncontaminated, reliable water sources remain (Agovino, *et al.*, 2018:1). The projected loss of agricultural productivity and subsequent food security in rural regions are expected to cause a migration of people into urban areas, leading to even greater poverty and food insecurity in the region (Calzadilla, *et al.*, 2013:150). Considering the fact that the agricultural sector will be most susceptible to the expected impact climate change could have on the region, the policy documents referenced in this study suggest that sub-Saharan Africa's agricultural sector re-examine its current practices, policies and systems and adopt a long-term, sustainable approach to increase productivity on smallholder farms in particular.

## **2.4. ENVIRONMENTAL, SOCIAL AND ECONOMIC CHALLENGES OF THE REGION**

### **2.4.1. Introduction**

While there is widespread consensus that sub-Saharan Africa has great potential for agricultural and economic growth, it is not without challenges (Binswanger-Mkhize, 2009:41). Some of the key topics to be addressed include the lack of technology being deployed on farms, conflict in the region, the inability to adapt to changing climate conditions, problems with regard to sustainably increasing productivity, the need to increase rural employment opportunities and skills, gender inequality, and the lack of investment in rural infrastructure and irrigation (Binswanger-Mkhize, 2009:41; Fanzo, 2018:294).

### **2.4.2. Environmental challenges**

Sub-Saharan Africa's key land issues include desertification, the degradation of land, loss of soil fertility, urbanisation, and agricultural expansion (MacIntyre, *et al.*, 2009:4). Currently, the region has five "areas of species richness and endemism which are under particular threat" or "biodiversity hotspots" (MacIntyre, *et al.*, 2009:4). These include the Cape Floristic Kingdom, the islands of the Western Indian Ocean, the Succulent Karoo, Guinea Forest, and the Eastern Arc Mountain Forests (MacIntyre, *et al.*, 2009:4). Biodiversity is key to ensuring human well-being as food, shelter, medicine, fuel, tourism, and clothing are directly dependent on it (MacIntyre, *et al.*, 2009:4). The biggest threat to biodiversity in the region is the unsustainable expansion of agricultural land and urbanisation that is destroying natural habitats. As the majority of sub-Saharan Africa's households (as per the empirical reports referenced in this study) rely on wood and charcoal for shelter and fuel, deforestation not only threatens biodiversity, but also the primary means by which people's basic survival needs are met (MacIntyre, *et al.*, 2009:5). Regionally, we are seeing the degradation of water resources (MacIntyre, *et al.*, 2009:4). It is estimated that by 2025, ten sub-Saharan African countries will face water scarcity (where water scarcity refers to  $<1000\text{m}^3$  per capita per year) and thirteen countries will face water stress (where water stress refers to  $<1700\text{m}^3$  per capita per year) (MacIntyre, *et al.*, 2009:4). While surface and groundwater resources are abundant, they are not evenly distributed. As a result, the majority of farmers are reliant on rainfall with little or no

consideration given to water management, where water management refers to the collection and storage of water (FAO, 2009:1). If the region is to increase agricultural productivity, and if it must prepare to do so in the face of climate change, sustainable water management needs to become a central focus of smallholder farmers throughout the region. A further challenge faced by the agricultural sector is a reported stagnation of productivity on farms. This is believed to be the result of limited or inadequate use of improved cultivars, fertiliser and irrigation (Jayne, *et al.*, 2010:1387). This is especially true for smallholder farms that in many cases have limited access to technology and economic resources, which prevents them from improving and modernising farming methods (Ncube, 2018:1).

#### **2.4.3. Economic challenges**

Agovino, *et al.* (2018:2) differentiates between an “egoistic economy” and an “altruistic economy” where the former deploys intensified agricultural practices that negatively impact upon climate change, and the latter refers to a far-sighted approach aimed at preserving the ecosystem by using sustainable practices with future generations in mind (Agovino, *et al.*, 2018:2). Given that only five sub-Saharan African countries – South Africa, Nigeria, Botswana, Mauritius and Ethiopia – are reportedly recurrently investing in national agricultural research and development in sub-Saharan Africa, the prioritisation of sustainable agricultural practices is evidently not a unanimous focus across the region (Binswanger-Mkhize, 2009:41), and “egoistic” agricultural practices persist. Agricultural research and development is said to play a key role in ensuring optimised production. Yet, the diversity of the region’s environment, crops, livestock, diseases, and pests mean that there is not one dominant farming system or set of practices that can be optimised (Binswanger-Mkhize, 2009:41). This adds complexity in that it is difficult to deploy yield-optimising technologies developed for one region to another. The result is an increasing technological divide between regions investing in agricultural research and development and those which are not.

As smallholder farms are reported to dominate the agricultural sector (Moyo, 2016:7), any attempt at alleviating poverty and hunger will depend on sustainably increasing productivity on these farms. Currently, larger, commercial farms are better equipped



to deal with the risk and financial investment required to deploy new technologies and farming methods. One example is the lack of irrigation in the region. While irrigation increases agricultural productivity and ensures that farms are less susceptible to the effects of climate change, the cost associated with installing these systems in sub-Saharan Africa is higher compared to other regions in developing countries (Calzadilla, *et al.*, 2013:150). This is due to the fact that the supporting infrastructure, such as deep wells, dams, and water conveyance and pumping stations, required for an irrigated scheme is often lacking (Lebdi, 2016:5). Lebdi (2016:5) illustrates this by stating that the average cost per irrigated hectare in sub-Saharan Africa is US\$ 8,374. However, in the absence of the required infrastructure, which is the reality in many areas in sub-Saharan Africa, the cost of the irrigated scheme now includes construction costs such as dams, land opening, pump stations, etc., which increases the average price per hectare to US\$ 14,455 (Inocencio *et al.*, 2005 as cited in Lebdi, 2016:5).

Furthermore, poor market access, inferior soil quality, and a lack of incentivisation of agricultural intensification are all thought to be key factors preventing smallholder farms from moving away from rainfed farming (Calzadilla, *et al.*, 2013:150). As a result, the need to develop support structures and policies specifically aimed at increasing productivity on smallholder farms, without compromising environmental sustainability, is evident (FAO, 2009:2).

The region is also faced with the challenge of connecting rural suppliers to urban centres. Referencing a FAO study done in 2006, Jayne, *et al.* (2010:1390) highlights the fact that of the 3.7 billion dollars' worth of cereals imported by African countries on a yearly basis, only 5% is produced by African farms (Jayne, *et al.*, 2010:1390). By re-assessing our food systems, and focusing on rural, outlying areas, the region could increase rural wealth while reducing our dependency on international food suppliers. In addition to the challenges listed, the region's agricultural sector has experienced a decline in international funding and donors. While social services saw an increase in donor aid from 32% to 56% between 1991 and 2002, agriculture saw a decline from 19% to 10% (Jayne, *et al.*, 2010:1393). This regression is thought to be the result of underperforming funded agricultural programs and the abuse of ruling



elites exploiting the agricultural sector to benefit their own interests (Jayne, *et al.*, 2010:1393).

#### **2.4.4. Social challenges**

The FAO reported that in the 40 years preceding the year 2000, the area of cultivated sub-Saharan African land increased marginally, yet the number of households practicing agriculture tripled (Jayne, *et al.*, 2010:1385). Evaluating land inequality amongst the small-scale farming sector, Jayne, *et al.* (2018:1386) ranked farms per capita land size, dividing the farms into four quartiles of equal size. Households falling in the top quartile managed between five and fifteen times more land than households from the bottom quartile. The study found that 25% of smallholder households manage less than 0.11 hectare per capita (Jayne, *et al.*, 2010:1386). Furthermore, households in the top land quartile generate revenues 4-8 times that of households who fall in the bottom quartile, pointing to the correlation between land access, agricultural commercialisation and a household's income (Jayne, *et al.*, 2010:1386). If rural poverty is to be addressed, current land inequality must be prioritised.

What further problematises the matter of access to land and agricultural productivity is that many of the country's agricultural support systems and programs often hold requirements which pose additional challenges to smallholders. As an example, in South Africa, land ownership or a long-term lease plays a key role in determining eligibility to receive support; this in a country where many smallholder farmers lease land from the municipality rather than own it (Ncube, 2018:6). Another example is the prerequisite to submit a business plan when applying for financial support. In some cases, smallholder farmers are illiterate, but skilled at cultivating land (Ncube, 2018:7). Policies such as these are said to marginalise smallholder farmers even further, and points to the fact that many existing systems and policies need to be overhauled. The theoretical framework informing such a transformation ought to consider the needs of current and future generations, as well as the environment, without prioritising one at the expense of the other.

More prevalent in rural areas is the challenge of limited non-farming related opportunities. Despite the fact that an income unrelated to farming positively contributes to household welfare in rural areas, the opportunity to access such employment is often slim to non-existent (Jayne, *et al.*, 2010:1390). With climate change projected to increase the pressure on the agricultural sector, the need for additional income sources could be of great importance, specifically in the region's rural areas (Binswanger-Mkhize, 2009:46).

## 2.5. CONCLUSION

According to reports consulted in this study, it is estimated that by the year 2050, the global population would have increased to 9 billion people, with the majority living in the least developed countries (Henning, 2011:82-83; Godfray & Garnett, 2014:2). Globally, we are already seeing an increased demand for food, animal feed and biofuel as the expanding population's dietary preferences and energy consumption patterns are shifting, placing additional pressure on natural resources and agricultural production (Djurfeldt, 2014:1). Sub-Saharan Africa is estimated to be home to more than 950 million people, expected to reach 2.1 billion people by 2050: 22% of the global population (OECD/FAO, 2016:60). The region has a long-reported history of being plagued with food insecurity, with 23% of the population being undernourished (Calzadilla, *et al.*, 2013:151). With food consumption projected to increase by 2.8% per year and agricultural production by only 2.7% per year, the region's dependency on food imports will increase even further, adding an additional obstacle in the fight against food insecurity (Calzadilla, *et al.*, 2013:151).

As illustrated in this chapter, sub-Saharan Africa, unlike many other global regions, has not reached its agricultural potential and still has the potential to feed its population (Calzadilla, *et al.*, 2013:151). As food security is dependent on a healthy agricultural sector, the need to increase productivity through empowering and up-skilling smallholder farmers is imperative (Binswanger-Mkhize, 2009:41). However, to ensure the long-term prosperity of the region, numerous policy documents recommend that increased productivity be achieved through the deployment of sustainable agricultural practices aimed at preserving the region's finite resources, rather than unsustainable land expansion which could threaten natural habitats and

biological diversity. Furthermore, agricultural research and development needs to become a central focus across the region, with a focus on developing sustainable agricultural intensification methods to assist in sustainably increasing agricultural productivity (Binswanger-Mkhize, 2009:41). The role of the agricultural sector in addressing food security will be addressed in the next chapter, focussing specifically on the need to sustainably increase agricultural productivity of smallholder farmers.

## CHAPTER 3. FOOD SECURITY AND THE NEED FOR SUSTAINABLE AGRICULTURAL PRACTICES

### 3.1. INTRODUCTION

As seen in Chapter Two, sub-Saharan Africa, unlike many other global regions, has not reached its agricultural potential and still has the potential to feed its growing population (Calzadilla, *et al.*, 2013:151). With the success of the agricultural sector directly impacting the food security of a region, numerous reports and policy documents agree that the need to sustainably increase agricultural productivity is imperative (Binswanger-Mkhize, 2009:41). As climate change is also expected to greatly impact the agricultural sector of sub-Saharan Africa, many current farming practices need to be re-examined if the region wishes to mitigate some of the catastrophic consequences predicted.

With this in mind, Chapter Three will consider the role of sub-Saharan Africa's agricultural sector in addressing food security, as well as some of the key challenges impeding the region from becoming more food secure.<sup>5</sup> As highlighted before, increasing agricultural productivity, as a means to minimise undernourishment, without compromising environmental health, requires sustainable farming practices that are long-term focussed. This chapter will evaluate sustainable intensification as one possible solution to achieve this goal, as it is considered to be "... at the forefront of food security discussions as a means to meet the growing demand for agricultural production while conserving land and other resources" (Smith, *et al.*, 2016:1). As a result, numerous scholars, including Smith, *et al.*, 2016, McIntyre, *et al.*, 2009, and Calzadilla, *et al.*, 2013 have argued that sustainable intensification could assist in ensuring food security, without compromising the long-term sustainability of agricultural practices.

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<sup>5</sup> All figures reported in this chapter are based on a specific set of referenced empirical reports and policy documents and should not be taken as attempt to represent anything beyond the data and populations specifically addressed in a particular study.

### 3.2. AN OVERVIEW OF FOOD SECURITY

The definition of food security is one that has undergone numerous transformations, signifying the complexity of the concept itself (Clay, 2002). Having originated in the 1970s, the concept initially focussed on food supply at an international and national level. In 1983 the definition expanded to include a focus on the people affected by food insecurity. A significant change occurred after the release of the 1986 World Bank report on poverty and hunger which distinguished between “chronic food insecurity” and “transitory food insecurity” where the former referred to food insecurity as the result of continuous poverty, and the latter to food insecurity as the result of periodic pressures such as droughts, floods, conflict or periods of economic instability (Clay, 2002). In 1996, the World Food Summit defined food security as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Berrett, 2010:825). Today, this is still the most widely accepted definition of food security (Berrett, 2010:825). What differentiates this definition from its predecessors is the prerequisite of both physical and economic access to food to ensure food security (Swartz, 2013:27). As aptly recognised by Berrett (2010:826), starvation is not due to a lack of food, but a lack of access to it. Subsequently, this definition prompts us to view food security as consisting of: 1) the availability of food, 2) physical and economic access to food, 3) the utilisation of food and 4) stability over time (FAO, IFAD & WFP, 2017:107).

In 2014 it was estimated that roughly two billion people globally suffer from micronutrient deficiencies and around one billion people are subject to a food-intake that does not deliver sufficient energy (Godfray & Garnett, 2014:1). Since then, the global rise in violence and conflict, as well as environmental catastrophes associated with climate change, has seen the number of globally undernourished people increase from an estimated 775 million in 2014 to 815 million in 2016 (FAO, IFAD & WFP, 2017:1). Africa suffers the highest rate of severe food insecurity, which affects 27.4% of its population. In 2016, an estimated 243 million people in Africa did not have access to sufficient food energy (FAO, IFAD & WFP, 2017:7). In addition, the continent suffers the largest prevalence of undernourishment (PoU). With 22.7% of its population affected, sub-Saharan Africa continues to have the highest PoU of any region globally, with rural households and female-headed households reported to be

most affected (Tibesigwa & Visser, 2016:33; FAO, 2017:v). This is attributed to the effect of inhibiting gender roles which negatively impact females, the inequality in property rights, which often prevents women from obtaining land to cultivate, limited access to financial aid and information which could empower women to sustainably and optimally produce food, and the fact that women are mostly excluded from decision-making forums and are therefore faced with additional challenges in addressing the existing difficulties and inequalities (Ruppel, 2018:672).

One of the key factors contributing to the prevalence of undernourishment in sub-Saharan Africa is thought to be the catastrophic consequences associated with climate change, including droughts, floods, and heat waves, as well as the impact this has on the agricultural sector, as discussed in the previous chapter (FAO, 2017:v). Between 2000 and 2015, sub-Saharan Africa's attempts at curbing hunger were gaining traction as the region saw a decline in the prevalence of undernourishment and the number of people affected (FAO, 2017:v). Unfortunately, 2015 was plagued by droughts, heat waves and flooding, resulting in low crop yields and mass loss of livestock. The subsequent reduced food availability, increased food prices, rise in conflict and violence as well as the region's reported inability to respond to these disasters, saw the region fall back into a state of food insecurity (FAO, IFAD & WFP, 2017:7,9). The interconnectedness of human well-being and the environment cannot go unnoticed, and it is imperative to consider the interrelatedness of nutrition, hunger, food security, and sustainable agricultural practices (FAO, IFAD & WFP, 2017:3).

### **3.3. THE ROLE OF AGRICULTURE IN ENSURING FOOD SECURITY**

Sub-Saharan Africa's reported difficulty in responding to catastrophes, be it environmental, political, social or economic, means that the region remains exceptionally vulnerable to famine and food crises brought on by droughts, floods, or economic and/or political instability (FAO, 2006:1). As a result, sub-Saharan Africa is the only region globally that is projected to experience a further worsening in terms of food insecurity and prevalence of undernourishment (FAO, 2006:1). Widespread consensus holds that the agricultural sector, specifically smallholder farms, is key in addressing food security in the region. Current farming practices on small-scale farms, which include the lack of irrigation, limited and/or unsustainable use of

fertiliser and the absence of mechanisation and technology, as discussed in the previous chapters, are one of the factors preventing the region from increasing agricultural productivity (FAO, 2006:1). Yet it is estimated that for every 10% growth in smallholder agricultural productivity, an additional 7 million people can move above the “dollar-a-day”<sup>6</sup> poverty line (MacIntyre, *et al.*, 2009:10). Furthermore, an increase in productivity will reduce the need for on-farm labour, releasing labour for other sectors, and could allow farmers to invest in higher-value crops (Jayne, *et al.*, 2010:1388). The subsequent rise in revenue is expected to increase smallholder farmers’ disposable income that could generate the need and opportunity for more non-farm businesses in rural areas (Jayne, *et al.*, 2010:1388). While increased agricultural productivity is expected to generate rapid economic growth and development, specifically in rural areas, the need to ensure the deployment and support of sustainable development is imperative to ensure that the region’s prosperity is not short-lived.

### **3.4. AN OVERVIEW OF SUSTAINABILITY**

#### **3.4.1. Sustainability, Sustainable Development and Sustainable Agriculture**

Despite the widespread use of the concepts, ‘sustainability’, ‘sustainable development’ and ‘sustainable agriculture’, Norton (2003:420) highlights the fact that these concepts are vague, abstract and lack a universally accepted definition. Seghezzo (2009:539) agrees, and points to the fact that more than three decades after the World Commission on Environment and Development (WCED) first introduced the concept of ‘sustainable development’ as a global objective, the meaning of ‘sustainability’ and ‘sustainable development’ remain disputed.

While there is not one agreed upon definition to encompass ‘sustainability’, let alone ‘sustainable agriculture’ or ‘sustainable development’, many proposed definitions rely on the shared perception of current generations deploying practices to ensure the preservation of the environment for the sake of future generations. An example is

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<sup>6</sup> The dollar-a-day poverty line was increased to \$1.90 by the World Bank Group in 2011 (World Bank Group, 2015).

Kater, *et al.* (2018:73) who hold that sustainable development is only truly achievable if a country prioritises transforming their agricultural sector, increasing resilience and productivity, whilst deploying sustainable practices and systems. As a result, they define the concept ‘sustainable agriculture’ as “practices that meet current and future needs” where needs refer to the need for food, services and a healthy life (Agovino, *et al.*, 2018:2). What becomes apparent is that much of the current literature on environmental ethics rely on this enlightened anthropocentric notion of sustainability, where current generations have an obligation to preserve the environment, not for its intrinsic worth, but for the instrumental value it holds for future generations. This is evident even in the first definition of ‘sustainable development’ that originates in the Brundtland Report of 1987 that recognised the interrelatedness of human well-being and environmental sustainability and stated that development was only sustainable if it “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Seghezze, 2009:539).

While lacking a universally accepted definition, the concept ‘sustainable development’ is widely held to be contradictory and anthropocentric in nature. Kopnina (2014:78) notes that sustainable development is an oxymoron as “... ‘sustainability’ implies continuity and balance, while ‘development’ implies dynamism and change”. Hattingh (2002:5) notes that sustainable development has become quite closely linked to a moral imperative; but one which lacks global agreement in terms of the interpretation or implementation thereof. Hattingh (2002:5) furthermore states that none of the numerous interpretations which have emerged over time are ideologically neutral and have the potential of “... establishing, justifying, or maintaining relationships of dominance and exploitation”. He illustrates this by referring to the fact that, depending on the interpretation, sustainable development can drive either a “green agenda of nature conservation”, an “economic agenda of needs satisfaction”, an “integrated agenda of caring for the community of life on earth”, or a “radical political and ethical agenda of transformation” (Hattingh, 2002:6-12).

With respect to the third of these notions of sustainability, Hattingh notes that it was this conception of sustainability which seemed to be promoted in the report entitled *Caring for the Earth: a Strategy for Sustainable Living* by the IUCN (The World Conservation Union), which argued for “an integration of the concern about needs



satisfaction and respect for the community of life” (Hattingh 2002:11). In other words, this notion of sustainability moves away from competing interpretations of sustainability which prioritize either the needs of human beings, and particularly the world’s poor, on the one hand, or protection of the environment and nature conversation on the other. Rather, sustainability as an “integrated agenda of caring for the community of life on earth” holds that this dichotomy should be overcome and that these goals need to be united and pursued simultaneously. According to this view, a “sustainable economy ... would keep its natural resource base intact, but could continue to develop by adapting to change and by improvements in knowledge, organisation, technical efficiency and ‘wisdom’” (Hattingh 2002:10). It could be argued that this notion of sustainability holds promise for thinking through the transformation of the agricultural sector in sub-Saharan Africa, in that it could overcome the problems associated with anthropocentrism previously discussed, without ignoring the imperative to address the pressing needs of human beings, and particularly the world’s poor, by, for example, addressing food insecurity. In Chapter Five, I will argue that African Relational Environmentalism seems to be particularly suited to champion such a notion of sustainability, and subsequently to contribute towards a notion of sustainable agriculture.

### **3.4.2. Evaluating Sustainable Development through the Millennium**

#### **Development Goals and Sustainable Development Goals**

The United Nation’s Millennium Development Goals (MDGs) consisted of a set of targets to be achieved by 2015 that focused on addressing hunger and poverty, primary education, gender inequality, child mortality rates, maternal health, the spread of HIV/AIDS, environmental sustainability, and a global outlook on development. In 2016, the United Nations put forward the Sustainable Development Goals (SDGs) to assist in guiding institutions and civil society from 2016-2030 towards the long-term goals of ending poverty and hunger and preserving the environment (United Nations Millennium Goals, n.d.; Omisore, 2018:138).

Consisting of seventeen objectives that were adopted at the UN General Assembly in 2015, the SDGs originated out of the realisation that “unemployment, resource scarcity, climate change, food insecurity and inequity all signal the need for radical

change in our societies” (United Nations Environmental Program, 2015:3). The prioritisation of the environment and recognising its central role in sustainable development is evident from the fact that half of the SDGs address environmental concerns (United Nations Environmental Program, 2015:3). Furthermore, the *UN General Assembly Document on the 2030 Agenda for Sustainable Development* made the UN’s commitment to sustainable development unquestionably clear:

We recognize that social and economic development depends on the sustainable management of our planet’s natural resources. We are therefore determined to conserve and sustainably use oceans and seas, freshwater resources, as well as forests, mountains and drylands and to protect biodiversity, ecosystems and wildlife. We are also determined to promote sustainable tourism, to tackle water scarcity and water pollution, to strengthen cooperation on desertification, dust storms, land degradation and drought and to promote resilience and disaster risk reduction (United Nations, 2015:9).

The SDGs consist of environmental, economic and social goals. Omisore (2018:141) is of the opinion that for sub-Saharan Africa to undergo any form of sustainable development, the prioritisation of the SDGs, in particular the environmental goals, is key if the region ever hopes to address the social and economic SDGs. Of particular importance is Goal 15: “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” (United Nations, 2015:24). Similar to many developing regions, it is reported that unsustainable environmental practices are engrained in many of sub-Saharan Africa’s attempts to uplift itself out of poverty (Peh, 2008:678). In a country like Cameroon where 2.6 million people reportedly survive on less than 1US\$ per capita a day, illegal practices such as poaching are thriving, as this practice can offer hunters close to US\$49 a day (Peh, 2008:678). Similarly, the agricultural sector is characterised by practices that are often short-term orientated, focussed on addressing immediate threats and ensuring short-term gains (Holden, 2018:20). As a result, the region is already seeing large-scale land degradation. From 1990 to 2010, sub-Saharan Africa underwent the greatest rate of deforestation globally (Omisore, 2018:139). While illegal tree cutting, overgrazing, unregulated agricultural expansion, overfishing and fuel-wood harvesting are being deployed as short-term survival strategies, these practices are leaving expansive

environmental damage in their wake (Peh, 2008:678). These unsustainable practices are reported to be further exacerbated by unplanned urbanisation, climate change and a lack of environmental management in the region (Omisore, 2018:140). According to the body of documents referenced in this study, if policies and practices do not start prioritising the environment, the result will be long-term environmental damage that will catapult the region back into severe poverty and food insecurity.

The *United Nation's General Assembly Document on the 2030 Agenda for Sustainable Development* continues by making specific reference to African countries and the unique challenges they face in achieving sustainable development (United Nations, 2015:13). Focussed on addressing food security in the region, Goal 2.3 reads as follows:

By 2030, double the agricultural productivity and income of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment (United Nations, 2015:15).

In evaluating Africa's progress in achieving the SDGs, I reference the 2017 Africa Sustainable Development Report (Africa Sustainable Development Report, 2017:36). It identifies the production volume per labour unit by class size (farming/forestry/pastoral) as a target indicator for the above-mentioned goal 2.3. The report found that while labour productivity for the continent (excluding North Africa) grew by 9% from 2010-2015, the continent is still lagging behind the rest of the world. This is evident in the agricultural value added per worker that was calculated at \$1221 in comparison to the global average of \$1979 in 2010. The report concludes that the main obstacles to achieving the SDGs are food security and undernourishment, highlighting the need to address agricultural productivity by focussing on the deployment of irrigation, water management and technology on smallholder farms (Africa Sustainable Development Report, 2017:36). In the next section, I will discuss one possible method which has been proposed in this regard, namely, sustainable intensification.

### 3.4.3. Sustainable Intensification

The term ‘sustainable intensification’ was first used in 1997 in a paper by Pretty (1997) evaluating Africa’s agricultural potential. Up until then, ‘intensification’ implied an agricultural practice that produced food at the expense of natural resources, and as a result caused devastation (Pretty & Bharucha, 2014:1578). The term ‘sustainable’ was used to refer to agricultural practices and systems that were not harmful to the environment. Sustainable intensification then became defined as “... a process or system where yields are increased without adverse environmental impact and without the cultivation of more land” (Pretty & Bharucha, 2014:1578). Jambo, *et al.* (2019:1) echo this definition, by terming sustainable intensification as “... agricultural practices (including technologies and management techniques) to increase agricultural productivity, while simultaneously improv[ing] environmental quality and social equity ...”.

Conventional notions of agricultural sustainability held that the process required a reduction in input use and therefore required more land surface area to produce the same amount of produce (Pretty & Bharucha, 2014:1578). Organic production systems are generally associated with a reduced input and positively contribute to the natural capital, but produce lower yields per area of cultivated land as a result. More recent studies suggest that sustainable agriculture ought to rely on changes in the agricultural production system, such as moving from ploughing to zero-tillage, or moving from pesticides to utilising “natural enemies”. According to Pretty and Bharucha (2014:1578), the most promising change relies on intensifying the available resources such as biodiversity, land, and water.

The concept sustainable intensification does not endorse or favour any one agricultural production system, nor does it prescribe specific technology use or species mix (Pretty & Bharucha, 2014:1578). Its systems can entail either adapting existing farming practices and technologies, or embracing new farming practices and technologies (Jambo, *et al.*, 2019:1). Sustainable intensification can be differentiated from agricultural intensification “as a result of its explicit emphasis on a wider set of drivers, priorities and goals than solely productivity enhancement” (Pretty & Bharucha, 2014:1578).

According to Pretty and Bharucha (2014:1577), sustainable agricultural systems have shared characteristics which distinguish them from conventional agricultural systems, specifically in terms of processes and outcomes. Sustainable production systems, firstly, are more inclined to be “multifunctional within landscapes and economies”. Therefore, these systems utilise the synergies between economic contexts, social contexts and ecosystems and leverage their efficiencies. An example is not merely producing food, but simultaneously positively contributing to elements such as flood protection, tourism, wildlife and habitat protection, and preserving fresh water (Pretty & Bharucha, 2014:1577). Secondly, sustainable production systems tend to be diverse in nature and will adapt themselves to a particular economic, social and ecological context. Thirdly, sustainable production systems are characterised by a complex and diverse collection of plants and animals. This is often associated with a more complex management approach, as well as a greater skills and knowledge requirement (Pretty & Bharucha, 2014:1578). To illustrate, farmers should be aware of the circumstances under which inputs such as pesticides, seeds, and fertilisers can “either complement or contradict biological processes and ecosystem services that inherently support agriculture” (Pretty & Bharucha, 2014:1578). Fourthly, sustainable production systems rely on the ability to innovate under circumstances of uncertainty. This is enabled by adopting a new approach to human and social assets, such as encouraging vertical and horizontal partnerships between the involved institutions, embedding trust in social organisations, and focusing on developing and attracting competent human capital. Pretty and Bharucha (2014:1578) notes that farmer-to-farmer learning has proved to be of critical importance in implementing sustainable intensification which is an example of a sustainable production system.

In the next section, two examples of sustainable intensification practices, namely Integrated Soil Fertility Management and Conservation Agriculture will be explored as possible approaches towards sustainable intensification.

#### **3.4.4 Sustainable Intensification in sub-Saharan Africa**

While sub-Saharan Africa’s agricultural growth has been attributed to expansion of agricultural land rather than increased productivity, as discussed earlier in this thesis, Holden (2018:20) highlights the fact that area expansion is not only less profitable

than area intensification, but it also emits three times more greenhouse gasses to realise an equal growth in production. With the consequences of deforestation and its impact on climate change and food security becoming more evident, the region will no longer be able to rely on area expansion to grow the agricultural sector. Instead, more sustainable approaches of intensification need to be explored (Holden, 2018:20).

Agricultural intensification is a widely used practice that focuses on increasing production yield on the same surface area of land (Pietersen & Snapp, 2015:2). Yet, if mismanaged, it can lead to land degradation, reduced soil fertility and the pollution of water sources, as noted in the previous chapter. Sustainable intensification, on the other hand, is an approach aimed at considering both food- and environmental security simultaneously (Pietersen & Snapp, 2015:2), and as such, seems to accord with the notion of sustainability as an “integrated agenda of caring for the community of life on earth” (Hattingh 2002:10) discussed previously. As noted, sustainable intensification is considered to be “... at the forefront of food security discussions as a means to meet the growing demand for agricultural production while conserving land and other resources” (Smith, *et al.*, 2016:1). As a result, numerous scholars have argued that sustainable intensification is an approach which could assist in ensuring food security, without compromising the long-term sustainability of agricultural practices (Smith, *et al.*; McIntyre, *et al.*; Calzadilla, *et al.*).

Pretty acknowledges the fact that sustainable intensification is not so much a “blueprint” on how to achieve greater yields without impacting the environment, as it is a goal. (Pretty, *et al.* 2011 as cited in Pietersen & Snapp, 2015:2). If sub-Saharan Africa identifies sustainable intensification as one model of agricultural sustainability, numerous policies, systems and institutions will have to work together in order to develop such an approach or a set of approaches which take into consideration the different needs and resources of the farmers, without compromising the environment.

Two examples of sustainable intensification practices are Integrated Soil Fertility Management (ISFM) and Conservation Agriculture (CA) (Holden, 2018:20).

Integrated soil fertility management can be defined as “a set of soil fertility management practices that necessarily include the use of fertiliser, organic inputs and improved germplasm, combined with the knowledge of how to adapt these practices

to local conditions, aimed at maximising agronomic use efficiency of the applied nutrients and improving crop productivity. All inputs need to be managed following sound agronomic principles” (Holden, 2018:20). Conservation agriculture refers to a collection of techniques aimed at minimising soil erosion, increasing the organic matter in the soil, and improving the land’s water holding capacity in an attempt to increase the health of the soil and improve yields (Pretty & Bharucha, 2014:1585). One key characteristic of this approach is zero tillage, which refers to eliminating ploughing before sowing, to minimise soil disturbance. Conservation agriculture therefore refers to a collection of techniques and strategies to minimise soil disturbance, crop rotation and maintaining soil coverage (Pretty & Bharucha, 2014:1585). This is reported to promote an optimum root zone through water availability, biotic activity and structure of the soil.

What differentiates conservation agriculture from other sustainable intensification practices is the fact that it incorporates natural resource management on all levels: from the landscape to the village to the farm (Milder, *et al.*, 2011:5). Conservation agriculture is not only limited to cultivated crops, and includes livestock and water management, agroforestry, and the management of protected areas. Milder, *et al.* (2011:5) holds that conservation agriculture can be utilised as an approach to address food insecurity, poverty, climate change and conservation in sub-Saharan Africa. They continue by stating that conservation agriculture is of particular interest to rural areas as it offers a “low-external-input” solution that is accessible to even the poorest households (Milder, *et al.*, 2011:5). While conservation agriculture is based on the three principles of crop rotation, soil coverage and minimised soil disturbance, many are of the opinion that to be truly successful in sub-Saharan Africa, it needs to include the use of inorganic fertiliser as a fourth, additional principle (Holden, 2018:21). This is due to the fact that the region is characterised by naturally low soil fertility, with an estimated 25% of soil being acidic, and lacking calcium, magnesium and phosphorus (MacIntyre, *et al.*, 2009:3). While the uptake of conservation agriculture in the region is still scarce, in most cases, farmers saw an increase in yields within 3-7 years with subsequent increased profitability and a reduced need for farm labour (Milder, *et al.*, 2011:5). As pointed out earlier, an increase in agricultural yield and revenue, as well as a reduced need for on-farm labour, is said to result in economic growth for the region, which in turn could address food insecurity and poverty.



### 3.4.5. Constraints and opportunities of Conservation Agriculture

Milder, *et al.* (2011:28) highlights the fact that the adoption of conservation agriculture is often the result of “push and pull” factors where “pull” refers to farms adopting the practice due to adequate resources and knowledge availability and “push” refers to farmers turning to conservation agriculture due to increased food processes, increased input costs, environmental disasters, etc. (Milder, *et al.*, 2011:19). Vulnerable and poor households are thought to be the least likely to adopt conservation agriculture due to pull factors. Milder, *et al.* (2011:19) identifies the following factors as the biggest hurdles to overcome if conservation agriculture is to be adopted in the region: a lack of knowledge and access to knowledge, a lack of government support, limited investment and initial costs. Conservation agriculture entails unfamiliar practices, training, and different implements, and new inputs such as the correct seeds, herbicides, and fertiliser, are all required (Milder, *et al.*, 2011:29). This demands an initial investment, and in most cases, smallholder farmers do not have the available funds or appetite for risk. For sustainable intensification, with specific reference to conservation agriculture, to take-off, funding and donor projects, as well as a transformation of many policies and institutions supporting the agricultural sector, will play a central role in ensuring the successful deployment of sustainable agricultural intensification in sub-Saharan Africa.

### 3.5. CONCLUSION

As illustrated in this chapter, food security needs to be prioritised if sub-Saharan Africa ever wishes to address any of the Sustainable Development Goals associated with social or economic development. With smallholders reportedly dominating the agricultural sector, any proposed change in agricultural practices need to be deployed here. One example of a possible model of sustainable agriculture which I have explored here is sustainable intensification, and particularly, conservation agriculture, which could be deployed to the smallholder sector. However, this will require not only funding, but also a transformation of many policies and institutions supporting the agricultural sector in sub-Saharan Africa.

Having sketched this background, in the next two chapters, I will consider different theoretical perspectives which could be used to inform a notion of sustainable



agriculture, and to think through what is required in terms of overhauling existing practices, policies and institutions. Any notion of ‘sustainable development’ and ‘sustainable agriculture’, should focus not only on the needs of current and future generations, but also on the needs of the biotic community. I will argue that African Relational Environmentalism seems to be well suited to champion “an integrated agenda of caring for the community of life on earth” (Hattingh, 2002:6-12) as it overcomes many of the problematic dualisms found in many Western environmental ethics.

## **CHAPTER 4. ALTERNATIVES TO ANTHROPOCENTRISM: AN EVALUATION OF FOUR WESTERN NON-ANTHROPOCENTRIC VALUE THEORIES**

### **4.1. INTRODUCTION**

In light of food insecurity in sub-Saharan Africa, this study has illustrated the need to develop a model of agricultural sustainability which considers both the needs of current and future generations, as well as the environment. It will argue that African Relational Environmentalism could serve as a useful theoretical perspective in developing such an understanding of the notion of sustainable agriculture. The previous chapters have explored the sub-Saharan African agricultural sector and food security in the region, in an attempt to illustrate the need to develop a model of sustainable agriculture which increases agricultural productivity without compromising the environment. As previously indicated, in order to address food security in sub-Saharan Africa, agricultural productivity needs to increase through sustainable agricultural practices. One suggested way in which this can be achieved is through the use of sustainable intensification practices such as conservation agriculture. In order to achieve a shift towards sustainable agriculture, a transformation of the region's institutions, systems and policies would be required. In order to think through this transformation, a theoretical framework which could help us to understand and to further develop the notion of sustainability, and subsequently inform and support a model of sustainable agriculture, could be helpful. Such a framework needs to consider both the needs of current and future generations, and the environment, without prioritising one at the expense of the other.

In the next two chapters, I will argue for the need to look beyond Western non-anthropocentric environmental ethics theories as a platform from which an understanding of sustainable agriculture can be developed, and identify African Relational Environmentalism as a valuable theoretical perspective in this regard. To understand the contribution African Relational Environmentalism makes to environmental ethics, I will begin in this chapter by evaluating the four Western non-anthropocentric views of Tom Regan, Peter Singer, Paul Taylor and Aldo Leopold, and consider the limitations preventing these theories from forming the theoretical framework from which an understanding of sustainable agriculture can be developed.

## **4.2. AN OVERVIEW OF ENVIRONMENTAL ETHICS, ANTHROPOCENTRISM AND NON-ANTHROPOCENTRISM**

While it could be argued that the philosophical consideration of humanity's relationship with nature dates back to Plato, it was only during the onset of the 1970s that environmental ethics was established as a field of philosophy (Behrens, 2011:25). Devoted to the enquiry into what moral obligation, if any, humans have towards nature, environmental ethics also considers the limitations traditional ethical approaches have to both addressing practical environmental problems and answering questions about the environment (Behrens, 2011:26). As the field of environmental ethics established itself and awareness of environmental degradation grew, a number of thought leaders started to identify the human-centred worldview as the cause of the ecological crisis (Behrens, 2011:27). As a result, much of environmental ethics is rooted in a rejection of anthropocentrism.

Anthropocentrism holds that human beings are morally superior to the non-human world, and that the non-human environment, referring to plants, animals, micro-organisms, etc., hold value only insofar it serves the direct and/or indirect interests of human beings (McShane, 2007:170). Anthropocentrism measures whether a human being's actions towards the natural environment and its inhabitants, non-human entities in particular, are right or wrong based on two criteria. Firstly, the consequences of those actions are either favourable or unfavourable to the well-being of humans. Secondly, the action either coincides or does not coincide with the accepted standards that govern human rights (Taylor, 1981:198). As nature has mere instrumental value, human beings have no moral obligation to consider the interests of non-human entities, according to this view. The only responsibility human beings can have towards the natural environment and its non-human inhabitants is when the management and/or usage of its biotic communities or natural resources can affect the realisation of human values or rights (Taylor, 1981:198).

Non-anthropocentrism on the other hand, is the denial of this view that the non-human world only holds instrumental value and values nature for its own sake (Behrens, 2011:18). Non-anthropocentric environmental ethics theories assign moral standing to non-human entities, including plants, animals and ecosystems. Yet within non-anthropocentrism, it is not universally accepted which organism should possess

moral standing. To illustrate this, I reference Keulartz and Korthals' (2014:3) concept of the "expanding circle". The state of the moral community can be understood as follows: those falling within the borders of the circle are awarded moral consideration and those who fall outside of the borders of the circle are not. Throughout history, the circumference of the moral circle slowly, but continuously expanded, including more people into the moral community, until eventually, all of humanity, across race, gender, age and geography were awarded equal moral consideration. During the 20<sup>th</sup> century the circle expanded even further to include future generations; the Brundtland Report of 1987 serves as an example of this. At its core, the Brundtland Report places a moral obligation on current generations to act in a manner that considers generations to come; yet another example of how enlightened anthropocentrism prevails in environmental literature and initiatives. It is therefore morally unjust for current generations to have policies or guidelines in place that benefit current people's interests at the expense of future generations (Keulartz & Korthals, 2014:2). An example would be our current management of natural resources. If we simply consume resources without considering the long-term impact it can have on generations to come, such actions would be deemed immoral. Keulartz and Korthals (2014:3) add that over time, various philosophers have attempted to expand the moral circle beyond human beings, and have included animals, plants and eventually ecosystems. While even today it is not universally accepted that non-human life forms part of the moral circle, there is an on-going discourse about including them. The first attempt at inclusion beyond human beings was seen with zoocentrism that extended moral consideration to non-human animals. Biocentrism expanded the circle even further to include plants and micro-organisms. Ecocentrism expanded the circle further again, extending moral consideration to complete ecosystems (Keulartz & Korthals, 2014:2).

This chapter will evaluate the above mentioned four Western approaches with regard to their potential to inform an African notion of sustainable agriculture, and the associated transformation of existing policies, systems and institutions. The expansion of moral consideration to include non-human life, as discussed above, challenges anthropocentrism, which lies at the core of the history of Western philosophy.

The four Western non-anthropocentric environmental ethics theories that I will be considering in this chapter are Tom Regan's Rights View, Peter Singer's Animal Liberation theory, Paul Taylor's Biocentrism, and Aldo Leopold's Land Ethic. Both Tom Regan's rights view and Peter Singer's animal liberation theory fall within zoocentric ethics, offering deontological and utilitarian perspectives respectively. Singer applies Jeremy Bentham's approach as a criterion for entry into the moral community: "The question is not can they reason? Nor can they talk? But can they suffer?" (Bentham, 1907:144). If the ability to suffer is held as the criterion which provides entrance into the moral community, then there is no reason why animals cannot be included. Tom Regan rejects utilitarianism and develops his rights view based on the deontology of Immanuel Kant (Regan, 2004). Regan applies Kant's categorical imperative to non-human animals and argues that non-human animals are "subjects of a life", and as a result, have inherent value. Therefore, they should never be treated as means to an end, but always as ends in themselves (Regan, 2004).

Paul Taylor (1981:199) offers a biocentric approach and extends moral consideration not only to animals, but to plants and micro-organisms as well. According to Taylor, all living beings, including plants and micro-organisms, ought to form part of the moral community (Taylor, 1981:199). Biocentric theories however can be viewed as individualist theories, focussed on the individual organism rather than the collective whole, which assigns moral considerability to all biological life.

Aldo Leopold holds that an individualistic approach, such as Taylor's biocentrism, fails to take into consideration the interrelatedness between species and lacks the ability to address issues such as biodiversity loss and changing habitats. He proposes a holistic ecocentric approach. For Leopold "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold, 1949:262). Of the non-anthropocentric environmental ethics theories, ecocentrism is the most encompassing, extending moral standing not only to animals and plants, but also to entire ecosystems, constituted of both living and non-living things (Kernohan, 2012:10). Nature, it is argued, possesses intrinsic value, and not merely instrumental value as per anthropocentric theories (Gagnon & Barton, 1994:149).

### **4.3. AN OVERVIEW OF FOUR WESTERN NON-ANTHROPOCENTRIC VALUE THEORIES**

#### **4.3.1 Zoocentrism: An overview of Tom Regan's Rights View**

Tom Regan's rights view falls within zoocentric ethics. He offers a deontological argument based on the work of Immanuel Kant (Regan, 2004). Kant held that humans may never be treated as mere means to an end, but always as ends in themselves (Rachels & Rachels, 2012:137). This is one of the formulations of Kant's categorical imperative; the single principle from which Kant believed all of humanity's duties can be derived. Regan applies the categorical imperative to non-human animals and argues that non-human animals are "subjects of a life", and as a result, have inherent value (Regan, 2004). Therefore, they should never be treated as means to an end, but always as ends in themselves. As non-human animals have rights, it is never morally permissible, as is the case with utilitarianism, to justify denying an animal its rights, even if the outcome is thought to benefit a large number of human beings (Regan, 2004).

As an advocate of the animal rights movement, Tom Regan argues for the termination of commercialised animal farming, and holds that all forms of captivity, manipulation and killing of animals are morally unjust and argues that human beings have a moral obligation to follow a vegetarian diet (Regan, 1985:13). Regan strongly believes that one cannot be selective about what constitutes immoral behaviour towards animals. If using animals for cosmetic testing is appalling, then keeping animals in commercialised farms or consuming meat, is equally unforgivable. Regan holds that what is wrong with the way in which animals are treated is not the pain or suffering they have to endure at the hands of humans, but rather our current society that allows human beings to view animals as a mere renewable resource (1985:13). Making an animal's circumstances more humane is irrelevant; we need to abolish the idea that an animal is a mere means to an end (1985:13). To achieve this change, "people must change their beliefs before they change their habits" (Regan, 1985:13).

In formulating the rights view, Regan begins by considering the fact that all human beings have inherent value and equally so, regardless of race, gender, skills, wealth, etc. (1985:18). As all individuals have an equal inherent value, all humans deserve to

be treated with equal respect and as ends in themselves (Regan, 1985:18). Therefore, an individual's value is not dependent on whether or not they can be useful to another. To treat someone any other way is to violate their rights and is morally unjust (Regan, 1985:18). The rights view, in principle, denies all forms of discrimination, be it sexual, racial or social. It furthermore denies the notion that a good outcome can serve as justification for attaining that outcome in a manner that violates an individual's rights (Regan, 1985:18). Regan holds that the rights view is "rationally the most satisfactory moral theory ... as it explains the foundation of our duties to one another – the domain of human morality" (1985:18).

Regan admits that if it was proven that only humans possess inherent value then his theory will lose the foundation it is built on. However, any attempt to exclude animals on grounds such as a lack of higher intellect or the ability to speak, will be excluding certain human beings such as infants and mentally handicapped people (Regan, 1985:18). Both human beings and animals are "experiencing subjects of a life, conscious creatures having individual welfare that has importance to us whatever our usefulness to others" (Regan, 1985:18). The quality of a life is affected by suffering and enjoyment, frustration and satisfaction, beliefs and feelings, existence and death (Regan, 1985:13).

To attempt to argue that animals have inherent value, but less so than humans, cannot be rationally defended (Regan, 1985:19). Whatever grounds one attempts to justify this, will again exclude several human beings. Lack of reason or limited intellectual capacity, for example, will exclude the mentally handicapped, and there are no rational grounds for why they should have less inherent value than other people (Regan, 1985:19). As all entities possessing inherent value do so equally, we can say that all experiencing subjects of a life hold equal inherent value (Regan, 1985:19).

Regan avoids answering the question as to how we know which creatures possess inherent value by saying that "we do not need to know how many individuals have inherent value before we can know that some do" (1985:19). He continues by saying that the animals that are killed, consumed and tortured in experiments are all animals that should be regarded as experiencing subjects of a life which possess inherent worth and are subsequently entitled to be treated with respect.

The abolitionist position the rights view holds towards commercialised animal farming is not due to the living conditions or suffering animals have to endure, but due to the fact that they are viewed and subsequently treated as a mere resource for humankind (Regan, 1985:20). Therefore, allowing farm animals to graze freely or granting them more space will not right what Regan considers a “fundamental wrong” (1985:20). According to the rights view, non-human animals are ends in themselves and possess both inherent value and moral standing. For Regan (1985:342), any argument applied to defend a human being’s equal right to life, can be utilised in the defence of an animals’ right to life (1985:342). He concludes that therefore human beings have a moral obligation to neither kill, nor harm an animal (Regan, 2004; Lötter, 2006:12,88). As a result, the raising and/or keeping of animals for eggs, meat, milk or farm labour is morally unjust.

#### **4.3.2. Zoocentrism: An overview of Peter Singer’s Animal Liberation theory**

Peter Singer’s animal liberation theory also falls within zoocentrism, offering a utilitarian perspective. Singer holds that traditional Western ethics is to blame for the wrongful exclusion of animals from the moral community (Keulartz & Korthals, 2014:3). Singer argues that the anthropocentric approach that privileges Homo Sapiens is arbitrary and results in unjustifiable “speciesism” similar to sexism and racism. The animal liberation movement challenges the view that human interests are superior to those of non-human animals and argues that we should equally consider non-human interests and end speciesism (Singer, 1985:2,6).

Forming the basis of Singer’s animal liberation theory is the view that all organisms possessing the capacity to suffer have an interest in not having to endure pain. Singer holds that we ought to extend the same moral consideration to animals as we extend to humans, and this includes basic entitlements such as not to be tortured, killed or confined (Singer, 1987:5). Any practice that tortures an animal, kills it, or confines it to captivity is morally wrong. This includes killing or keeping animals for meat or other by-products such as milk and eggs, as well as keeping animals for medical and/or cosmetic experimentation or utilising them for labour or as a means of transport. Such practices consider human interests as superior to the interests of



animals and induce suffering and even death to animals in order to serve human needs (Pascarev, 2006:211; Singer, 1980:330).

In formulating the animal liberation theory, Singer (1985:3) considers the concept of equality and concludes that it is not a factual notion, but rather a moral idea. He elaborates on this idea by stating that the notion of equality as “a matter of fact” is absurd as human beings are not equal – not in terms of physical strength, attributes or intelligence. Some humans are more intelligent than others, and men in general have more physical strength than women. As a result, to demand equality based on facts such as attributes, strength or intelligence is ludicrous (Singer, 1985:3). Furthermore, there is no justification to differentiate the consideration given to humans based on a difference in characteristics such as strength, intelligence or attributes. As a result, Singer argues that the notion of equality does not describe a matter of fact equality, but instead provides moral guidance on how sentient beings ought to be treated (Singer, 1985:3). Our concern for others therefore should not be dependent on what characteristics or abilities they possess or lack. Having greater physical strength or intelligence over another, does not make one human superior to another, neither does it allow one to use “inferior” humans as a means to an end (Singer, 1985:3).

It is on this principle of equality that the case against sexism and racism rests. It was Jeremy Bentham who pointed out that the same then holds true for members of another species (Singer, 1985:3). Singer applies Bentham’s approach as a criterion for entry into the moral community: “The question is not can they reason? Nor can they talk? But can they suffer?” (Bentham, 1907:144). According to Bentham (1907:144), it is the capacity to suffer that determines whether or not a being ought to be given a right to equal consideration.

To illustrate, Singer points to the fact that a stone does not have an interest as it cannot suffer, whereas a mouse does have an interest in not being tortured as it has the capacity to suffer (1985:4). “If a being suffers, there can be no moral justification for refusing to take that suffering into consideration”, Singer argues (1985:4). Therefore, it does not matter what being is suffering, the principle of equality demands that the being’s suffering be considered equally to the suffering of others (Singer, 1985:4).

Singer makes the important point that what does not follow from this argument, is equal human rights awarded to animals. Animal equality does not entitle animals to have a right to vote, as the animal liberation movement seeks to promote equal consideration of interests, not equal rights (Singer, 1985:4). Where Regan attempts to bestow rights on animals, Singer does not, and merely argues that all suffering be considered equally. Singer remains a utilitarian and regards the right action as the action that results in the most happiness for the most entities involved (Singer, 1985:7). To illustrate this, consider the fact that according to Singer, the greater mental capacity of human beings enables them to experience more suffering than non-human animals in certain circumstances.

Singer uses the example of anticipation: if we performed painful experiments on humans kidnapped at a park, all adults entering the park will be afraid of being kidnapped, resulting in additional suffering arising from the experiment (Singer, 1985:5). If however, painful experiments were performed on animals taken from a herd, the herd will not experience the same anticipated fear, resulting in less suffering. In this example, while it would not be right to experiment on animals, it would be preferred to experiment on animals rather than humans if the experiment had to be done (Singer, 1985:5).

The same logic will of course give us justification to use infants or mentally handicapped adults. Singer concedes that it is not possible to accurately compare the suffering between species, but believes that precision is not of paramount importance (1985:5). For Singer, a great deal of suffering could be avoided if we prevented the suffering of non-human animals in scenarios where we know the interests of humans won't be affected. This will however demand radical change in the way we view and treat animals with regards to our experimental procedures, diet, farming methods, the wearing of fur, entertainment such as zoos and circuses, science and hunting (Singer, 1985:5). While the animal liberation movement opposes all cruelty to animals, the focus lies heavily on the use of animals for food and experimentation due to the sheer size of these industries and the number of animals suffering due to it (Singer, 1985:7). Singer holds that all human beings have a moral obligation to follow a vegetarian lifestyle. By consuming animals as food, we treat them as a mere means to an end, disregarding their life and interests in the interest of pleasing our palate (Singer,

1985:8). Singer emphasises the fact that to use nutritional needs as an excuse to consume meat is insufficient as it has been proven that a diet rich in high-protein vegetables could satisfy our nutrient and protein requirements (1985:8). For Singer, it is not merely the act of killing animals for meat that signals our disregard of their interests, but also the way in which we treat them when still alive (1985:8). Meat production confines animals in cramped conditions, focussing only on a higher conversion rate rather than the living conditions of the animals.

Singer's argument against the use of animals for food can thus be summarised as follows: Animals have the capacity to experience pain and suffering. Animals have an interest in not experiencing pain and suffering. The interests of animals deserve equal consideration to the interests of human beings. Human beings should therefore take the pain and suffering of animals into consideration. The production of meat causes pain and suffering. Human beings should therefore follow a vegetarian diet (Singer, 1985:8,9).

#### **4.3.3. Biocentrism: An overview of Paul Taylor's Biocentric approach**

Biocentrism extends value and moral consideration to all living entities, including humans, plants and animals (Torii Caciuc, 2014:93). Paul Taylor's biocentric approach holds that human beings as individuals form part of a greater whole, the biosphere, which consists of other non-human living entities (Taylor, 1981:197-198). The biosphere has intrinsic value and therefore requires moral consideration and respect, with all living entities awarded so equally. Human beings, as rational agents, are required to not only respect, but also protect nature; "We are morally bound ... to protect or promote their [the Earth's biotic community] good for *their* sake" (Taylor, 1981:198).

Taylor begins by stating that his "respect for nature" moral attitude lays the foundation for a life-centred environmental ethic (1981:197-198). A life-centred ethic places a moral obligation on human beings to promote and protect the interests of all members of the biotic community for their own sake, acknowledging their inherent worth (Taylor, 1981:198). This translates as a duty to protect endangered species and ecosystems and avoid its destruction and/or pollution. These obligations are

independent and supplementary to the duties we have towards human beings (Taylor, 1981:198). Taylor concedes that accepting a life-centred approach involves a “profound reordering of our moral universe” (1981:198). We would no longer be able to consider the world or our actions through a human-only point of view.

According to Taylor, all living beings, including plants and micro-organisms, ought to be included in the moral community (Taylor, 1981:198). When considering the life-centred approach, Taylor holds that it is essential to explore the concept of “the well-being of a living entity” and the concept of “the inherent worth of an entity”.

The first concept, the well-being of an entity, refers to the fact that all living things (organisms, species population, and communities of life) possess a well-being that can be harmed or benefited (Taylor, 1981:199). Taylor considers living beings as “teleological centres of life” which have a good of their own. The “good” entails realising their potential, referring to that which preserves life and well-being, and “bad” is what damages or impairs life and well-being (Taylor, 1981:199).

What constitutes a “good” for a non-human organism is that which develops its biological capacity, allowing it to pass through its species’ normal life cycle. An acorn should be treated with equal respect to a human being, allowing it to reach its full potential and become an oak tree. Having a good (well-being) of its own does not mean the being in question must have interests or be aware of its circumstances (Taylor, 1981:199). A small tree, for example, does not have interests or thoughts, but it can be harmed by human actions as its good entails growing into a larger tree which can serve as a habitat for other species such as birds and insects. Similarly, the good of a population of trees or a community of plant life can be affected. Human actions can benefit or hamper the realisation of these goods. A being’s good is thus not dependant on whether or not it is sentient or can experience pain or pleasure (Taylor, 1981:199).

The second concept, “inherent worth”, entails treating an entity possessing a good of its own, as having inherent worth (Taylor, 1981:201). According to Taylor, this concept consists of two separate principles: one of moral consideration (living entities deserve moral consideration because they are members of the earth’s community) and

one of intrinsic value (all members of the earth's community of life have their own good that ought to be preserved as an end in itself) (Taylor, 1981:201). For Taylor (1981:201), regardless of the species; all living entities have a good that ought to be acknowledged. Taylor concedes that in some circumstances, human beings will have to act in ways that might not promote the good of an entity in order to further realise the good of others. The point he makes is that whatever the entity, their good is worthy of consideration (Taylor, 1981:201). Having inherent worth places a further obligation on human beings not to merely treat living entities as objects or as means to an end. As a result, human beings have a duty to realise the good of all living organisms, species populations and communities of life (Taylor, 1981:201-202). By accepting the principles of moral consideration and intrinsic worth, human beings are adopting the moral attitude of "respect for nature" (Taylor, 1981:202). By adopting the moral attitude of respect for nature, human beings commit to live by a set of rules that govern how we treat the natural world. To adopt the respect for nature attitude requires one to obey certain rules or duties (Taylor, 1981:206).

The proposed rules are to be understood as a set of principles which specify different duties (Taylor, 1986:169). Taylor (1986:169) notes that the rules do not necessarily specify what a moral agent should do in a specific situation, but rather outline the sort of action a moral agent is required to perform. Moral agents are therefore "duty-bound" to act in a particular way, "... unless there is a contrary duty that is more stringent than and overrides the given duty." (Taylor, 1986:169). The four rules of duty as set out by Taylor (1986:172-185), include *The Rule of Nonmaleficence*, *The Rule of Noninterference*, *The Rule of Fidelity* and *The Rule of Restitutive Justice*.

In summary, *The Rule of Nonmaleficence* can be summarised as the duty not to inflict harm on any organism with a good of its own. This also refers to refraining from killing or harming an organism, species population and biotic communities. This rule constitutes a "negative duty", specifying what moral agents ought *not* to do (Taylor, 1986:172). The second rule, *The Rule of Noninterference*, refers to two negative duties. Firstly, one ought not to restrict the freedom of an individual organism, where freedom refers to being free of any constraint which could prevent or interfere with the activity and development an animal or plant would normally engage in. Secondly, one should apply what Taylor (1986:173) defines as "... a general "hands off" policy

with regard to whole ecosystems and biotic communities, as well as to individual organisms”. This specifically refers to a moral agent’s duty not to “... manipulate, control, modify, or “manage” natural ecosystems or otherwise intervene in their normal functioning” (Taylor, 1986:175). The third rule, *The Rule of Fidelity*, refers to a moral agent’s actions towards an individual animal, specifically wild animals “... capable of being deceived or betrayed by moral agents” (Taylor, 1986:179). Taylor elaborates on this by stating that *The Rule of Fidelity* includes the duty not to mislead an animal, to uphold its expectations, and to make one’s intentions known to the animal and to stay true to these intentions (1986:179). Taylor acknowledges that while a moral agent may not be able to enter into a mutual agreement with a wild animal, a moral agent can display behaviour which instils trust in a wild animal. As a result, Taylor (1986:179) notes that “[t]he basic moral requirement imposed by the Rule of Fidelity is that we remain faithful to that trust”. The fourth and final rule, *The Rule of Restitutive Justice*, focusses on the duty a moral agent has to “... restore the balance of justice” between moral agents and moral subjects, specifically in the context of a moral agent wronging a moral subject (Taylor, 1986:186). To act on this duty, a moral agent is expected to acknowledge that she wronged a moral subject and to take active steps to compensate for this wrongdoing in an attempt to restore the balance of justice.

If a situation arises which presents a moral agent with conflicting duties or where two rules apply, the way to resolve the situation is to apply the rule which has the “weightiest moral reason behind it” (Taylor, 1986:170). Therefore, the order of the rules as listed above is ranked in order of priority according to Taylor’s Priority Principles. When a situation arises in which the interests of environmental ethics conflict with the interests of human ethics, the following applies. In a situation where a moral agent’s duty of fidelity comes into conflict with her duty of non-interference, fidelity carries priority, on the condition that 1) no “serious” harm is inflicted by interfering; 2) upholding the trust results in a greater good; 3) interfering is unavoidable in the attempt to uphold the trust; and 4) interfering is minimised (Taylor, 1986:195-196). In a scenario where the duty of non-interference and restitutive justice come into conflict, restitutive justice takes priority if 1) no lasting harm is inflicted; and 2) a great good is brought about (Taylor, 1986:196-197). When

the duty of fidelity and restitutive justice arises, a moral agent ought to prioritise restitutive justice.

To summarise the priority relations between the rules of duty, Taylor (1986:197) states that *The Rule of Nonmaleficence* carries the greatest priority as our greatest duty with regards to nature is to refrain from doing harm to living organisms. Taylor holds that, considering the remaining three rules, in most situations it is possible to avoid violation of any. However, in a scenario where a conflict is unavoidable, *The Rule of Fidelity* and *The Rule of Restitutive Justice* takes precedence over *The Rule of Noninterference* if it results in a greater good and no creature is harmed in any permanent way (Taylor, 1986:197). *Restitutive Justice* takes precedence over *The Rule of Fidelity* if it results in a greater good and no “serious harm” is inflicted on the creature whose trust is broken.

To accept the biocentric approach then, human beings take on board the fact that we are one of many species in the earth’s natural ecosystem, all having a good of their own (Taylor, 1981:207). We start to consider the environment as part of us, rather than “us” (being superior) and “them” (being inferior and a means to an end). Taylor invites us to consider human beings from an evolutionary point of view, pointing to the fact that the arrival of Homo Sapiens was recent and not of that much importance in the greater scheme of things (Taylor, 1981:207). Taylor’s biocentric approach urges us to recognise the fact that the entire earth’s biosphere is an interconnected web of organisms, events and objects that constitute the equilibrium of the greater whole (Taylor, 1981:209). It is therefore imperative to understand that to realise the good of human and non-human animals, we require a functioning biosphere.

While biocentrism is a deontological approach that argues that organisms achieving their own goods have intrinsic value, regardless of whether the organism is capable of consciousness or not, it does not grant animals or plants moral rights (Taylor, 1981:198). For Taylor, each living thing, animal, plant or micro-organism, has a good that can be realised or impaired by rational agents. All living entities have equal inherent worth that entitles them to moral respect. He does believe that his theory justifies granting them legal rights which in his opinion, will grant them protection as recognition of their inherent worth.



#### 4.3.4. Ecocentrism: An overview of Aldo Leopold's Land Ethic

According to Aldo Leopold, existing land-use ethics are ruled by economic self-interest. The conservation system as a whole assigns value based on economic motives and as a result, only species or biotic communities which are of economic value are protected and worthy of consideration (Leopold, 1949:209). Leopold uses the example of Wisconsin, where of the 22,000 higher animal and plant species, only 5% can be consumed, sold, fed or utilised economically (Leopold, 1949:210). As a result, the majority of the species are disregarded and viewed as “worthless” (1949:211). Leopold therefore holds that an all-encompassing land ethic is required that extends beyond the prevalent anthropocentric value theories (Leopold, 1949:203; Piccolo, 2017:8). At the time he wrote his book, there was no ethic focused on the relation between man and the land, and “the land-relation is still strictly economic, entailing privileges but not obligations” (Leopold, 1949:203). Leopold's land ethic attempts to address this and starts by acknowledging that all ethics rest on the premise that the individual forms part of a community of interdependent entities (Leopold, 1949:203). Within this community, the individual is both focused on survival (encouraged by instinct) and co-operation (encouraged by ethics). The land ethic aims to extend the boundaries of the community beyond humans to include the land, where the land collectively refers to the soil, water, animals and plants. While the land ethic does not aim to prevent the use, management or alteration of natural resources, it does champion their “right to continued existence, and, at least in spots, their continued existence in a natural state” (Leopold, 1949:204). The land ethic removes Homo Sapiens from their current role as “conqueror of the land-community” to a citizen and member of it, implying respect for fellow members and the community as a whole (Leopold, 1949:204).

To illustrate the interdependence of species within the collective land, Leopold references the land pyramid. The bottom, broadest layer represents the soil. The next slightly narrower layer on top of the soil consists of plants. On top of the plant layer is a smaller layer of insects, with an even smaller layer of birds and rodents on top of this. The following few layers consists of different tiers of animals grouped together based on what they eat, with large carnivores placed right at the apex (Leopold, 1949:215). The shape of the pyramid indicates that soil, insects and rodents ought to be abundant compared to the larger animal species. For every one carnivore, there



should be hundreds of that which he preys on and a vast amount of soil and land. The species in one layer depends on the layer below it for food and survival, and as a result, any change to one layer within the pyramid will affect and alter the whole (Leopold, 1949:215-216). Therefore, current unsustainable agricultural practices such as deforestation that continuously clear land to accommodate more cattle will eventually alter the shape of the layers in the pyramid. If there is not enough land for the cattle to graze on, not only will the cattle perish, but also the higher animals, including humans, dependent on it as their source of food. It is therefore imperative to ensure the entrenchment of sustainable practices in communities to ensure the long-term prosperity of all species. But as Leopold noted, no great change in ethics was ever achieved without an “internal change in our intellectual emphasis, loyalties, affections, and convictions” (Leopold, 1949:220).

#### **4.4. THE IMPLICATIONS AND LIMITATIONS OF THE FOUR WESTERN NON-ANTHROPOCENTRIC THEORIES**

##### **4.4.1. Zoocentrism**

An estimated one billion smallholder farmers globally are dependent on livestock farming. In low- and middle-income countries in particular, livestock farming forms an integral part of a household’s livelihood (Salmon, Teufel, Baltenweck, Van Wijk, Claessens & Marshall, 2018:103). Firstly, it plays a central role in ensuring rural food security as energy- and protein dense animal-source food provides essential micronutrients that are difficult to obtain from a limited plant-based diet. Many smallholders do not have the luxury of accessing a vast collection of protein-rich vegetables, as Singer suggests, and are often limited to staple grains. Furthermore, in many instances, specifically when smallholders focus on pastoralism, milk can constitute more than half of a person’s daily dietary intake (Salmon, *et al.*, 2018:105). Secondly, livestock farming addresses gender inequality in many rural regions where women are more likely to obtain livestock than they are to gain access to land or financial support (Salmon, *et al.*, 2018:105). Thirdly, the use of animal traction equipment enables smallholders to increase the scale of the cultivated area and reduce the manual labour required (Moyo, 2016:11). In the Malian cotton areas for example, farms with two or more pieces of animal traction equipment and ten or more cattle were more food secure and well above the poverty line as compared to smallholders

who owned no animal traction equipment and had to rely on manual labour (Moyo, 2016:11).

Sub-Saharan Africa is home to an estimated 100 million smallholder households, who hold the potential to address food security in the region (Moyo, 2016:7). Many are living below the poverty line and engage in crop farming, a combination of crop and livestock farming, and pastoralism (Moyo, 2016:3). While livestock farming plays a crucial role in ensuring rural food security, there is also a growing demand for livestock products in urban areas, which offers an opportunity for smallholders to meet this need (Salmon, *et al.*, 2018:104). The FAO postulates that by 2030, low- and middle-income countries' meat demand will have increased by 80%, driven by the continuously growing population, urbanisation and increased economic prosperity and disposable income. It is thought that the greatest demand for livestock produce will be seen in sub-Saharan Africa (Salmon, *et al.*, 2018:103). In many rural areas where weather patterns do not permit the growing of crops, livestock offers a livelihood to many smallholders. If the demand for animal produce continues to grow and small-scale farms are better connected to urban centres, livestock farming can become a prosperous endeavour for many small-scale farmers in the region.

At present, most of the region's cattle population is owned or kept by smallholders, with livestock playing an integral part in many countries' GDPs. In the Sahel region for example, pastoralism contributes more than 40% of the countries' GDP (Moyo, 2016:15). While livestock farming provides people with food and nutrition, and livelihood support through the sale of animal products, it also leaves a great environmental footprint. Livestock farming is a direct contributor to greenhouse gas emissions, pollution, land and water usage, deforestation, and a loss of biodiversity (Salmon, *et al.*, 2018:103). Yet Salmon, *et al.* (2018:104) holds that livestock farming will play a central role in realising sustainable intensification in low- and middle-income countries. Sustainable intensification of livestock involves increasing and improving feed, improving feeding practices, as well as genetically ensuring improved breeds. Therefore, if food productivity is to increase in sub-Saharan Africa, any proposed sustainable intensification model should include both crop and livestock farming practices for smallholders in the region.

Despite the dependency of numerous smallholders on livestock, Regan's rights view abolishes the use of animals for farm labour, slaughtering for meat, or keeping for by-products such as milk and eggs. Therefore, applying the rights view to inform the transformation of policies and systems impacting smallholder farms in sub-Saharan Africa, will see a multitude of households losing their source of income and food, plummeting them into poverty and starvation. The subsequent loss of goods for export will impede economic growth and any attempt at increasing agricultural productivity through sustainable intensification will be futile. Singer's animal liberation theory might prove to be more accommodating, but it holds a contradiction.

Singer advocates for a vegetarian lifestyle, stating that the consumption of animal products disregards their life and interests in the interest of pleasing our palates (Singer, 1985:8). He emphasises that using nutritional needs as an excuse for animal consumption is unsatisfactory, as a diet rich in high-protein vegetables could satisfy our nutrient and protein requirements (Singer, 1985:8). Yet, in sub-Saharan Africa where many smallholders have limited crops available, many of which are staple grains, obtaining sufficient nutrients is already a struggle. Therefore, as a theory grounded in utilitarianism, the animal liberation theory cannot possibly deny food security to millions of people, even if this involves the keeping of livestock.

As utilitarianism is based on the greatest good for the most entities involved, then one could argue that it is justifiable to slaughter hundreds of animals if this will result in the sure survival of thousands of humans. But the question is not so much what the rights view and animal liberation theory advocate about agriculture, as it is whether or not zoocentrism (Regan's rights view and Singer's animal liberation theory, in particular) could be applied as the theoretical framework from which an African notion of sustainable agriculture could be developed, and its subsequent transformation of existing policies, systems and institutions be facilitated.

While both theories set out to take the needs of animals into consideration, it could be perceived to do so at the expense of smallholder farmers. While zoocentrism, of the three groups of theories to be considered here, extends the moral circle the least, it does so in a radical manner. As a result, zoocentrism does not appear to be the best suited theoretical framework from which a model of sustainable agriculture could be

developed for sub-Saharan Africa, as the strict application of this theory would undermine food security in the region and fail to adequately consider the needs of smallholder farmers.

#### **4.4.2. Biocentrism**

Biocentrism assigns intrinsic value to living organisms, including plants and animals, but does not grant them moral rights. The theory prompts us to consider the environment as part of us, rather than “us” as the superior and “them” as the inferior. It also requires us to obey certain rules or duties such as nonmaleficence and non-interference (Taylor, 1981:206). As rational agents, human beings are furthermore required to respect and protect the natural environment (Taylor, 1981:198).

The set of rules and priority principles offer clear guidance, but may not be the best suited theoretical framework to inform a practical transformation of institutions and policies impacting the region’s agricultural sector. To place it in the context of sub-Saharan Africa’s smallholder farmers, the expectation appears to be not to utilise all of their land in order to consider the other living communities present. How much of the land they need to leave untouched is not clear, even if the Rules and Priority Principles are applied.

Furthermore, while this approach supports a sustainable outlook on farming and can help prevent land degradation, the expectation of a smallholder to deliberately forego some of her income for the sake of a community of shrubs seems unrealistic. It is also not entirely clear what the position of biocentrism is with regards to the keeping and consumption of animals. It could be said that a farmer practicing pastoralism respects and protects her livestock. Is there a further expectation not to slaughter the animals?

It therefore seems improbable that biocentrism is the best suited theoretical framework from which the policies and systems supporting smallholders can be transformed.

#### 4.4.3. Ecocentrism

For Leopold, “an ethic, ecologically, is a limitation on freedom of action in the struggle for existence” (Leopold, 1949:202). This very aptly illustrates what the implications would be for imposing an ethic on smallholder farmers in sub-Saharan Africa who are already struggling for existence. As ecocentrism is a holist theory, it is worth noting that for holists, nature is viewed as a community structure and moral value is assigned to the community or the communal relationship and not merely the individual members. The findings of Western holists is grounded strongly in ecological science findings that state that species and organisms are interdependent and exist in ecosystems where damage to a part of the ecosystem affects the rest of the system (Behrens, 2010:477).

For Leopold, moral value is assigned to the “land”, but a challenge often raised is that once you award moral standing to ecosystems, respect for individual human beings necessarily becomes secondary to the biosphere’s needs. Callicott (1980:321-322), who attempted to refine the work of Leopold and proposed the inclusion of humanity in the biotic community with the primary moral obligation to see to the welfare of the community, acknowledged this sacrifice of the individual for the good of the whole in his earlier work. Later he too made attempts to address this objection, saying that morality has evolved, extending the boundaries of the moral community beyond the family, to the community, to all people, and to nature. He claims that as the boundaries are extended, initial moral intuitions are not replaced by the new ones, but are simply added to the existing ones. Reflecting on Callicott’s claim, Behrens (2010:479) finds this difficult to believe and argues that “as long as a primacy is given to the interests of the biosphere, it is hard to see how holists can argue around this problem”.

Having said that, the land ethic, or Callicott’s refinement of it, whilst being the most inclusive moral circle, appears to be the theory closest aligned to serve an integrated agenda, considering the needs of current and future generations, as well as the environment, and echoes some of the themes found in the African worldview which I will discuss in the next chapter. Referencing Leopold’s claim that “a thing is right when it tends to preserve the integrity, stability and beauty of the biotic community; it is wrong when it tends otherwise”, Behrens (2010:477) notes that Leopold’s “biotic

community” is “... clearly reminiscent of African conceptions of nature as a community or family”. The African worldview, similar to holistic theories such as the land ethic, understands nature as a collective unit such as a family structure or community. As a result, the land ethic reflects existing themes present in African thought and holds the most potential out of the Western theories to serve as a theoretical framework from which the concept of sustainable agriculture can be explored in the African context. As such, however, Leopold’s land ethic is still limited in its scope to support a notion of sustainability than can enhance food security in Africa.

#### **4.5. CONCLUSION**

This study aims to illustrate that in light of the context of food insecurity in sub-Saharan Africa, the need exists to develop a model of sustainability, with specific reference to the agricultural sector, which considers both the needs of current and future generations, and the environment. Chapter Four evaluated the four Western non-anthropocentric views of Tom Regan, Peter Singer, Paul Taylor and Aldo Leopold, and attempted to show that theories such as Zoocentrism, Biocentrism and Ecocentrism pose numerous challenges which problematise the likelihood of serving as the theoretical framework which could inform a model of sustainable agriculture. Chapter Five will consider the notion of *Ubuntu* and relational theories derived from it. Furthermore, it will explore whether African Relational Environmentalism (2002: 5) corresponds to a notion of sustainability as an “integrated agenda of caring for the community of life on earth” which considers the needs of current and future generations, as well as the environment, which could overcome many of the problems associated with Western environmental ethics

## CHAPTER 5. AFRICAN RELATIONAL ENVIRONMENTALISM

### 5.1. INTRODUCTION

The previous chapter attempted to show that Western non-anthropocentric theories such as Zoocentrism, Biocentrism and Ecocentrism pose various challenges that would problematise the likelihood of serving as theoretical frameworks which could inform a model of sustainable agriculture, which could subsequently inform a transformation of policies, systems and institutions in sub-Saharan Africa's agricultural sector. Chapter Five will explore the notion of *Ubuntu* and relational theories derived from it, as well as propose Kevin Behrens' African Relational Environmentalism as an alternative to anthropocentrism which could contribute towards a notion of sustainable agriculture be developed.

Behrens (2011:ii) uses the African belief in the interrelatedness between humans and their environment as the basis from which he argues for an African environmentalism. He holds that the primary role interrelatedness plays in nature is the basis on which the African worldview requires that nature and all the entities within it be treated with respect. As a result, moral considerability is founded on the interrelatedness of natural objects in what Behrens (2014:63) calls the "web of life". The web extends moral considerability to all human beings, individual animals, species, ecosystems and inanimate objects such as rivers and mountains that are integral to the survival of the before mentioned (Behrens, 2011:ii). Furthermore, the web of life not only awards moral considerability to current generations, but also to future generations. It is worth noting that while Behrens (2011:iii) argues that we take the wellbeing of all morally considerable entities into consideration, it does not mean that all morally considerable entities have an equal moral standing or moral status. As a result, Behrens (2011:iii) seeks to determine a set of guiding principles to help resolve conflicting moral obligations between morally considerable entities. The difference between moral considerability, moral standing and moral status will be explored later in this chapter.

As African thought is characterised by interrelatedness and communitarianism, Behrens (2011:ii) argues that the relationship between humans and their environment cannot be understood as either individualist or holist as African thought rejects either extremes and considers both the individual and the group. From this, Behrens

(2011:ii) builds his African environmental ethic. Focusing on the strong emphasis on communitarianism found in African thought, Behrens (2011:193) holds that his ethic is relational in nature and names it ‘African Relational Environmentalism’. While African Relational Environmentalism shares similarities to individualist theories such as Biocentrism and holistic theories such as Ecocentrism, this chapter will argue that it is African Relational Environmentalism’s roots in an African worldview and its rejection of Western dualistic thinking which makes it the most appropriate value theory to inform a model of sustainable agriculture in sub-Saharan Africa.

## **5.2. UBUNTU AND RELATIONAL THEORIES DERIVED FROM IT**

Behrens (2011:50) acknowledges that there is a widespread assumption that African thought is inherently anthropocentric. He refers to Callicott (1994:157-158) who echoes this sentiment with his statement: “African thought orbits, seemingly, around human interests”. Behrens concedes that given the dictum *Ubuntu* “a person is a person through other persons” or “I am because we are”, it is understandable why one could mistake African thought as fundamentally anthropocentric in nature.

While *Ubuntu* focuses on the relationship an individual has with other human beings, philosophers have attempted to extend the community as viewed in *Ubuntu* beyond the realm of persons. One such example is Thaddeus Metz’s relational theory of moral status he calls “African” based on the concept of *Ubuntu* that holds relationality as the centre of morality (Metz, 2011:387). This African ethic states that “normal adult human beings” have full moral status, as they are both the subject and the object of “harmonious relationships” (Metz, 2011:397). Included under the term “normal adult human beings” are people who display sympathetic emotions and empathetic awareness, as well as people who, while lacking these qualities in particular, show other forms of other-regarding behaviour (Metz, 2011:397). Similar to Kantian ethics, Metz’s African ethic holds that severely mentally handicapped humans do not have the same dignity as a normal human being as they are not capable of operating as subjects of a communal relationship (Metz, 2011:397). Yet human moral status, including that of the severely mentally handicapped, remains higher than that of animals.



Metz's African ethic grounds moral status on a property which is held to different degrees by humans and animals and by different groups of animals. Normal human beings, as defined by Metz, have the capacity of being objects and subjects of harmonious relationships, and as a result have full moral status. Chimpanzees have the capacity to be objects and subjects of harmonious relationships to a certain extent, and as such, have the highest moral standing of all animals (Metz, 2011:400). Next would be animals that can be objects of a friendly relationship, but lack the capacity to be subjects of one. This would include warm-blooded animals, and so forth. The hierarchy assigns moral standing to different groups based on their capacity to be objects and subjects of harmonious relationships (Metz, 2011:400).

While this African ethic appears to be anthropocentric as it uses human capacities as grounds to award moral status, Metz holds that this is not the case. African ethics does not regard the non-human environment as only having instrumental value to human beings, and assigns moral status to animals (Metz, 2011:400). While the African theory might not assign moral standing to plants as they cannot be the object or subject of a harmonious relationship, Metz argues that it does not mean that plants cannot hold value on other grounds. He references Robert Nozick who states that while scientific formulas and chess have a value that goes beyond an instrumental value, "it is implausible to think that they are ever the direct object of moral obligations" (Metz, 2011:400). As Metz's African theory recognises that individuals do not exist in isolation and form part of the larger community and that individuals can only reach full potential through their relationship with members of the community and the community as a whole, it places an obligation on humans to nurture these relationships (Bell and Metz, 2011:82).

While Metz argues that his theory is not anthropocentric in nature, the fact that it is derived from the concept of *Ubuntu* could be argued to make it anthropocentric. Behrens refers to Kai Horsthemke (Horsthemke, n.d.:5-6), an animal rights theorist, who echoes the opinion of Michael Eze (Eze, 2008:387) and argues that *Ubuntu* is indeed anthropocentric as the dictum "a person is a person through other persons" clearly encapsulates what it stands for. As a result, any attempt at expanding *Ubuntu* to include the natural environment will need to ground its concern for nature in its instrumental value to humans (Behrens, 2010:468). Many other African theorists

agree. Behrens (2010:469) references three respected authorities on African thought, Benezet Bujo (1998), Godfrey Onah (n.d.:Section 1) and Mfuniselwa John Bhengu (1996:12), who all hold that human life lies at the centre of African ethics. While certain religions assign spirituality to elements of nature, human life remains hierarchically higher (Behrens, 2010:469). As a result, Behrens (2014:64) does not attempt to base his environmental ethic on the concept of *Ubuntu*, but rather on the recurring theme of interrelatedness found in the African worldview. This will be unpacked in the following sections of this chapter.

### **5.3. AFRICAN RELATIONAL ENVIRONMENTALISM**

#### **5.3.1 Developing an African environmentalism**

Behrens (2014:64) draws inspiration from the religious and philosophical thoughts of the sub-Saharan African people, using “African thought” to refer to this collectively. While he recognises that there is no single worldview in sub-Saharan Africa, there are many similar themes throughout, and it is this that he captures under the banner “African thought” in his attempt at deriving an African environmentalism. Behrens (2010:469) concedes that while the strong anthropocentric presence in African thought cannot be denied, it is not fully representative of the African worldview. Despite the central position humans hold, there is a strong focus on the interrelatedness between humans and the natural environment. He sets out to prove that it is this interconnectedness that places a moral obligation on humans to treat the environment with respect (Behrens, 2010:469).

In an attempt to construct an environmental ethic inspired by African thought, Behrens (2011:193) roots his approach on the idea that all entities form part of the interconnected web of life. This interdependence found between entities in the web of life serves as the basis from which moral considerability is awarded. To be awarded moral considerability means that there is a moral obligation to treat entities within the web with respect. According to Behrens (2011:193), to treat entities with respect means that one promotes harmonious, “family-like” relationships within the web, where harmonious relationships can be characterised as “relationships of caring, solidarity and identification, as well as ones that avoid disrupting the balance of nature” (Behrens, 2011:iii,193).

While human beings, individual animals, species, plants, ecosystems, inorganic natural entities and future generations form part of the web and subsequently are regarded as morally considerable, not all entities have an equal moral standing. To resolve any competing moral obligations which might arise as a result of varying degrees of moral status, Behrens (2011:139) draws inspiration from the African concept of life-force. Life-force can be understood so that all morally considerable entities have some level of “final value”. This value warrants entities to be treated as ends in themselves. However, the degree to which morally considerable entities possess this final value differs based on the amount of life-force they hold (Behrens, 2011:200). As a result, moral status can be seen as consisting of varying degrees – a person possesses more moral status than an animal, but an animal possesses more life force than a plant, etc. Behrens (2011:201) explains this by stating that the respect shown towards a rock differs from the respect shown to a person or a plant, yet “a fundamental respect is nonetheless required” (Behrens, 2011:201).

To determine which entities ought to be awarded moral considerability and to subsequently understand the varying degrees of moral status, Behrens (2011:139) sets out to identify a single criterion to determine which entities ought to form part of the web of life.

### **5.3.2. Exploring the concept of moral considerability**

Behrens (2011:16) clarifies that while various understandings and/or uses of the terms ‘moral considerability’, ‘moral standing’ and ‘moral status’ exist, he views and uses ‘moral considerability’ to indicate that “an entity is something that ought to be taken into account morally”. He continues by stating that for him, there are no varying degrees of moral considerability; an entity is either morally considerable or not (Behrens, 2011:16). He does however use both ‘moral standing’ and ‘moral status’ to refer to a morally considerable entity’s ability to have varying degrees of moral standing or moral status as opposed to another morally considerable entity.

Moral considerability then rests on whether or not an entity can make a “morally significant claim against a moral agent” (Behrens, 2014:68). Moral agents, according to Behrens, have direct moral obligations towards entities that have moral standing.

For Behrens, to say that an entity is morally considerable does not mean it has intrinsic value or needs to be viewed as an end in itself. To decide which objects should be awarded moral considerability, Behrens (2014:68) evaluates the different themes in African thought on which the claim of moral considerability can be based. He focuses on moral considerability through life force, through totemism, inhabiting spirits, and folklore, and through interrelatedness.

Moral considerability through life force focusses on a recurring theme found in African thought which holds that all beings are in possession of a life force (Behrens, 2014:71). Behrens refers to Augustine Shutte (1993:22) who notes that the notion of 'life' in African thought refers to both physical and spiritual life and extends beyond human beings alone. He uses the example that both stones and animals are viewed as being alive, the only difference is that stones have less life force than animals (1993:22). While humankind remains hierarchically higher than nature, there is an acknowledgement that human well-being depends on living in harmony with the natural environment, and a respect for entities that extend beyond human beings (Behrens, 2014:72). Behrens admits that to use life force as the single criterion from which to determine whether entities merit moral considerability could be experienced as problematic amongst non-Africans as it is a foreign concept.

Another common theme in African thought is the practice of totemism (Behrens, 2014:72). In some African tribes, an animal is associated with the group or tribe, and it is therefore forbidden to harm it. Similarly, rivers, forests, and trees are often perceived to be inhabited by an ancestor or spirit, and therefore as demanding respect and protection. The use of animals in folklore to teach morality is another example of how the relationality with nature and inherent respect for it is expressed (Behrens, 2014:73). Again, totemism is a foreign concept to non-Africans and might not be the most suitable single criterion to determine which entities merit moral considerability.

The third criterion Behrens investigates is the notion of interrelatedness. In African thought, the concept of interrelatedness serves as the basis of philosophical thought and underlies the prominence of a communitarian outlook (Behrens, 2014:69). In seeking a single criterion on which to base moral considerability, Behrens (2014:74) identifies interrelatedness as a suitable candidate, as it implies that all natural objects

have something in common (Behrens, 2014:74). This commonality can be either a shared intrinsic characteristic or a relational characteristic. Despite the central position human beings hold, it is this interconnectedness that serves as the foundation that requires respect for nature and acts as the root of the communitarian values, assigning moral considerability not only to humans but also to families and tribes (Behrens, 2014:73). Behrens (2010:469) references key African writers to defend his claim. According to Bujo (1998:22-23): “The African is convinced that all things in the cosmos are interconnected. All natural forces depend on each other, so that human beings can live in harmony only *in* and *with* the whole of nature”. Similarly, Godfrey Tangwa (2004:389) stresses the fact that “The precolonial traditional African metaphysical outlook ... impl[ies] recognition and acceptance of interdependence and peaceful coexistence between earth, plants, animals and humans”, while Murove (2004:195-196) holds: “... human well-being is indispensable from our dependence on and interdependence with all that exists, and particularly with the immediate environment on which all humanity depends”.

Building his African environmentalism on the concept of interrelatedness, Behrens’ African Relational Environmentalism does not separate human beings from the rest of nature and differs from the current, dominant, anthropocentric Western worldview, in that it places a moral obligation on humans to exist harmoniously with each other and their environment. Human beings are therefore part of the whole and not separate from it (Behrens, 2014:69). Behrens (2014:69) notes that despite the influence the West has had on the African continent, the African people still hold a different worldview that is life-centred and that values the interconnectedness of living entities. By accepting that everything is interconnected, Behrens (2014:69) argues that one will necessarily derive a worldview in which human beings form part of their environment and are not outside or independent of it. He argues that this is evident in the way that Africans are more “cosmically humble”, respecting not only each other, but also the natural environment and invisible forces. Interconnectedness also entails moral standing that extends beyond the individual. As it is held that one can only achieve moral maturity by means of your interaction and co-operation with others, not only does the individual have moral standing, but also the family structure, the tribe and the community, giving rise to the idea of collective rights (Behrens, 2014:71). As a result, morality is understood through one’s relationality.

Behrens (2010:471) acknowledges that in principle it would be possible for individuals to accept an interconnectedness with nature, but still only value nature for its instrumental value. He concedes that given the strong anthropocentric thread in African thought, this is a fair assumption to make (Behrens, 2010:471). However, in building up to the formulation of his African Relational Environmentalism, Behrens (2010:470) does not spend too much time elaborating on this possible objection, but rather attempts to prove that African thought values nature for more than its mere instrumental value. He states that when acknowledging the interdependence of humans and nature, what becomes evident is the fact that the well-being of humans depends on the state of the environment (Behrens, 2010:470). To preserve the environment is then to protect the interest of current generations and generations to come; a very enlightened anthropocentric notion. Murove (2004:200) states that the belief that it is important to preserve a good relationship with one's ancestors is founded on the need to "... promote harmonious existence in between the past, present and future".

Referencing respected African writers on the topic of African thought, Behrens notes that many of them agree that nature warrants a respect that is interdependent of nature's usefulness to humans. Bujo writes that the African view of nature "regard[s] the human person as a microcosm within the macrocosm. This microcosm, however, has the task of showing respect for creation and liberating it from slavery and 'corruptibility'" (Bujo, 1998:214). Similarly, Workineh Kelbessa writes that the moral code of the Ethiopian Oromo people extends the virtues of justice, respect and integrity beyond humans to mother earth as well (Kelbessa, 2005:24). He notes that this shows a respect for nature that extends beyond preserving nature for its instrumental value (Kelbessa, 2005:24). Behrens notes that it does appear that this interrelatedness is non-anthropocentric and requires respect for nature which is unrelated to its instrumental value (Behrens, 2010:471). While some writers argue that nature is respected as it belongs to the ancestors or God, what is important for Behrens (2010:471) is the notion that nature should be respected, and not merely due to its instrumental value.

How then does interrelatedness serve to show which objects are morally considerable? Behrens quotes Sindima (1990:143): "... the African understanding of

the world is life-centred. For the African, life is the primary category for self-understanding and provides the basic framework for any interpretation of the world, persons, nature or divinity". Sindima continues: "Humans realize their own fullness by realizing their bondedness of life" (1990:143). The individual life seems unthinkable without the community or in the absence of relation with the individual's immediate surroundings and that within it. Therefore, groups such as the tribe and family are morally considerable (Behrens, 2014:63).

In Western biocentrism, life is viewed as a biological concept that ends when one dies; it does not assign moral considerability to ancestors or spirits or inanimate objects. It is for this reason that Behrens (2014:75) argues that the notion of life itself needs to be re-evaluated. Life, according to African thought, is not something an individual possesses, but rather a "woven ... texture or fabric of life, a fabric or web characterized by interdependence" (Sindima, 1990:143). As a result, living entities only have life insofar they are connected to other things in the web. Life itself is then shared, and not owned by any one individual entity. Behrens (2014:75) explains that an ancestor may be dead, but their advice might still be "alive" and influence the living, just as a river might not be alive, but provides the basis from which life is possible. By accepting that life is present in the individual as it is in the interrelatedness of things, one will accept that African thought is indeed life-centred (Behrens, 2014:76). Behrens calls this the "web of life centred view". As a result, what determines whether an entity has moral considerability or not, is not whether it has a life of its own, but whether or not it forms part of the interconnected web of life (Behrens, 2014:76). As everything is related, it is important that harmonious relationships are fostered.

To understand how nature is morally valued, Behrens (2010:472) starts by evaluating how humans are morally valued. African thought is often defined as being communitarian, placing value on the collective such as the family, tribe and community. As a result, morality is understood in terms of this relationality. Behrens quotes Desmond Tutu who writes that *Ubuntu* "speaks to the very essence of being human ... It ... means my humanity is caught up, is inextricably bound up, in theirs." (Tutu, 1999:34-35). *Ubuntu* therefore implies relationality, even if only between humans. As Murove states: "*Ubuntu* implies the inherent African appreciation of



relationality... This appreciation carries with it the exhibition in the individual's behaviour those socially condoned moral qualities or virtues that make the individual's behaviour acceptable to and supportive of the community" (Murove, 2004:203-204). Interdependence grounds the moral obligation to have harmonious relationships in the community. Interdependence is seen as being bound in a community with other living entities (Behrens, 2010:472). Being part of the community requires individuals to behave in a certain way, which in turn, creates harmonious relationships in the community. As we are interconnected, we form part of the community of life, and just as in any other community, we need to behave in a certain way that promotes harmonious relationships (Behrens, 2010:472). In African morality, one is often expected to promote the welfare of someone else, even at a personal cost. Behrens (2010:466) uses the example that according to African morality you are expected to forgive someone who wronged you, even if they do not show remorse, in an attempt to restore the harmony in the community. For Behrens (2010:471), the idea of nurturing harmonious relationships and caring for the well-being of others goes beyond the family and the human community. One can have harmonious relationships with other living things such as plants and animals as they can be better or worse off. While it might not be possible for ecosystems or rivers to be objects of human concern, their protection is imperative for the well-being of other living things, and this provides a good reason to protect them (Behrens, 2010:472).

Another common theme in African thought is the fact that harmonious relationships are often thought of in terms of the relationships within a family structure. Behrens references Augustine Shutte (1993:50) who notes: "Perhaps the best model for human community as understood in African thought is the family. The family has no function outside of itself. It is a means of growth for its members, and the interaction, the companionship and conversation, between the growing and fully-grown members is also an end in itself". H. Odera Oruka, the father of the sage school of African philosophy, and Calestus Juma have a similar outlook and extend the idea of the family to nature, viewing the world as a "kind of family unit" (Oruka and Juma, 1994:125-126).

A key theme is then the use of the family as an analogy, highlighting the importance of harmonious relationships between human beings and nature. What is key in a



family relationship is nurture, care and doing things for the common good of the family (Behrens, 2010:474). Behrens refers to Metz who notes that the idea of family is the combination of “identity and solidarity” where one identifies with others in the group, while working towards a common good (Metz, 2007:337). Behrens (2010:474) highlights that the focus on relationships “has a normative thrust, where certain duties towards others are required” (Behrens, 2010:474). Being part of a family acknowledges interdependence and an obligation to look after the welfare of the other members. Harmony can then only be achieved if the welfare of other members is ensured. As highlighted by Mogobe Ramose: “to refrain from sharing whatever we have with those in greater need than ourselves is contrary to *botho* [*Ubuntu*]” (Ramose, 1999:150). The family requires us to do more than merely respect the rights of another, and extends into action, taking on the responsibility to care for their welfare (Behrens, 2010:475). With this basis for human morality in mind, Behrens (2010:476) develops his African Relational Environmentalism on the basis of similar themes of relationality and communitarianism.

### **5.3.3 Building up to African Relational Environmentalism**

Behrens (2010:476) notes that what is unique about the notion of moral obligation according to African thought, is its refusal to prioritise either the individual’s interests or the community’s interests. He refers to Michael Eze who states: “The relationship between the individual and community is dialogical for the identity of the individual and the community and is dependent on this constitutive formation. The individual is not prior to the community and neither is the community prior to the individual” (Eze, 2008:386). The individual is then only entirely realised in the community and personhood is achieved only through these harmonious relationships with other community members. As everything is interconnected, the community extends beyond only humans and includes all living things. As a result, “humans cannot fully be realised without recognition of their belonging to the community of nature, and behaving accordingly, demonstrating respect for nature through promoting harmonious relationships in this natural community” (Behrens, 2010:478). If African thought values harmonious relationships with the environment in a similar way to how it appreciates harmonious relationships amongst people, then perhaps a person is not only a person through other people, but “a person is a person through other

(living) beings” (Behrens, 2010:478). Behrens quotes Callicott who noted the potential of this idea:

[F]ar more vividly than in the modern Western worldview, individuality is not only counterbalanced by community identity but one’s unique individuality is defined in part by one’s social relationships and expressed through social interaction ... In this notion of embedded individuality – of individuality as a nexus of communal relationships – we may have the germ of an African environmental ethic. Add to the intense sense of social embeddedness an equally vivid sense of embeddedness in the biotic community, and anthropocentric African communitarianism might then be transformed into a non-anthropocentric environmentalism (Callicott, 1994:166-167).

According to Behrens (2010:478), he succeeds in showing that African communitarianism indeed embraces all of life, despite Callicott’s inability to recognize the “vivid sense of embeddedness in the biotic community”. This offers the potential for an African environmentalism that is based on respecting nature, as well as the fostering of harmonious relationships with other living beings. For Behrens (2010:478) it is this idea of an embedded individualism that is present in the communitarianism that separates African Relational Environmentalism from Western holistic theories such as Aldo Leopold’s Land Ethic.

In the next section, I will discuss this fundamental difference in greater detail. However, before exploring the similarities between African Relational Environmentalism, Ecocentrism and Biocentrism, I would like to draw attention to Behrens’ (2012:179) claim that African thought has much richness which could contribute to the notion of inter-generational moral obligations. To illustrate this, Behrens (2012:179) refers to the idea that ancestors are entitled to respect and that the environment is a shared resource, “shared across generations”. Present generations should be grateful to previous generations for preserving the environment and they have an obligation to do the same for future generations (Behrens, 2012:179). Behrens (2012:179) holds that this has the potential from which to argue that humans have a moral obligation to future generations.

To consider the idea of moral obligation towards future generations, Behrens (2012:180) points to the belief in African thought that ancestors continue to influence

current generations, guiding them, rewarding them and punishing them. Ancestors demand respect and the living have some obligation towards them, such as preserving the environment for future generations. Wiredu notes:

Of all the duties owed to the ancestors none is more imperious than that of husbanding the resources of the land so as to leave it in good shape for posterity. In this moral scheme the rights of the unborn play such a cardinal role that any traditional African would be nonplussed by the debate in Western philosophy as to the existence of such rights. In upshot there is a two-sided concept of stewardship in the management of the environment involving obligations to both ancestors and descendants which motivates environmental carefulness, all things being equal (Wiredu, 1994:46).

For Wiredu “it is inconceivable in African thought that the present generation does not have moral obligations towards future generations” (Wiredu, 1994:46). While the question is still being debated in Western philosophy, in African thought it is taken as “obvious”. Wiredu notes that current generations have an equal responsibility to past and future generations (Wiredu, 1994:46). Africans owe past generations gratitude and respect. Gratitude is realised by continuing with the care of the environment and following the example set by previous generations. Bujo notes that the “African ‘ethical community’ extends beyond the living and includes the ancestors” (Bujo, 1998:27). African Relational Environmentalism then not only offers an alternative to anthropocentrism, but also highlights the fact that African thought as a whole, while mostly overlooked, can contribute greatly to on-going environmental and ethical discussions on inter-generational responsibilities which corresponds to the notion of sustainability as an “integrated agenda of caring for the community of life on earth” (2002: 5), considering the needs of current and future generations, as well as the environment.

#### **5.3.4 Similarities shared between African Relational Environmentalism and Western Ecocentrism and Biocentrism**

According to Behrens (2011:70), African thought rejects dualistic thinking. To illustrate this rejection of either/or thinking, Behrens references Murove who states: “... the distinction between humanity and nature, the living and the dead, the divine and the human is blurred to such an extent that human existence becomes continuous

with the natural world” (Murove, 2004:185). The dualistic distinction between the individual and its community or human beings and their environment is not really found in African thought (Behrens, 2011:71). Behrens attempts to illustrate that while African thought is characterised by communitarianism, it does not mean that the individual is disregarded. Quite the opposite; there is an effort in seeking to balance the interests of the individual and the community (Behrens, 2011:71). As a result, African environmental thought, and Behrens’ African Relational Environmentalism is neither individualist nor holist, but rather a marriage of both.

For environmental holists, nature is viewed as a community structure and moral value is assigned to the community or the communal relationship and not merely the individual members (Behrens, 2010:477). African thought acknowledges a similar interconnectedness. Behrens concedes that any “... ethic that values harmonious relationships between humans and other, particularly, living aspects of nature, based in the belief that everything in nature is interconnected and interrelated, is bound to share some characteristics of holist environmental ethics” (Behrens, 2010:476).

As both African Relational Environmentalism and holist theories such as Leopold’s land ethic reject anthropocentrism and underscore the interdependence found in nature, African Relational Environmentalism and Leopold’s land ethic will necessarily share a similar language (Behrens, 2010:476,477).

To illustrate how Western holism and African ethics share similar analogies, Behrens (2011:73) refers to Aldo Leopold’s statement that the right action is the one which preserves “the integrity, stability and beauty of the biotic community” (Leopold, 1949:224-225). According to Behrens (2011:73), the “biotic community” is similar to the African concept that nature is a community or family. If nature is viewed as a community, the community itself as a structure and the individual entities within the community are valued. The findings of Western holists are however grounded strongly in ecological science that state that species and organisms are interdependent and exist in ecosystems where harm to one part of the ecosystem affects the rest of the system (Behrens, 2010:477). The African worldview has a similar understanding “albeit in more metaphysical terms, such as sharing a life force”, Behrens (2011:73).

Behrens (2010:479) evaluates Leopold's land ethic in which moral value is assigned to the "land". He notes that a challenge to this theory that is often raised, is that once you award moral standing to ecosystems, respect for the individual human *necessarily* becomes secondary to the ecosystem's needs. Behrens (2010:480) holds that as long as the biosphere is prioritised, it seems difficult to overcome this problem. He holds that as a result, it is the idea of an embedded individualism that is present in its communitarianism, which separates African Relational Environmentalism from Western holism. As African Relational Environmentalism does not award "final moral value" to nature collectively, but instead to the harmonious relationships between humans and the environment, it manages to overcome this limitation in the land ethic. Behrens (2010:480) holds that to be able to encourage harmonious relationships, the individual's interests cannot be neglected. He refers to Wiredu to elaborate on this idea: "To adjust the interests of the individual to those of the community is not to subjugate one to the other. The relationship is purely ... symmetrical." (Wiredu, 2008:334). Similarly, Oruka and Juma's "Parental Earth Ethic" (1993:124-125) recognises that sometimes the interests of the "family" will take precedence, but this does not imply "absolute primacy" of the biotic community above the interests of the individual. It may be that humans need to prioritise the preservation of an endangered species by not utilising land that is its habitat for a period of time, but this does not negate the interests of the individual (Behrens, 2010:479).

While Behrens (2011:74) admits that his African Relational ethic shares many similarities with holism, it is the refusal to prioritise the individual's or community's interests that separates African Relational Environmentalism from holism. Behrens argues that the focus on relationality in African thought is what distinguishes it from holism. As Behrens (2011:74) notes: "One of the most striking things about much African thought regarding moral obligation is its refusal to firmly prioritize either the interests of the individuals or the interests of the communities". Behrens references Eze (2008:386) who writes: "The individual is not prior to the community and neither is the community prior to the individual. The individual is fully realized only within the community". Behrens states that "true humanity" or personhood is accomplished by the promotion of harmonious relationships, relationships found on friendship, solidarity, and care (2011:74). Behrens notes: "Humans cannot be fully realized

without recognition of their belonging to the community of nature, and behaving accordingly, demonstrating respect for nature through promoting harmonious relationships in this natural community” (2011:74).

Another Western non-anthropocentric theory that African Relational Environmentalism shares similarities with, is Biocentrism. Biocentrism is a Western individualist approach which rejects anthropocentrism and extends moral considerability to all living entities (Behrens, 2011:78). African Relational Environmentalism’s emphasis on the interrelatedness and respect for nature share similarities with Paul Taylor’s “Respect for Nature” principle (Behrens, 2011:82; Behrens, 2010:479). Taylor rejects holism and grounds his respect for nature approach on the fact that all living beings have what he calls “a good of their own” which implies that all living things have “inherent worth” which warrants that they be treated with respect (Behrens, 2010:479). Behrens points to the similarities shared with African thought where living entities are thought of as having an inherent value making them eligible for moral consideration. The difference between biocentrism and African Relational Environmentalism lies in the fact that African thought strongly emphasises communitarianism. Behrens (2011:83) holds that “it is precisely because African Relational Environmentalism is able to embrace both individualist and holist notions that it can offer an attractive alternative to most Western conceptions about the environment”.

As African Relational Environmentalism views moral value as rooted in harmonious relationships rather than in characteristics, it shares attributes of holism and individualism, but is separate from both views. As harmonious relationships are morally relevant, the individual’s interests and the group’s interests are considered simultaneously (Behrens, 2010:480). Many African philosophers and theologians recognise this belief in interdependence and hold that it motivates the communitarian aspect of much of African thought which places a moral obligation to exist in harmony (Behrens, 2014:65). As a result, an individual can only be “fulfilled ... in and through their relationships with others”. As these relationships are mostly conceived of in the context of a family structure, it highlights the requirement for care, nurture and support (Behrens, 2014:66). As both the individual and the community must be considered, African Relational Environmentalism can describe the right action as one

that “demonstrates respect for nature and natural entities (individuals and groups) by promoting harmonious relationships between persons and persons, and between persons and nature” (Behrens, 2011:84). For Behrens (2014:65) African Relational Environmentalism’s harmonious, mutually respecting relationships give rise to virtue. By taking both the individual and the community’s needs and interests into account, African Relational Environmentalism avoids holism on the one side and individualism on the other (Behrens, 2014:66).

### **5.3.5 Applying African Relational Environmentalism**

As the purpose of this study was to propose African Relational Environmentalism as a theoretical framework from which a model of sustainable agriculture could be developed to subsequently inform and overhaul many of the existing policies, institutions and systems impacting the agricultural sector, I will explore three practical examples of applying the theory to address practical environmental ethical problems and illustrate how African Relational Environmentalism overcomes many of the limitations associated with holism.

The first example of the over-population of elephants in the Kruger National Park, will illustrate how African Relational Environmentalism succeeds in instilling a wider environmental consideration, taking into consideration the needs of the community of life on earth (Behrens, 2010:480). Over the years, the Kruger National Park has seen the elephant population thrive. However, the park now faces the challenge that the elephant population size is becoming a threat to the ecosystem and its ability to support other species in the park (Behrens, 2010:480). Holists would argue that the best approach is to cull the elephants to preserve the ecosystem. African Relational Environmentalism on the other hand, will seek to promote harmonious relationships between elephants and humans, and humans and the other threatened species in the park, where harmonious relationships are characterised by solidarity and promoting the welfare of others in the community (Behrens, 2010:481). As a result, the African Relational Environmentalist has a moral obligation to seek an alternative that will prevent the suffering of the elephants and other species affected, even if this requires sacrifice from the humans (Behrens, 2010:480). Alternatives such as contraception,



increasing the size of the habitat and relocation all need to be explored if we are to fulfil the requirements of a harmonious relationship (Behrens, 2010:481).

The second example of an environmental ethical problem African Relational Environmentalism can be applied to is the preservation of endangered species. According to Behrens (2010:481), the holist would readily sacrifice or impede on the welfare of individual animals or species in an attempt to preserve an endangered species. This follows from the holist view that ecosystems, species and the entire biosphere hold moral standing. For Behrens (2012:481), it is this fixation on the whole which leads to the holists' "dogmatically determined" plight to preserve species at the expense of the individual. African Relational Environmentalism, on the other hand, would consider the harmonious relationships and interconnectedness present in the community (Behrens, 2012:481). Behrens (2012:481) argues that the African Relational Environmentalist would acknowledge that under certain circumstances, preserving an endangered species might serve in ensuring the prosperity and "common good" of the ecosystem. This approach recognises that ensuring the welfare of an endangered species will not only result in the welfare of the individual entity, but also in the welfare of the ecosystem. That being said, the African Relational Environmentalist would also be able to recognise that spending exorbitant amounts of resources on the preservation of an endangered species when its protection won't greatly impact the welfare of the entire ecosystem, is unnecessarily favouring the endangered species, as a whole and its individuals, over the greater whole, the ecosystem, and its individuals (Behrens, 2010:481). In Behrens' (2010:481) own words: "preserving biodiversity would be a good to be sought, but not be a good to be sought at all costs". As a result, African Relational Environmentalism holds the ability to avoid what Behrens (2010:481) deems the "dogmatism inherent in some forms of holism" and instead focuses on the welfare of the other members in the community as well.

As highlighted in Chapter Three, sustainable intensification is currently more of a goal than it is a blueprint of sustainable agricultural practices. For the purpose of this example, I will refer to the use of irrigation on smallholder farms to illustrate how African Relational Environmentalism extends moral consideration not merely to individual and collective human and non-human entities, but also to species, ecosystems, and future generations. This extended moral consideration rests on the



relationality between all entities in the web of life and recognising the dependency and impact each entity has on the collective whole and individuals within the whole.

Chapter Two and Three illustrated that the current lack of irrigation on smallholder farms is one of the contributing factors resulting in the fact that sub-Saharan Africa is only producing yields that are a third of the region's potential (Calzadilla, *et al.*, 2013:151). The environmental holist would argue for the immediate deployment of irrigation across all smallholder farms to ensure the food security of the region, often ignoring the challenges and limitations the individual smallholder may face. African Relational Environmentalism on the other hand, will take into account the fact that currently the deployment of irrigation in sub-Saharan Africa requires great capital input and the fact that water resources are unevenly distributed, making irrigation unviable for certain areas. As a result, the African Relational Environmentalist will not merely focus on the region's need for food security, but will also acknowledge the individual smallholder and his unique circumstances and needs, the ecosystem within which the smallholder finds himself, and the sustainability and impact irrigation could have on generations, both human and non-human, to come. The African Environmentalist will recognise the interrelatedness between the larger human community and its need for food security, the individual smallholder and his need for water and financial security, and the environment, including the individual species within it, and their need for sustainable management. As sub-Saharan Africa's human community is dependent on the individual smallholder farmer to ensure sufficient food production, so the smallholder is dependent on the community for financial support to enable him to cultivate the required produce.

Furthermore, both the larger human community and the individual smallholder are dependent on the environment and the correct management of its resources to ultimately ensure the production of food. This latter dependency between smallholder and the larger human community and the collective human dependency on the environment is often overlooked. However, the African Relational Environmentalist, having a moral obligation to promote harmonious relationships, will recognise that the larger human community has an obligation to support the smallholder, and the smallholder, together with the larger community, have an obligation to foster a harmonious relationship with the non-human environment and sustainably manage its

resources. It is worth noting that the management of resources is not merely directed towards ensuring that future human generations will have sufficient resources, but also for the environment's sake, as it forms part of the web of life. Therefore, if the deployment of irrigation does not promote the welfare of the individual smallholder, the ecosystem within which he finds himself, and generations to come, the African Relational Environmentalist is obliged to find an alternative which will promote the welfare of all those within the web of life. This could include exploring different ways to gather and store water, or looking beyond irrigation to alternative methods which could enable a sustainable increase of yields.

As illustrated in the before-mentioned example, sustainable intensification grounded on African Relational Environmentalism would go beyond merely focusing on sub-Saharan Africa's need for food security. In no order of importance, African Relational Environmentalism would acknowledge the region's human community and their need for food security; it would take into account the individual smallholder farmer and his needs and relationship to the greater sub-Saharan community; it would consider the good of the environment as a whole, focusing on the communal ecosystem; it will take into account the good of the individual non-human living organisms and species; and it would consider the good of future generations. All of these interests would need to be balanced in the proposed method of sustainable intensification. It is clear that African Relational Environmentalism extends moral consideration to both individual and humans and non-humans, as well as to species, ecosystems and future generations. It does so not in a hierarchical order, but by acknowledging and valuing the relationality between these entities and the dependency each has on the whole and the individuals within the whole.

Therefore, African Relational Environmentalism, or African thought as such, is not anthropocentric, and is indeed a life-centred approach. The concept of interrelatedness and the respect for nature principle goes beyond mere instrumental value (Behrens, 2010:481). African Relational Environmentalism differs from Western environmental ethics in its appreciation of the embedded individualism in a community. As individuality is achieved through one's relationships with others in the community, and personhood is achieved through harmonious relationships, African Relational

Environmentalism avoids the extremes associated with holism and individualism as both are taken into account (Behrens, 2010:481).

#### **5.4 CONCLUSION**

Behrens sets out to disprove Callicott's statement that Africa is a "... big blank spot on the world map of indigenous environmental ethics" (Callicott, 1994:166-167; Behrens, 2014:66) and proposes an African Relational Environmentalism to do so. In his attempt at considering which entities ought to be included in the moral community, he identifies "all things that are part of the interconnected web of life, that is, all individual living things, groups of living things such as families, species and ecosystems, as well as inanimate natural objects such as rivers and mountains." (Behrens, 2014:66). Not only does this view reject anthropocentrism, but he believes it illustrates that African thought can make a contribution to debates around environmental management. As Behrens (2012:179) holds that African thought could contribute greatly to the idea of inter-generational moral obligations, he concludes that African thought as a whole, while mostly overlooked, can contribute greatly to on-going environmental and ethical discussions. Through its consideration of the needs of current and future generations, as well as the environment, African Relational Environmentalism seems a promising theoretical perspective to inform an understanding of sustainable agriculture with the intent to transform policies and institutions which impact upon sub-Saharan Africa's agricultural sector.

## CHAPTER 6. CONCLUSION

The purpose of this study was to illustrate, that in light of the context of food insecurity in sub-Saharan Africa, a need exists to develop a model of sustainability, with specific reference to the agricultural sector, which considers both the needs of current and future generations, and the environment. It argued that an African environmental ethics, and in particular, African Relational Environmentalism, could serve as a useful theoretical perspective in developing such an understanding of the notion of sustainable agriculture as it overcomes many of the problematic dualisms associated with Western environmental ethics, and subsequently could be applied to inform and overhaul many of the existing policies, institutions and systems impacting sub-Saharan Africa's agricultural sector.

This study took the form of a conceptual desktop study, referring to a range of empirical data sets to describe the current context of sub-Saharan Africa and food security in the region, which formed the backdrop against which I explored this problem. Furthermore, this study referred to philosophical texts on four Western non-anthropocentric theories and Kevin Behrens' African Relational Environmentalism, with specific reference to whether these theories have the potential to serve as the theoretical framework from which a model of agricultural sustainability can be developed for sub-Saharan Africa.

With a reported population of an estimated 950 million people, expected to increase to 2.1 billion people by 2050, sub-Saharan Africa continues to have the highest prevalence of undernourishment globally, with 23% of its population being undernourished (Calzadilla, *et al.*, 2013:151; OECD/FAO, 2016:60; Tibesigwa & Visser, 2016:33; FAO, 2017:v). Playing a central role in the continuous prevalence of undernourishment in the region is the environmental impact of climate change, specifically on the agricultural sector which is dominated by smallholder farmers reliant on rainfall. As was highlighted in the Africa Sustainability Report (2017:36), the main obstacles to achieving the SDGs in sub-Saharan Africa are food security and undernourishment. Current smallholder farming practices such as the reliance on rainfall, limited and/or unsustainable use of fertiliser and the prevalence of manual

labour, are attributed as some of the root causes preventing the region from increasing productivity (FAO, 2006:1). As was highlighted in Chapter Two, if food insecurity is to be addressed, it is imperative that agricultural productivity increase, specifically on smallholder farms (Calzadilla, *et al.*, 2013:150; MacIntyre, *et al.*, 2009:3-4).

As with many developing regions, unsustainable practices are often engrained in sub-Saharan Africa's attempts to lift itself out of poverty (Peh, 2008:678). While traditional African farming practices had a sense of sustainability entrenched in it, many farms today are turning to practices that are often short-term orientated, focussed on overcoming immediate threats and achieving short-term gains (Holden, 2018:20). This can be seen in the fact that much of sub-Saharan Africa's agricultural growth has been the result of land expansion rather than increased productivity. The consequence of this is the region's large-scale land degradation. Holden (2018:20) highlights that land expansion is not only less profitable than area intensification, but also emits three times as much greenhouse gasses to achieve a similar production. It is imperative that increased agricultural productivity does not come at the expense of the environment. Therefore, it is recommended that smallholder farmers embrace modernised, sustainable farming practices such as sustainable intensification and move away from mere land expansion in an attempt to address productivity (Pietersen & Snapp, 2015:2).

An environmental theory is therefore needed that can reconcile both an environmental and agricultural perspective simultaneously, considering the needs of both current and future generations, as well as the non-human environment. In an attempt to illustrate that African Relational Environmentalism holds the potential to do just that, the four Western non-anthropocentric value theories of Regan, Singer, Taylor and Leopold were considered as comparisons.

Singer's animal liberation theory holds the ability to suffer as the criterion which determines entrance into the moral community, and argues that as animals can suffer, there is no reason why they are excluded from the moral community. He also argues that the consumption of meat is never permissible and holds that all human beings have a moral obligation to follow a vegetarian diet. To serve as the theoretical framework from which a model of sustainable agriculture be developed, the proposed

value theory needs to consider the needs of current and future generations, as well as the environment, without championing the one's interest at the expense of the other. As the animal liberation movement opposes the consumption of animal products, it could threaten many smallholders' livelihoods, and as a result, presents limitations in serving as the theoretical framework from which a model of sustainable agriculture can be developed for the region.

Regan's rights view holds similar limitations. As the rights view argues that non-human animals that are subjects of a life have inherent value, they should never be treated as means to an end, but as ends in themselves (Keulartz & Korthals, 2014:3). This means that keeping animals for transport, labour and/or the consumption of meat and/or their by-products is morally unjust (Keulartz & Korthals, 2014:3). Therefore, smallholders will not be able to utilise animals for farm labour, transport or produce. By assigning moral consideration to animals, the rights view appears to do so at the expense of smallholder farmers.

Paul Taylor's biocentric approach extends moral consideration to animals, plants and micro-organisms, but does not grant them moral rights (Keulartz & Korthals, 2014:4). While the theory requires human beings to respect and protect the natural environment, it is not clear what the expectation on humans is with regards to the keeping and/or consumption of animals (Torri Caciuc, 2014:93). As a result, biocentrism may pose too many practical obstacles in serving as a theoretical framework to inform and overhaul the region's agricultural policies, systems and institutions. As Behrens (2010:479) pointed out, African Relational Environmentalism shares similarities with biocentrism, but differs in that Taylor's approach has a stronger individualistic perspective and lacks the focus on harmonious relationships.

Aldo Leopold's land ethic rests on the premise that the individual forms part of a community of interdependent entities and aims to extend the boundaries of the moral community beyond humans to include the land, where the land collectively refers to the soil, water, animals and plants (Leopold, 1949:203). As the land ethic is closely aligned to sub-Saharan Africa's concept of *Ubuntu*, at first glance it appears to be the Western theory closest aligned to African notions of communitarianism and

interrelatedness (Metz, 2011:391; Metz, 2013:80). As the ultimate objective of *Ubuntu* is to become a “full person”, the reliance of the individual on their relationship with the community to realise self-actualisation is central. However, as illustrated in Chapter Five, the notion of *Ubuntu* has been challenged as being anthropocentric, which would mean that any attempt to extend the boundary of moral consideration beyond humans, will need to rest on what instrumental value the environment holds. Furthermore, the land ethic, as a theory which tends towards holism, poses the challenge that once you award moral standing to an ecosystem, respect for the individual entity *necessarily* becomes secondary.

In his attempt at deriving an African environmentalism, Behrens (2014:64) looks to the religious and philosophical thoughts of the sub-Saharan African people. While he recognises that there is no single worldview associated with this region, he focusses on recurring themes such as interrelatedness and communitarianism. He argues that it is the African emphasis on interrelatedness in nature that requires that nature and all the entities within it be treated with respect. As a result, moral considerability is founded on the relationality between entities in the web of life. The web of life extends moral considerability to all human beings, individual animals, species, ecosystems and inanimate objects such as rivers and mountains that are integral to the survival of the before mentioned, as well as to future generations. African Relational Environmentalism does not separate human beings from nature and differs from the anthropocentric Western worldview in that it places a moral obligation on human beings to exist harmoniously with each other and their environment (Behrens, 2014:69).

While sharing many similarities with individualist theories such as Biocentrism and holist theories such as Ecocentrism, African Relational Environmentalism rejects Western dualistic thinking. It therefore appears to be a valuable theoretical framework which could contribute towards the development of a model of agricultural sustainability, which corresponds with a notion of sustainability as an “integrated agenda of caring for the community of life on earth” (Hattingh 2002: 10), and with the intent of informing policies, systems and institutions impacting the region’s agricultural sector. If food security is to be addressed, the agricultural sector’s institutions, systems and policies need to be re-evaluated to ensure that it not only

supports the farming communities in intensifying their output, but does so in a sustainable manner by considering the needs of future generations and the non-human environment.



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