

# **TRANSFORMATIONAL ADAPTATION: THE COMMUNITY ECOSYSTEMS-BASED ADAPTATION ASSEMBLAGE IN KWAZULU-NATAL, SOUTH AFRICA**

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**by**

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## **ABSTRACT**

Climate change poses a fundamental global threat to society, especially for those who depend directly on natural ecosystems for their survival and sustainable livelihoods. The lack of research on climate adaptation interventions was identified by the 2019 National Adaptation Strategy of South Africa as a stumbling block to climate adaptation. This thesis investigates and tracks the emergence, evolution and scaling up of a Community Ecosystems-Based Adaptation (CEBA) intervention that is operated by Wildlands, an NGO in KwaZulu-Natal, as a local response to the current climate adaptation deficit. My original contribution is the application of an assemblage approach that characterises an integrated CBA-EBA adaptation intervention (Wildlands CEBA Assemblage) as an adaptation assemblage, and to build on the established knowledge of Transformational Adaptation, which is the primary theoretical underpinning of this research.

The four study objectives are as follows: 1) to understand the complex range of factors that have influenced the mainstreaming of the Wildlands CEBA Assemblage and a marginalised (adaptation) agenda; 2) to explore the upscaling of the Wildlands CEBA Assemblage; 3) to explore the impacts of the Wildlands CEBA Assemblage on the livelihoods of participating communities in KwaZulu-Natal and 4) to explore the utility of an assemblage approach to understanding adaptation. The thesis embraces a practical approach for advancing knowledge on Transformational Adaptation by engaging with aspects of poverty reduction through livelihood diversification, as well as the challenges associated with the ambiguities and uncertainties. To achieve the research aims, a multiple case study design and a pragmatic and interpretive approach were adopted by using the mixed methods research technique. Interviews for the main study subsequently commenced with 29 key informants and 157 participating community members across seven sites, using a semi-structured interview guide. Thematic and inductive analyses were used to generate data that spoke to the organisational development, poverty reduction and individual capability themes within the research. Furthermore, I developed a CEBA Analysis Framework that focused on analysing and interpreting the research findings by drawing on the theories of assemblage thinking and transformation, guided by the supplementary theories of discourse analysis, managerial roles, sustainable livelihoods and individual capabilities.

The assemblage approach is a key contribution to this thesis through which interconnected parts of an adaptation intervention can be investigated. Characterising the Wildlands CEBA intervention as an assemblage brings into perspective how it can spread over time and space, by territorialising different geographical landscapes and communities. In addition, the CEBA Analysis Framework made it possible to assess additional aspects. The discursive dimension of the study shows that changes in climate discourses have influenced the evolution of the Wildlands CEBA Assemblage, by expanding the definition and interpretation of the concept of ‘adaptation’. The results pertaining to the ‘enviropreneurship’ livelihood support mechanism within CEBA revealed an increased awareness of climate change, the potential to reduce poverty by direct monetary gain and the diversification of livelihoods through barter and trade mechanisms within the Wildtrust programme suite. However, the implementation of CEBA was not without some confusing and demoralising effects on the communities. A lack of transparency, communication, capacity building, monitoring and evaluation were overshadowed by other organisational and donor priorities, which enhanced the challenges of achieving transformational adaptation for systemic change. Ambiguity and uncertainty were present in the Wildlands CEBA Assemblage, where varying interpretations of ‘CEBA’ negatively impacted the workforce while daily operational work was undertaken; in many cases, this caused confusion and conflict amongst the participating community members.

Overall, the Wildlands CEBA Assemblage was rhizomatic in nature as it expanded across political and geographical boundaries, revealing that upscaling climate change adaptation interventions at a landscape level was indeed possible by employing an integrated CBA-EBA approach. While challenges, changes and ‘reassembling’ occurred, the assemblage remained intact. This thesis contributes to the new ‘Transformational Adaptation’ school of thought by being one of the first studies in South Africa to apply an assemblage approach to a landscape-level climate change adaptation intervention. The thesis suggests that adaptation studies should not only involve a ‘birds-eye view’ of the adaptation intervention (the whole system) in its entirety, but that it is equally important to scrutinise, explore and investigate the actors, discourses, practices, governance regimes, technologies (the ‘moving parts’ of the system) and incentives that influence the system itself.

**Keywords:** transformation; adaptation; assemblage; climate change; South Africa

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## **PREFACE**

I began my journey of appreciation for this magnificent planet from the tender age of eight and have always had a voracious curiosity for how the world works. I passionately read every book in sight on space exploration, climatology, astronomy, nature, science and chemistry. However, I could not bear to see this planet, and the millions who live on it, stew in despair, poverty, hopelessness and, in recent times, face the wrath of an exacerbated changing climate. I constantly found myself asking, “How can I be an agent of change?” and “What do I need to do to make a positive difference?” My career spans a national, regional and international portfolio with once-in-a-lifetime opportunities, experiences and the achievement of many childhood goals. Looking back, I did not want to see every child ‘just’ survive; I wanted to see every child dream like I did - but when you are focused on surviving, you cannot dream. Fast-forward a few years, my career in Climate Change has afforded me the confidence to embark on this PhD journey.

Climate change is a cross-cutting issue that requires innovative mitigation and adaptation solutions for transformation. The ‘poorest of the poor’ are said to be the most vulnerable, as they are affected by natural disasters and deepening socio-economic disparities. However, new and innovative ways of exploring socio-ecological adaptation interventions, such as the Wildlands CEBA Assemblage, have been proven to incite varying degrees of change in the socio-economic fate of the poor and vulnerable communities represented in this study. This thesis provides additional evidence-based research for the numerous climate-change knowledge banks of South Africa, by exploring an integrated CBA-EBA climate change adaptation intervention.

At some point in my journey, I came across a quote by Andy Goldsworthy which stated, “We often forget that we are nature. Nature is not something separate from us. So, when we say that we have lost our connection to nature, we have lost our connection to ourselves” (Goodreads, 2021: par 4). Goldsworthy’s words have propelled me to join my fellow-academic professionals worldwide in exploring innovation in the climate-change space; in this case, it is on the African continent.

## DEDICATION

This thesis is dedicated to my parents:

My mother, Anoosha Ramanand, for nourishing and nurturing my insatiable and ‘knowledge-thirsty’ mind in relation to the world around me. I stand in awe of your consistent efforts to gently push me forward when times became difficult and unbearable. Being in your daily prayers is the highest form of support; I could not ask for anything more, Thank you, Mom.

My father, Ashwan Ramanand, thank you for introducing me to Albert Einstein, Sir Isaac Newton, Galileo Galilee and the inventors and explorers of the world, through the numerous books you brought my way. Throughout my life, my ‘field of dreams’ was built by an imagination that was nurtured by you. I am even more grateful that you took my dreams seriously enough to help me post a letter to NASA at the age of eight; in it, I asked, “*What are the study requirements for a career that will help me to protect this planet?*” Later in life, you funded my education, which has allowed me to reach this very point in time. Thank you, Dad.



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## GLOSSARY OF KEY TERMS

**Adaptation:** Adaptation refers to “adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects or impacts” (UNFCCC, 2018: par. 2).

**Community Based Adaptation:** No publications to date define CBA; instead, the CBA concept is used in a variety of forms (Kirkby *et al.*, 2017).

**Ecosystems-based Adaptation:** EBA is defined and framed differently; however, the most widely used definition comes from the Convention on Biological Diversity (2009) as follows, “the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change” (CBD, 2009).

**Transformational Adaptation:** Transformational Adaptation is a formally undefined concept and mainly found in scientific literature from two different perspectives, fitting to or with the environment. Nature is viewed as external and a place in which we live, while the other perspective is built around addressing root vulnerabilities with society, instead of society being an outsider (Catalá, 2014).

**Transformative Adaptation:** Transformative adaptation recognised as a new concept (Taylor *et al.*, 2019), but it is also used either normatively or analytically. It is mostly viewed as making improvements to existing systems and thereby increasing their efficiency.

**Vulnerability:** Is defined as, “the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, as well as its sensitivity and its adaptive capacity” (IPCC, 2007:883).

## DECLARATION 1 - PLAGIARISM

Form EX1-5

### COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE

I, Sarisha Ramanand, Registration number: 203504138, declare that

1. The research reported in this thesis, except where otherwise indicated, is my original research.
2. This thesis has not been submitted for any degree or examination at any other university.
3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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## DECLARATION 2 - PUBLICATIONS

Form EX1-6

### COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE

DETAILS OF CONTRIBUTION TO PUBLICATIONS that form part and/or include research presented in this thesis (include publications in preparation, submitted, *in press* and published and give details of the contributions of each author to the experimental work and writing of each publication)

Publication 1: This publication was submitted to Urban Forum and returned for revisions which will be undertaken subsequent to this submission.

Nel, A., Ramanand, S., Roberts D. and Douwes E. (forthcoming). Facilitating Climate Governance and Community Ecosystem-based Adaptation in Durban. *Urban Forum*. x(x): xxx-xxx.

Signed:

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## LIST OF ABBREVIATIONS

AAI	Africa Adaptation Initiative	CLICS	Climate Change-Integrated Conservation Strategies
AGN	African Group of Negotiators	CMP	Conferences of the Meeting of the Parties
AI	Artificial Intelligence	CNN	Cable News Network
AR4	Fourth Assessment Report	CO2	Carbon Dioxide
AR5	Fifth Assessment Report	COP	Conference of the Parties
AR6	Sixth Assessment Report	CSI	Corporate Social Investment
AWG	Anthropogenic Global Warming	CSR	Corporate Social Responsibility
BAU	business-as-usual	CSIR	Council for Scientific and Industrial Research
BINGO	Bringing Innovation to ongoing water management	DAC	Durban Adaptation Charter
BNA	Basic Needs Approach	DANIDA	Danish International Development Agency
BMDSD	Bergen Ministerial Declaration on Sustainable Development	DEA	Department of Environmental Affairs
CA	Capability Approach	DLCC	Durban Local Climate Convention
CBA	Community Based Adaptation	EBA	Ecosystem Based Adaptation
CBD	Convention of Biological Diversity	ENGO	Environmental Non-Governmental Organisation
CBDR	Common but Differentiated Responsibility	ES	Ecosystem Services
CBNRM	Community Based Natural Resource Management	FAR	First Assessment Report
CCRVA	Climate Change Risk Vulnerability Assessments	GCR	Global Change Research
CDA	Critical Discourse Analysis	GIS	Geographical Information Systems
CDKN	Climate and Development Knowledge Network	GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
CDM	Clean Development Mechanism	HDCA	Human Development and Capability Association
CEBA	Community Ecosystems Based Adaptation		



HRBA	Human Rights-Based Approaches	MEA	Millennium Ecosystem Assessment
HRQOL	Health Related Quality of Life	MDG	Millennium Development Goals
IAP	Invasive Alien Plants	M&E	Monitoring and Evaluation
IDP	Integrated Development Plans	MOI	Means of Implementation
IDS	Institute of Development Studies	NAC	National Adaptive Capacity
IGES	Institute for Global Environmental Strategies	NAPA	National Adaptation Programmes of Action
IEWP	International Early Warning Program	NASA	National Aeronautic Space Administration
IIED	International Institute for Environment and Development	NCCAS	National Climate Change Adaptation Strategy
INDC	Intended Nationally Determined Contributions	NCCRWP	National Climate Change Response White Paper
INGO	International Non-Governmental Organisations	NDC	Nationally Determined Contributions
INR	Institute for Natural Resources	NGO	Non-Governmental Organisation
IPCC	International Panel on Climate Change	NNSA	Non-Nation-State Actors
ITFL	Indigenous Tres For Life	NOAA	National Oceanic and Atmospheric Administration
KIA	Knowledge-In-Action	NRM - LUI	Natural Resource Management Land-users Incentive programme
KP	Kyoto Protocol	NWP	Nairobi Work Programme
LDC	Least-Developed countries	PES	Payment for Ecosystem Services
LED	Local Economic Development	Ppm	Parts per million
LGCCSP	Local Government Climate Change Support Program	QOL	Quality of Life
LTAS	The Long-Term Adaptation Scenarios	RBA	Rights Based Approach
LTMS	The Long-Term Mitigation Scenarios	SAGEM	South African Green Economy Model
		SANBI	South African National Biodiversity Institute
		SAR	Second Assessment Report

SARVA	South African Risk and Vulnerability Atlas	UNEA	United Nations Environment Assembly
SBSTA	Subsidiary Body for Scientific and Technical Advice	UNEP	United Nations Environment Programme
SDG	Sustainable Development Goals	UNFCCC	United Nations Framework Convention on Climate Change
SES	Socio-Ecological Systems	UNISDR	United Nations International Strategy for Disaster Reduction
SLF	Sustainable Livelihoods Framework		
SMME	Small, Micro to Medium Enterprise	UNTC	United Nations Treaty Collection
SREX	Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation	VCAI	Vulnerability and Capacity Assessment Index
		VRA	Vulnerability Risk Assessment
TAR	Third Assessment Report	WHO	World Health Organisation
TBL	Triple Bottom Line	WOCAT	World Overview of Conservation Approaches and Technologies
UN	United Nations		
UNCCD	United Nations Convention to Combat Desertification	WSSD	World Summit on Sustainable Development
UNDP	United Nations Development Programme	WRI	World Resources Institute

# 1. INTRODUCTION

## 1.1 Climate Change Mitigation and Adaptation

Climate change poses a fundamental global threat to society, especially for those who depend directly on natural ecosystems for their survival and sustainable livelihoods. According to the Stern Review (Stern *et al.*, 2006:58) “Climate change is a serious and urgent issue” and the African and Asian continents will be the hardest hit. It is the “most persistent threat to global stability” as well as one of the most multifaceted and complex issues facing humanity in this century (Adger *et al.*, 2003:180). A Google search of the words ‘*climate change*’ revealed 894 000 000 results in 0,34 seconds (Google, 2020), and Google Scholar showed that thousands of peer-reviewed publications are appearing on climate change annually (McSweeney, 2015); this shows that bodies of literature on climate change are steadily on the rise. Within these bodies of literature, two responses to climate change are reflected, namely mitigation and adaptation, where mitigation activities refer to the reduction in human (anthropogenic) emission of greenhouse gases, and adaptation activities attempt to reduce the vulnerability of social, economic and biological systems to the rapid changes in climate. The Intergovernmental Panel on Climate Change (IPCC, 2018:28) and Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA, 2015) highlight the need for further research in these areas, by noting that “a limited number of studies have assessed the benefits of the avoided climate change impacts of 1.5°C pathways for the Sustainable Development Goals (SDG), and the co-effects of adaptation for mitigation and the SDGs”; hence, there is a lack of evidence with regard to achieving adaptation and transformation.

The shocks and stresses brought on by climate change push the boundaries of technological innovation, human creativity and knowledge production to engage with the crisis for our survival. In this context, Hulme (2009b) suggests that technical and political approaches to climate change are not the only solutions, and that socio-ecological, psychological and creative solutions should not be undermined. O’Brien (2011) also noted that there is a shift away from environmental problems in geographical research and a move to include insights on the transformational social change that will be required to catapult global environmental research and change. Larner (2011:330) also draws attention to the transformation of the interdisciplinary nature of geography in a globalised world, stating that “singular forms of knowledge” are no longer the answers to today’s globalized and uncertain world.

A focus on adaptation is an important research area within the school of geographic thought, both on a physical and socio-economic level (O'Brien, 2012). Geographic thought has always revolved around three concepts, namely, place, space and scale. As there is a relationship between addressing climate vulnerabilities and inciting adaptive changes in adaptation interventions, the concepts of transformational and transformative adaptation have been explored in geography. The IPCC (2012: 564) defined transformation as, "The altering of fundamental attributes of a system (including value systems; regulatory, legislative or bureaucratic regimes; financial institutions; and technological or biological systems)". The formative work of Kates *et al.* (2012:7156) explored the concept transformational adaptation in the context of large-scale vulnerability on human-environment systems, climatic change on these systems and the existence of supportive enabling factors and resources towards sustaining transformational adaptation. The authors go further to develop three classes of adaptation in the context of transformational adaptation. These include "those that are adopted at a much larger scale or intensity, those that are truly new to a particular region or resource system, and those that transform places and shift locations" (Kates et al., 2012:7156). In doing so, the author draws distinction between incremental and transformational adaptation, highlighting that transformational adaptation also includes fundamental changes to organisations and implementing institutions. The work of Lonsdale *et al.* (2015) and Magnan *et al.* (2020) build on the seminal work of Kates *et al.* (2012) and consider incremental and transformational adaptation as two different ways of viewing the concept of adaptation, where incremental adaptation sustains a project or process on a smaller, but given, scale, and transformational adaptation considers the dynamism of changing systems on a landscape level. This research identifies with transformational adaptation where system-wide change is considered, with society being an agent of change, rather than an outside spectator (Lonsdale *et al.*, 2015; Catalá, 2014). A focus on transformation entails the consideration of long-term change, social circumstances, power dynamics and the overall "effectiveness of existing systems" (Lonsdale *et al.*, 2015:20).

Despite its inherent appeal to academics, transformational adaptation, as an analytical lens and adaptation approach, has been slow to be adopted. Transformation and adaptation have various meanings to different people, and the end-goal of a transformative adaptation intervention is not always clear; for example, who does the transformation serve, and why? (O'Brien, 2012). According to Barrott (2020), the concept of transformational adaptation, as well as the word transformation itself, is still vague and defined differently by others (Català, 2014; Lonsdale *et*

*al.*, 2015; Klein *et al.*, 2017; Taylor *et al.*, 2019). Numerous funders, practitioners and subject-matter experts worldwide argue that transformational adaptation cannot be funded, as it lacks uniform definition and is subjective (Barrott 2020; Klein *et al.*, 2017; Taylor *et al.*, 2019; O'Brien, 2012). However, as it is about flexibility, evolution and constant motion, it cannot be 'pigeon-holed' indefinitely. In other words, although a formal uniform definition does not exist, innovative research inquiries can serve as the foundation upon which transformational adaptation can be understood in various contexts. Different geographical landscapes, socio-political and socio-economic systems will require their own respective solutions, benchmarks, indicators, funding mechanisms and defining characteristics, to show systemic change in adaptation interventions from the status quo towards a more adaptive society.

According to Pettengell (2010:16), a climate change intervention entails a "process of assessing what is needed in light of what is known about the climate change impacts, what is uncertain, and the factors that limit adaptive capacity in a given location, and then selecting appropriate interventions and policies to achieve this". We need to understand the complexities in the system, the role players and their power of influence, the history of the interventions and what types of challenges and competencies exist as part of the intervention. In doing so, we can begin exploring the paths towards systemic change and, ultimately, adaptation. The associated vulnerabilities, uncertainties and ambiguities, as well as the varied outcomes of adaptation interventions, can also be explored.

The understanding of adaptation interventions, with respect to human-environment relations, points towards three thought processes. Firstly, there is a need to be aware of the macro socio-political contexts in which climate change evolves and how these processes influence the mainstreaming and prioritisation of climate change in development and planning regimes. Secondly, there is a need to be aware of the organisational and institutional dynamics of implementing organisations, which could have a positive and negative effect on a project process. Thirdly, there is a need to decipher the type of vulnerability, uncertainties and ambiguities experienced in each situation, along with the associated impacts before and after the project intervention, to ascertain the real-time changes to the livelihood aspects and the creation of sustainable communities. The Department of Environmental Affairs (DEA) and the South African National Biodiversity Institute (SANBI) (2017) have noted research gaps such as a lack of evidence-based knowledge in ecosystems-based adaptation in South Africa and call to action the addressing of these gaps through more locally based research. This study attempts to address this gap by increasing evidence-based knowledge in ecosystems-based

adaptation in South Africa. In the next section, I will expand on the connection between ambiguity, uncertainty and vulnerability within transformational adaptation, before moving on to the specifics of the study.

## **1.2 Vulnerability, Ambiguity and Uncertainty in Adaptation Interventions**

This section details the links between vulnerability, ambiguities and uncertainties in adaptation interventions. Adaptation planning and action, in the face of uncertainty, requires a learning-by-doing and experimental approach to the climate challenges (Roberts *et al.*, 2012; Schipper, 2020). Understanding the vulnerability to climate change also helps us to acknowledge that there are ambiguities and uncertainties in project interventions (Pettengell, 2010). Moreover, ambiguity in the adaptation discourse further exacerbates the barriers to positive change in socio-ecological systems, vis-à-vis climate change (AAI, 2016). The discussion begins with a closer look at vulnerability, followed by the role of ambiguity and uncertainty in adaptation interventions.

Vulnerability, in the context of climate change, encompasses several elements, including alterations to the natural environment, changes in the atmospheric dynamics and the vulnerability of living beings when coping with these changes. The IPCC Fourth Assessment report (AR4) and Fifth Assessment Report (AR5) vulnerability definitions shifted from focusing mainly on human-environment interlinkages to the inclusion of risks (Das *et al.*, 2020). Following this shift, numerous vulnerability frameworks and adaptation interventions have moved towards addressing adaptation needs, planning, implementation and climate-resilient pathways (Chevallier, 2017; Swiderska *et al.*, 2018). In addition, Connelly *et al.* (2015) noted that, after the publication of the Fourth Assessment Report (AR4) and the Fifth Assessment Report (AR5)<sup>1</sup>, there are more than 30 definitions of ‘vulnerability’ in existence. This shows that there are four major consistencies in these definitions. The consistencies reflect that vulnerability is place-based, that it changes over time and is deductively assessed, and for one to experience vulnerability, one must first be exposed to an event that renders one as being susceptible to harm. While vulnerability in adaptation research is a widely explored concept,

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<sup>1</sup> According to the IPCC, AR4, vulnerability is defined as, “the degree to which geophysical, biological and socio-economic systems are susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity” (IPCC, 2007: 883). The IPCC AR5 revised the definition to, “The propensity or predisposition to be adversely affected” (IPCC, 2014: 1775).

the social vulnerability aspects of climate adaptation interventions are viewed as being inadequately addressed and are still being investigated through themes such as ‘anticipatory adaptation’ (Ziervogel & Zermoglio, 2009; DEA, 2014; Katic, 2017).

The persistence of uncertainty and ambiguity also exists in project implementation activities. Gaps between theory and implementation have increased over time, especially in terms of monitoring and evaluation, mostly attributed to the lack of metrics to measure adaptation impacts under varying adaptation framings (IPCC, 2014b; Singh *et al.*, 2021). Whilst several definitions of uncertainty and ambiguity exist (Liu, 2011; Wasow *et al.*, 2005), this study refers to the definition of ‘uncertainty’ posed by the IPCC (2012:564), namely, that it is “an expression of the degree to which a value or relationship is unknown...”, and that ‘ambiguity’ is “two or more separate meanings from a single word or expression”. Persisting ambiguities and uncertainties, if not dealt with, have the potential to create false project impact results and derail project decision-making.

In a South African context, there have been a variety of adaptation interventions dealing with issues of vulnerability, ambiguity and uncertainty. These include the following: livestock farmers monitoring the condition of sheep during extreme climate conditions (Western Cape); participatory water monitoring on farms (Western Cape); innovative agricultural work in KwaZulu-Natal (KZN); reducing South Africa’s environmental, social and economic vulnerability to the increased incidence of wildfires (Western Cape); insulating houses, enhancing water harvesting and installing water-saving techniques through the introduction of compost toilets (Western Cape); sustainable land use: rooibos (legume plant variety) production and processing (Western Cape); and ecosystems-based and community-based adaptation (Northern Cape and KZN). In the above examples, vulnerability was experienced through the loss of ecosystem services, the reduced functionality of ecosystems, the scarcity of natural resources and susceptibility to the damaging weather conditions (Indigo, 2008; Adaptation Fund, 2016; UNDP, 2018; IIED, 2018; Leck & Simon, 2018).

The causes and frequency with which ambiguities and uncertainties occurred were compromised during the intervention. The lack of reporting on the ambiguities experienced during project implementation created missed opportunities to track the increased occurrence of ambiguities and uncertainties in climate change adaptation interventions. A failure to report, or delayed reporting when challenges were experienced created ambiguities and uncertainty in the project process. Thus, the opportunity to distil the causes and frequency of the challenges

were missed. Although uncertainty in climate change has been a long-standing issue, when it is coupled with ambiguity, decision-making becomes complex (Refsgaard *et al.*, 2013). Furthermore, the lack of consideration regarding the reporting of ambiguity and uncertainty reduces evidence-based knowledge-production, delays climate change adaptation decision-making based on the availability of knowledge, and it affects risk-based scenarios in decision-making (VISION RSM, 2019). According to Girot *et al.* (2012) and Schipper (2020) addressing ambiguity and uncertainty in adaptation interventions become more important in the face of socio-ecological challenges. Intrinsic differences between uncertainty and ambiguity, and the justification for why ambiguity is a focus in this research inquiry is stated in *Chapter Two* in more detail. The community- and ecosystems-based perspectives on adaptation are briefly described in the next section.

### **1.3 Integrated Community and Ecosystems-based Adaptation**

This study considers Community-based Adaptation (CBA) and Ecosystems-based Adaptation (EBA) approaches when exploring an integrated CBA-EBA intervention. These concepts are briefly explained in this section.

CBA emphasises community-centred and human rights aspects, while EBA focuses on ecosystem health and services. CBA is globally recognised as an approach to adaptation, and it is thought to be achieved through community mobilization, empowerment and ownership (Kirkby *et al.*, 2015, 2017; Nyandiga & Jose, 2015), with Forsyth (2013) arguing that CBA forms part of a trend that seeks to match international development and climate change imperatives. In contrast, EBA is aligned to ecological and natural solutions to climate change (DEA & SANBI, 2017; IUCN, 2018). Both approaches are exclusive from one another, but collectively, they aim to decrease community and ecosystem vulnerability and increase resilience to climate change (Girot *et al.*, 2012; Reid, 2016; Chevallier, 2017; Swiderska *et al.*, 2018). Kirkby *et al.* (2017:1) also identified that, “No publications to date<sup>2</sup> have focussed on clarifying the CBA concept”, let alone integrating CBA and EBA, and instead, the CBA concept is used in a variety of forms. However, attempts have been made to explain the CBA concept (Section 2.2.4).

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<sup>2</sup> “to date” refers to 2017 only and not the present date.



While there is a conceptual overlap between CBA and EBA, various authors highlight shortcomings in the implementation of an integrated approach, reducing our understanding of these intervention approaches. There is a significant lack of evidence-based data and information for decision-makers to better understand the scaling up, as well as the measurement and evaluation, of project intervention progress (Giot *et al.*, 2012; Chevallier, 2017; Reid, 2016). Other research suggests that linking CBA and EBA is more cost-effective for empowering communities, but that it still lacks an all-inclusive approach for addressing the socio-ecological problems (Huq, 2017; Aronson *et al.*, 2019; Singh, 2019). The conclusions of the IPCC'S AR4 maintain that Africa is susceptible to the effects of climate change due to low adaptive capacity, whilst the IPCC AR5 shows that most African countries are calling for the promotion of adaptation through a more holistic approach to development (Niang *et al.*, 2014). As Giot *et al.* (2012) pointed out, the integrated EBA/CBA approach has a greater chance of advancing the climate change adaptation discourse in a pro-poor development context. Equally, the 2019 National Adaptation Strategy prioritizes CBA and EBA as two separate, but necessary, components of development planning in South Africa (DEA, 2019a).

#### **1.4 Exploring Transformation: Adaptation as an Assemblage?**

This section notes differing perspectives on transformational adaptation and highlights transformation through an assemblage thinking lens. The incremental adaptive changes associated with unresolved ambiguities and uncertainties translate into delayed systemic change. The interlinkage between the human-environment relations is also explored amidst the presence of ambiguities and uncertainties.

For this research, transformational adaptation is used in the same way Lonsdale et al (2015:6) used it, as an “umbrella term” where transformative adaptation activities are acknowledged as incremental but also revolutionary changes in a system leading to transformation. Català (2014) draws attention to the different perspectives on transformational adaptation, the first of which sees nature as being external to society, and the second sees an interlinkage between nature and society. Few *et al.* (2017:2), on the other hand, make mention of the difference between the words ‘transformational adaptation’ and ‘transformative adaptation’, by stating that the fundamental difference is ‘a change of activity’, when using the term ‘transformative’, and a ‘step-change’, when using the term ‘transformational’. A novel contribution of this research is presented by exploring an integrated CBA-EBA approach through a transformational

adaptation lens. As such, this thesis identifies with Català's (2014) second perspective, where nature and society are seen as being interlinked.

Transformation in adaptation research is associated with words like 'paradigm shift' in the most recent climate change literature (Schipper *et al.*, 2021). Different generations of adaptation research are identified by Klein *et al.* (2017), who distinguish four types of knowledge production, namely: resistance and description, acceptance and norms, progress and policy, and acceleration and implementation. The concerns raised in the 'first-generation' adaptation research included issues such as moral hazards, limited scientific evidence and the lack of political support. The increased momentum in international discussions (COP 7/CMP7) began to shift the discussion on adaptation firmly towards inquiries relating to resilience, adaptive capacity and the link to 'a socio-ecological nexus' (Klein *et al.*, 2017), which emphasised the interlinkage between natural ecosystems and socio-economic issues. The third and fourth generations of adaptation research focus on the movement in the global policy regimes and they explore project implementation frameworks and practices.

This thesis is embedded in the fourth generation of adaptation research, by exploring an integrated CBA-EBA adaptation intervention, namely, the Wildlands integrated CBA-EBA intervention (CEBA). Girot *et al.* (2012:15) recognised that the complexities faced by ecosystems, and the people who depend on them, increase the urgency for "collaborative partnerships" in a climate-challenged world. The eThekweni municipality, in collaboration with an implementing agent in the NGO Wildlands sector (now known as Wildtrust), focused its efforts on an action-oriented and learning-by-doing approach through CEBA. As a fourth-generation research activity, exploring an integrated CBA-EBA adaptation intervention requires looking beyond 'totalisation' and simplistic explanations, and delving deeper into how the heterogeneous elements of the CEBA adaptation intervention ('the parts' of a system) evolve and function. To do this, assemblage theorisation (as the main theoretical framework) is used in conjunction with the transformational adaptation concept, which encourages a more expansive and intensive research inquiry into CEBA. In this sense, 'assemblage' refers to a system (whole) consisting of numerous heterogeneous elements (parts of the system).

Deleuze and Guattari (1987) coined the term 'assemblage' as an ontological framework and made use of the metaphor of a rhizome to assist with explaining their interpretation of it. A rhizome literally refers to an underground horizontal stem system that allows new roots to sprout laterally, thereby giving way for a figurative sense of a system with multiple lines of

interconnections, fluidity and exchangeability. Their rendition of assemblage connections took two distinctive forms, namely, vertical (hierarchical/ arborescent) and horizontal (lateral) connections. Similarly, others like Li (2007), Anderson & McFarlane (2011), Nel (2015, 2017) and Fox & Alldred (2020) have followed suit, by explaining assemblages as being ordered, hierarchical or lateral in other fields of expertise or academia.

While Wildlands described CEBA as a framework from which to plan and undertake its daily project operations, it consists of heterogeneous elements and connections. It is inadequate to think about CEBA as *merely* a framework, due to its relational, systemic and heterogeneous nature. It is with this systemic thinking in mind that the word ‘framework’ is deemed a lesser descriptor of CEBA. CEBA engages with poverty reduction and ecological conservation, advancing the CBA-EBA nexus. At this point the question arises, is the integrated Wildlands CEBA intervention contributing to understanding adaptation through the lenses of assemblage thinking and transformational adaptation? The next section describes the research problem, followed by the aims and the objectives of the study.

## **1.5 The Research Problem**

A foundational argument of numerous theorists, scientists, and practitioners is the lack of academic research regarding the socio-ecological complexities of climate change adaptation. In 2012, O’Brien (2012:668) noted that adaptation is a “necessary choice” in the face of climate change, and she stated further that, while transformation is a potential response to global environmental change, significantly less attention is paid to it. Wiid and Ziervogel (2012) noted that undervaluing local experience and knowledge in climate change research is a major shortfall, despite the growth in this field in the academic arena. In addition, while both CBA and EBA have gained momentum on a global scale, Reid (2014:2) has called for more research to be conducted on integrated CBA and EBA approaches, “their effectiveness in different circumstances, their benefits, costs, limits, confirmatory scientific evidence and scaling up of activities”. Furthermore, assemblage approaches to adaptation have not yet been sufficiently applied, in order to gain a better understanding of the systemic changes in climate change adaptation interventions (Fox & Alldred, 2020).

A clear case for researching and documenting innovative climate change adaptation interventions exists and there is much scope for learning, particularly as they are proceeding experimentally in the face of uncertainty, where there is much scope for learning (Lonsdale *et al.* 2015). Recently, more evidence has suggested the following: the failure to recognise the

causal relationship between socio-economic wellbeing, and ecosystem services; the use of traditional “liner-predict-and-provide” approaches to adaptation; and the inadequate monitoring and evaluation of achievements and outcomes in adaptation interventions (Reyers & Selomane, 2018; Guerrero *et al.*, 2018; Mummery & Mummery, 2019: 920, 921; Barrott, 2020). Most recently, Eriksen *et al.* (2021) called for adaptation research to move into the realm of transformational adaptation thinking in order to foster systemic change.

Systemic changes in climate change adaptation interventions are more difficult to achieve without a clear path towards theorising and measuring an integrated community ecosystems-based approach. At this point, it is important to note that this study began before the onset of the global COVID-19 pandemic; however, this pandemic has ‘forced our hand’ and initiated new and challenging conversations that recognise the interlinkage between humans and the planetary changes (Klenert *et al.*, 2020). Schipper *et al.* (2021:469) recognise this global pandemic as an “accelerated call” for development that benefits both humans and natural ecosystems alike. On a local South African front, the lack of research on climate adaptation interventions has been identified by the 2019 National Adaptation Strategy of South Africa as being a significant barrier to climate change adaptation (DEA, 2019a). The deficiencies that were identified in this 2019 Strategy and in academic research regarding socio-ecological complexities, have laid the foundation for this research inquiry, which investigates an evidence-based integrated community ecosystems-based approach, and whether the CEBA can be characterised as an Assemblage. This level of academic consideration assists with the exploration into the incremental socio-ecological changes of systemic transformational adaptation. The following guiding research questions, aims and objectives have been developed to support this explorative inquiry.

## **1.6 Aims, Objectives and Guiding Questions**

Aims:

- To track the evolution of the integrated Community Ecosystems-based Adaptation (CEBA) assemblage in KwaZulu-Natal.
- To characterise CEBA as an assemblage.

Objectives:

- To understand the complex range of factors that have influenced the mainstreaming of the Wildlands CEBA Assemblage and a marginalised (adaptation) agenda.

- To explore the upscaling of the Wildlands CEBA Assemblage.
- To explore the impacts of the Wildlands CEBA Assemblage on the livelihoods of participating communities in KwaZulu-Natal.
- To explore the utility of an assemblage approach to understanding adaptation.

#### Guiding Questions:

- How did CEBA emerge as an idea and gain traction as a socio-ecological response to climate change challenges?
- What are the complexities, gaps, ambiguities and uncertainties that arise in the implementation of the Wildlands CEBA Assemblage?
- How did the Wildlands CEBA Assemblage ‘upscale’ and progress towards implementation across the seven case study sites?
- What impact does the Wildlands CEBA Assemblage have on the livelihoods of the participating communities in KwaZulu-Natal?
- Is Assemblage Theorisation useful for describing climate change adaptation?

The Wildlands CEBA Assemblage includes an array of actors, technical expert information, ad-hoc and deliberate relationships, the reframing of political issues and agenda, the reordering of processes, as well as a geo-spatial element, which have laterally sprawled across different geographic territories in South Africa over time. This arrangement matches Deleuze and Guattari’s (1987) description of a horizontal rhizomatic expansion. I view the Wildlands CEBA Framework as the Wildlands CEBA Assemblage, and it will be identified as such in this research inquiry. A more detailed account of what I term, the Wildlands CEBA Assemblage follows in the remaining chapters of this thesis. Li’s (2007) six generic practices will be ‘knit’ together and will assist in understanding each aspect of the Wildlands CEBA Assemblage.

## **1.7 Background and Rationale**

The perceived shortage of reliable data, information and research has been widely used as a “significant barrier to climate adaptation” (DEA, 2017:34). As proposed by the 2019 National Adaptation Strategy, South Africa should aim to play a leading role in supplying robust climate

change knowledge (DEA, 2019a). Furthermore, Goal 5<sup>3</sup> of the South African government's adaptation commitments for the period 2020-2030 makes it clear that adapting to climate change is pertinent in addressing this global issue. Part of the capacity-building element of 'Goal 5' also requires creating targeted research that is specific to informing "the implementation of climate change adaptation programmes" (CSIR, 2015b: 61). In addition, a recurring problem identified by the IPCC AR5 and AAI (2016) is the ongoing difficulty in matching scientific information with on-the-ground decision needs (IPCC, 2014b). As a Geographer and Climate Change Practitioner by profession, I have felt compelled to respond to the various calls of the IPCC and South African Government and add to value to South Africa's national knowledge base on climate change adaptation issues. In this light, the Wildlands CEBA Assemblage provides an opportunity for 'first-hand' integrated CBA and EBA climate change adaptation research to be undertaken in South Africa, at varying depths (inception, scale, and impact) through a multiple case study approach. This will allow an opportunity to bring new evidence-based knowledge to bear on climate change adaptation in South Africa.

It is important to state that this study is first and foremost an academic inquiry that aims to show the robustness and rigour of academic contributions to the 'transformational adaptation' school of thought, by using assemblage theorisation. As an additional secondary contribution, this study has the potential to benefit other implementing agents and the NGO community by providing evidence-based information on the importance and experience of integrated CBA and EBA responses to climate change. This contribution could be in the form of technical reports derived from the research. It also highlights the value of assessing whether NGO organisational and managerial dynamics, including governance regimes, are suited to meet the needs of climate change adaptation interventions, and it seeks to build on the local and national climate change adaptation evidence-based platform in South Africa. International audiences, such as the UN Adaptation Fund (Adaptation Fund, 2018; SANBI, 2019) and other interested parties, may view the research from a 'birds-eye view' of how subtleties can influence the implementation of climate change adaptation interventions. The results of this research might also be of value to the funding institution (WILDTRUST), policy making bodies, CBA and

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<sup>3</sup> Goal 5: Plan to adapt to the impacts of climate change, Aspiration: Consider adaptation to the impacts of climate change and means to increase resilience in sectoral plans and National Adaptation Plan, revised after each 5-year implementation period (CSIR, 2015b: 22).

EBA practitioners and other researchers. Finally, this study may be of interest to scholars working on assemblage thinking, environmental governance and socio-ecological integration in climate change adaptation.

## **1.8 Scope and Approach of the Study**

The scope of this research is described in terms of the problem statement, the choice of the geographical study site and the literature considered, in alignment with the aims and objectives of the study. The problem statement created a clear case for the exploration of integrated evidence-based CBA-EBA approaches within the realm of assemblage thinking practices. Therefore, assemblage theorisation, the CBA, EBA, transformative and transformational definitions, explanations and concepts provide the key context, but particular focus was placed on characterising Wildlands CEBA intervention as an assemblage. Three study site districts were chosen, comprising of seven communities participating in the Wildlands CEBA intervention. These include King Cetshwayo District Municipality, uMgungundlovu District Municipality, and eThekweni Metropolitan Municipality. The rationale regarding the choice of the three CEBA project districts and their associated seven study communities is as follows: The first justification is to ascertain the differences in project community responses in a rural, peri-urban and urban setting (if any). The second justification is that, although there were limited financial and logistical resources that prevented the inclusion of more study site communities, I was able to spend more time with community participants in the selected communities. Lastly, interviewing more community participants was an impossible feat to achieve, as the spatial boundary and geographical extent of each of the CEBA project communities, in relation to the activities undertaken and number of participants involved, are spread out in approximately 60 communities across South Africa. The choice of the seven study communities involved in this research provided different perspectives on how people used their natural resources and responded to their proximity to the urban areas/cities. In addition, the aims and associated objectives of the study were not to explore the full geographical extent of the Wildlands CEBA Assemblage project sites, but rather to investigate the origin of this integrated CBA-EBA approach, how CEBA gained traction on differing levels and what socio-ecological impacts could result from such an approach. Hence, the literature that was explored was linked to understanding the historical backings and framing of transformational adaptation, in conjunction with assemblage thinking practices and adaptation interventions, and interlinking international and national climate change literature.

The theoretical framework has drawn concepts/information from diverse theories for the value that they bring to analysing aspects of the Wildlands CEBA Assemblage. To begin with, an assemblage approach, as used in this study, assumes the Wildlands CEBA Assemblage as ‘the whole’ and the heterogeneous elements within the assemblage as ‘parts of the whole’ (DeLanda, 2006; Ball, 2018; Fox & Alldred, 2020). The heuristic use of assemblage theorisation affords an opportunity to explain the relations, complexities, fractures (ambiguities and uncertainties) and movements of the heterogeneous elements within the Wildlands CEBA assemblage. A more detailed account of assemblage theorisation is expanded on in *Chapter Two* of the study.

A ‘CEBA Analysis Framework’ was also designed to analyse the data produced by a mixed methods approach (*Chapter Three*). By using a multiple case study strategy, supported by action-oriented and evidence-based research, both quantitative and qualitative data were collected and analysed. With pragmatism as a point of departure, a heuristic approach was used in this research to establish an analysis framework to draw varying aspects from multiple works and to bolster the assemblage analysis. This approach in adaptation research is recognised by Mummery and Mummery (2019) as a form of ‘bridging’ between diverse interdisciplinary bodies of knowledge and frameworks for pragmatic transformational adaptation. To enhance the assemblage analysis, selected concepts are drawn from Norman Fairclough’s (1989,1992) Critical Discourse Analysis (CDA) model, the Management Theory of Mintzberg (1973), the Institute of Development Studies (IDS) Sustainable Livelihoods Framework (Scoones, 1998), Sen’s Capability approach (1979) and the Tyndall Center for Climate Change Research, and the vulnerability, risk and adaptation conceptual framework by Brooks (2003). Though these theories, and my utilisation of them, will receive attention in *Chapter Two*, it is sufficient to state here that by analysing the changing discourses in adaptation, the discursive pathway to inter-linking CBA and EBA were uncovered. Aspects of analysing managerial roles aided in determining the operational dynamics of the CEBA interventions. Finally, analysing the on-the-ground effects on livelihoods, individual capabilities and vulnerability assisted in teasing out the possible negative and positive effects of an integrated CBA and EBA approach on the community participants.

## **1.9 Organisation of the Thesis**

*Chapter One* introduces the study, the theoretical framework used, and supporting information that contextualises the study in KwaZulu-Natal, South Africa. *Chapter Two* presents literature



that is specific to the climate change adaptation discourse, namely CBA-EBA, adaptation in the South African context and assemblage theorisation. The chapter also provides a detailed explanation regarding the adapted theoretical framework used in this study. The research philosophy, strategy and methods used to collect and analyse the data, including the ethical considerations, are found in *Chapter Three*.

The remainder of the thesis is structured into six chapters, which detail the specific aspects pertaining to the exploration and evolution of the Wildlands CEBA Assemblage. The inception of the Wildlands CEBA Assemblage, using the City of Durban as its inception case study, is explored in *Chapter Four*. The chapter is entitled *Opportunistic Adaptation* and focuses on the factors and opportunities that were used to mainstream the Wildlands CEBA Assemblage and a marginalised (adaptation) agenda. Thereafter, *Chapter Five*, entitled *Scaling-Up Adaptation: Intended Acts and Unintentional Consequences in CEBA*, explores the implementation procedures used to scale up the Wildlands CEBA Assemblage across KwaZulu-Natal. *Chapter Six*, *Rhizomatic Assemblage: Implementing and Territorializing Adaptation in Three CEBA Clusters*, focuses on characterising the Wildlands CEBA Assemblage and implementation in three district municipalities. *Impact and Measurement in Adaptation: Livelihoods and Ecological Impacts in Three Districts* is the title of *Chapter Seven*, and it focuses on the livelihoods of, and the ecological impacts in, the seven participating communities as well as the efficacy and limitations of Wildlands attempt to monitor and evaluate CEBA's progress. *Chapter Eight*, entitled *Assembling, Reassembling and Rethinking Adaptation Interventions: Bringing Thesis Findings into View* then discusses the Wildlands CEBA Assemblage in comparison to other climate assemblages, to literature cited in the study and establish the link to transformational adaptation more broadly. The overall thesis conclusions are presented in *Chapter Nine*, entitled *Re-Thinking Adaptation*, which is followed by the Study Limitations, Recommendations and the usefulness of the heuristic analysis framework used in the thesis. Finally, the Reference List and Appendices are presented.

Overall, this thesis contends that the Wildlands CEBA Assemblage is rhizomatic in nature, as it has expanded across political and geographical boundaries and revealed that upscaling climate change adaptation interventions at a landscape level is indeed possible, by using an integrated CBA-EBA approach. While challenges, changes and 'reassembling' occurred, the assemblage remained intact, and analyses of relational processes is productive in understanding adaptation in a transformational context. The thesis contributes to the new 'Transformational Adaptation' school of thought by being one of the first studies in South Africa to apply an

assemblage approach to a landscape-level climate change adaptation intervention and that responds to integrated socio-ecological issues, which allows the interconnected parts of the adaptation intervention to be investigated. The thesis suggests that adaptation studies should not only involve a ‘birds-eye view’ of the adaptation intervention (the whole system) in its entirety, but that it is equally important to scrutinise, explore and investigate the actors, discourses, practices, governance regimes, technologies (the moving parts of the system) and incentives that influence the system itself. Transformation *within* the assemblage is as important to understand as transformation *in* the adaptation context.

### **1.10 Conclusion**

This chapter has introduced the research on climate change adaptation, Assemblage Theorisation and an enquiry into transformational adaptation as the foundation of this research. Barrott (2020) reminds us that responding to climate change requires deliberate transformation, while Reid (2014) points out that CBA and EBA concepts are in their infancy, with only two decades of formal existence. The integration of CBA and EBA has not been intensively and extensively explored as an integrated approach in its operational form, at grassroots level. Thus, this study explores what it characterises as the Wildlands CEBA Assemblage and traces its inception, upscaling, implementation and reassembling. The research also explores CEBA in different socio-economic settings by using a multiple case study approach. It considers the internal dynamics and changes within the Wildlands CEBA Assemblage, while it also touches on the outcomes for relevant stakeholders. The exploration of an integrated CBA-EBA approach allows for an investigation into how communities interact with their surrounding natural environment and how they form more resilient pathways to sustaining their livelihoods and, ultimately, contributing to systemic change. Overall, the thesis will attempt to substantiate that assemblage theorisation is a useful approach in apprehending an integrated CBA-EBA approach (Wildlands CEBA Assemblage). It provides an entry point for transformational adaptation discussions at a multi-scalar and systemic level.

## 2. LITERATURE REVIEW

### 2.1 Introduction

In a Business-As-Usual (BAU) world, anthropogenically induced climate change has necessitated a focus on climate change adaptation, which has unearthed innovative adaptation strategies and frameworks to tackle the present-day effects of a changing climate. In an early quantification of expected changes, the Stern Review (Stern *et al.*, 2006) highlighted the impacts and costs of climate change to the development of BAU growth pathways, and it revealed the exigency and benefits of early action on climate change. Some of these findings included recognising the disproportional impacts and ecosystem damage that would have a knock-on effect on reducing the ability of the different populations to cope with climate shocks and stresses. However, the review also raised the fact that “adaptation can only mute the effects and there are limits to what it can achieve” (Stern *et al.*, 2006:115), which acknowledges the need to change BAU practices and move towards achieving global mitigation and adaptation goals.

For the purposes of this research, climate change adaptation is understood to cover a range of interventions as differing degrees of responses to changing climate trends and vulnerabilities, which integrate scientific (and indigenous knowledge), enhancing ecosystem well-being and improve the capacity of people to accommodate climate risks and impacts (INR, 2018; Few, 2016; Weischer & Wetzel, 2017; UNDP, 2018). The United Nations Development Programme (UNDP) (2010) notes that adaptation planning and sustainable development must be addressed as complimentary to one another to gain long-term and holistic results. Fünfgeld (2012) echoes that governments, the private sector, civil society organisations (NGOs) and civil society should work collaboratively as common practice to achieving objectives set out in climate change adaptation interventions. At the same time, Klein *et al.* (2017:11) asserts, “Adaptation needs to be more radical, bolder, more experimental and deliberately aligned with other agendas”. The climate change debate has since moved from broad-scaled denialism to transformational adaptation research focused on governance regimes, collaborative approaches, and systemic change (Dinshaw, 2014; Few, 2017; O’Brien, 2018 and Barrott 2020).

As traditional and modern constitutional governing systems and structures<sup>4</sup> cannot be a stand-alone component in advancing effective climate governance within complex socio-ecological systems (Hutter, 2006; Jessop, 2004; Swyngedouw, 2005; Khan *et al.*, 2006 and Phago and Netswera, 2011), an array of frameworks have been designed to deal with the complex nature of climate governance and policy making (Noorbakhsh & Ranjan, 1999; Mostafavi *et al.*, 2014). Political studies define Global Governance as political cooperation aimed at responding to issues affecting more than one region or country (Okereke *et al.*, 2009). New policy constructions under global governance regimes have emerged over time, including arrangements under the United Nations.<sup>5</sup> These policy constructions have also been influenced by the trajectories of dominant schools of thought over time, Climate science, Climate Justice, Ecological Modernisation, Neoliberalism, Complexity and more recently Transformation (Hansen *et al.*, 2013; MRF, 2019; Mol *et al.*, 2009; Liverman, 2009; Taylor *et al.*, 2019; Barrott, 2020). Some critiques emphasise that public-private partnerships hold a significant portion of power in the global climate governance regime sometimes trending as “the privatisation and trans-nationalisation of global governance” (Andonova, 2010; Brinkerhoff & Brinkerhoff, 2011; Pattberg, 2010: 285). Other studies emphasise adopting a pragmatic approach, particularly in the face of faltering action in climate negotiations (Cole, 2015), focusing on a polycentric approach to climate governance, emphasising mutual learning, innovation, societal relevance, evolution of knowledge, and enhancing cooperation across an increased number of actors (Dorsch & Flachsland, 2017).

Numerous frameworks, models and approaches have been refined to understand trajectories of change in socio-ecological systems. In climate change research these include, integrated assessment models, climate models, Transformation adaptation cycles, Transformative adaptation conceptual frameworks, adaptation, vulnerability, transformation, and assemblage approaches (Moss *et al.*, 2010; Lonsdale *et al.*, 2015; Pelling *et al.*, 2015; Pal *et al.*, 2019; Dujardin, 2019; Frewer, 2017; Fox & Alldred, 2020). Assemblage approaches exploring complex relations and collaborative practices in climate assemblages among other aspects bring together a diverse set of actors (governments, NGOs, scientists, practitioners, indigenous

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<sup>4</sup> In the South African context, Traditional Leadership maintains and embeds cultural and traditional identity of a community into its decision-making, and modern constitutional systems refer to decision-making based on the existence of a constitution within the framework of democracy.

<sup>5</sup> Convention on Biological Diversity (CBD), Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change’s (UNFCCC) Kyoto Protocol (KP), Paris Agreement and Climate Clubs (Marquardt, 2017; Rennkamp & Marquard, 2017; Okereke *et al.*, 2009; Klasing *et al.*, 2018).

peoples, traditional leadership and communities, the private sector) working on transboundary, regional, and global climate issues in response to climate change challenges (Gammon, 2013; Frewer, 2017; Fox & Alldred, 2020). Ziervogel (2019:503) also acknowledges, while “large scale” transformation is desired (to the whole system), incremental changes (to parts of the system) have the potential to shift a system towards transformation. Recently, Eriksen *et al.* (2021:2) and King and Jones (2021:7) highlight the importance of re-thinking adaptation by employing a “pluralism of ideas about adaptation” and “de-complexification” in the search for systemic solutions cognisant of the complexity in climate change.

A recent account of climate assemblages is the work of Fox and Alldred (2020:270), where their work on complex socio-ecological and climate relations starts from the standpoint that the natural environment is an assemblage and humans are fundamental to the assemblage rather than “in opposition to it”. This thesis deploys assemblage theorisation in the same manner where the activities and actors included in the CEBA intervention are not separate from the intervention but rather fundamental to the CEBA intervention. To do this, the CEBA Analysis Framework was developed. Before the CEBA Analysis Framework is engaged with, other bodies of literature are explored in this chapter to further the understanding of the links between Geography and Climate change, the international context on mitigation and adaptation, adaptation schools of thought, Transformational and Transformative adaptation frameworks, Assemblage approaches, local research, and adaptation interventions. This thesis identifies with research aligned to hybrid socio-ecological climate solutions, re-thinking adaptation framing in the context of current development challenges and transformational adaptation schools of thought (van Riper *et al.*, 2018; Olsson *et al.*, 2017; Ziervogel & Zermoglio, 2009; Girot *et al.*, 2012; Pal *et al.*, 2019; Dujardin, 2019; Barrott, 2020; Eriksen *et al.*, 2021). The discussion begins with understanding adaptation frameworks.

## **2.2 Towards an Understanding of Adaptation Frameworks and Socio-ecological Interactions**

A significant amount of literature, interventions and frameworks have been written and developed to better understand and analyse adaptation projects with recent focus on paradigm shifts and transformational change (Few, 2017; O’Brien, 2018; Ziervogel *et al.*, 2016b; Barnett *et al.*, 2015; Ellis & Tschakert, 2019). However, if we are to understand integrated adaptation frameworks like CEBA, literature applying to human-environmental relations, transformational adaptation and social innovation are preferred due to the socio-ecological

focus of such frameworks. Whilst the temptation exists to explore various branches of climate change literature in depth, this section covers literature specifically focusing on the links between geography and climate change; dominant climate discourses; Adaptation discourse and practice followed by a discussion on CBA and EBA.

Research on social innovation and the move towards combining resilience and transformative approaches are growing as the need for adaptation solutions to climate change increases (Rodima-Taylor, 2012; Olsson *et al.*, 2017; O'Brien, 2016). Technical branches of climate change literature relate specifically to hazard research in sustainability, resilience thinking and vulnerability thinking best practices and frameworks (Montz & Tobin, 2011; Jun & Conroy, 2014; Maru *et al.*, 2014; Gill & Malamud, 2017). White (2013) highlights the concept 'shared vision' and emphasises the need to define precisely what collective vision the world is sharing in this race towards a 'sustainable future'. Even though increasing synergies between transformation and resilience is growing, this study merely highlights sustainability and resilience thinking and does not explicitly focus on either of these concepts as most sustainability and resilience frameworks are used to measure impact to the environment (Jun & Conroy, 2014; Maru *et al.*, 2014).

This research inquiry is focused on the integration of social and environmental aspects of adaptation in a specific intervention. To better understand socio-ecological relationships in the context of adaptation a combination of natural and social science information is needed. Lonsdale *et al.* (2015) and Pelling *et al.* (2015) prescribed 'The adaptation activity space' as a conceptual framework revealing the interconnectedness of seven elements (Individuals, Technology, Livelihoods, Discourse, Behaviours, Environment, and Institutions). Sharing a similar view, Mapfumo *et al.* (2017) focused on five dimensions for assessing incremental or transformative adaptation, namely, the extent of change, amount of participation, pathways of change, impacts and whether the changes are sustainable. Finally, Pal *et al.* (2019:9) considers three major areas: "Enabling environment, Domains of Transformation and Indicators for transformation". Olsson and Jerneck (2018) add their understanding of integrating knowledge outcomes through their approach termed social fields and natural systems. They claim the integration of natural science knowledge through systems and social science fields avoids the loss of information from both the natural and social aspects of science. Additionally, van Riper *et al.* (2018) resonates with work by Olsson *et al.* (2017) and Silverman & Hill (2018) by affirming the existence of an interchangeable relationship between social innovation and ecological impact, which are the cornerstones upon which CBA and EBA are built but do not

seem to be adequately aligned (Giroto *et al.*, 2012; IIED, 2014; Reid *et al.*, 2017b). Focusing on integrated socio-ecological aspects of adaptation interventions require an understanding of the relational dynamics within the intervention, associated impacts and means to measure that impact.

Adaptation interventions have grown in conjunction with mitigation responses to climate change involving both social and environmental aspects (Becker *et al.*, 1999; Chersich & Wright, 2019). However, Chevallier (2017) claims that adaptation thinking is still not mature enough to build adaptive capacity and resilience in the short-medium term, it is instead viewed as a long-term achievement. Recently, Eriksen *et al.* (2021:11) advocate for the re-thinking of adaptation frameworks, practices, and interventions, a “post-adaptation” turn alongside post-developmental regimes of the past. The authors reviewed 34 adaptation interventions and highlighted shallow understanding of vulnerability, inadequate stakeholder engagement, definition of adaption success and retrofitting of adaptation into current development regimes creates room for maladaptive outcomes. The authors claim that this information creates new grounds for re-thinking adaptation with more informed approaches. Other theorists and practitioners (Olsson *et al.*, 2017; Chevallier, 2011, 2017; Giroto *et al.*, 2012; Atteridge & Remling, 2017) contend that human-environmental relations are still not adequately understood, whilst scaling-up and scaling-out adaptation interventions require more transformation thinking practices. In addition, Tsing (2012) draws attention to ‘non-scalability’ as a means for advocating a re-thinking of the use of scale in real world scenarios. The author claims scalability can also be achieved by recognising non-scalable phenomena driven by relational forces in adaptation interventions.

Transformational change was noted as an important theme in the IPCC’s AR5, where the IPCC proposed transformational adaptation as adaptation on a large geographic scale with changes to socioeconomic and governing systems, and technological advancement to the systems themselves (Dinshaw, 2014). The IPCC also saw incremental adaptation playing a smaller role in the adaptation puzzle by encapsulating changes ‘within the system’ at a given scale. Achieving transformation and reducing society’s impact on the environment through adaptation interventions, while maintaining steady livelihoods is not an easy feat if human-environment relationships are not recognised as interlinked. Although the link between EBA and CBA was highlighted in a study conducted by Giroto *et al.* (2012) the two approaches were not formally integrated, and this is identified as a social-innovation gap in climate change literature in a South African context (Wills *et al.*, 2016; DEA, 2012).

Climate change adaptation approaches and frameworks include varying degrees of social and environmental innovation, including increasing resilience or adaptive capacity. Some of these interventions include the Community Adaptation Programme in South Africa (Few, 2016; Adaptation Network, 2018), increasing awareness and communication of climate change issues (GIZ, 2018), stewardship activities focused on sustainable land use practices (Adaptation Network, 2018), diversification of livelihoods and strengthening community resilience (Pettengell, 2010), facilitating investment in climate change adaptation (INR, 2018; Stern *et al.*, 2006; GIZ, 2018) and ultimately aiming to reduce the vulnerability of poorer populations by enhancing climate adaptation action (AAI, 2018). These are a few examples amongst numerous others provided by UN bodies and other expert entities.

Various international entities also acknowledge the usefulness of frameworks, tools, and platforms for improving resilience and adaptive capacity<sup>6</sup>. In some examples, noting uncertainties was a bold step forward as it allows for data-richness when collecting on-the-ground information of reasons for project failure or success. The Ecosystem and Livelihoods Adaptation Network (ELAN) focused on theoretically distinguishing CBA and EBA and conceptually combining the two aspects, going on to state that at field level the theoretical distinction was semantic and not a concern in the bigger picture. ELAN sought to “address and reconcile differences” between CBA and EBA (Girod *et al.*, 2012:1). In short, the luxury to separate the social problems of humanity from environmental issues no longer exists in the Anthropocene (Olsson *et al.*, 2017; Ellis & Tscharner, 2019). Though adaptation interventions have grown alongside the development of various frameworks, integrated CBA-EBA interventions require more research to better understand associated vulnerabilities and socio-ecological relationships (Pelling *et al.*, 2015; van Riper *et al.*, 2018; Eriksen *et al.*, 2021). The next section describes the links between the discipline of geography and climate change.

### **2.2.1 The adaptive imperative: geography, adaptation and mitigation**

Geography is an interdisciplinary field providing the necessary tools and theories for the integrated understanding of the climate change challenge. Larner (2011:330) acknowledges that “policy processes, indigenous knowledges and local impacts have become integral parts

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<sup>6</sup> World Resources Institute (WRI) developed the National Adaptive Capacity (NAC) framework (WRI, 2009); Oxfam International’s tool for Robust decision-making in climate change adaptation projects (Pettengell, 2010); UNDP Toolkit for Practitioner (UNDP, 2010) and WOCAT’s Climate Proofing for Development tool (WOCAT, 2016).



of the scientific climate change edifice” within the discipline of geography. Additionally, “research on adaptation, social resilience and vulnerability, risk perception and assessment, hazard preparedness, resource management, resilience science and environmental governance adds significant volume” to the discipline of Geography and vice versa (Castree, 2015:248). Taking a step back we can reflect positively on the years of research by Fourier in 1824, Manabe and Wetherald (1967), Arrhenius in 1896 and Tyndall in 1860, where changes in the atmosphere and biosphere were observed. Similar findings were noted by the IPCC AR5 (Victor *et al.*, 2014). Because of the growing problem of climate change, numerous Scientists and Theorists saw the need for integrated responses. Geography as a cross-cutting discipline allowed the merging of numerous fields of study, alignments with policy, and linkages with other bodies of knowledge.

The interdisciplinary nature of Geography accommodates the complexity of climate change challenges. Many researchers have focused their attention on climate change adaptation as a response to advancing the relationship between geography and climate change (Kates *et al.*, 2012; Hulme 2009a; Liverman 2009, 2017; Ziervogel *et al.*, 2006, 2014; Ziervogel & Zermoglio 2009; Ziervogel & Calder, 2003; Ziervogel *et al.*, 2016a). There is a wide range of geographical research into the dimensions of climate change and climate change adaptation with a range of applications. Research has explored various aspects of anthropogenic climate change, the impacts of altering the Earth’s system, and the relations between society and nature (Castree, 2015; Adger *et al.*, 2002, 2003, 2009; Adger 2006; Turnhout *et al.*, 2016; Liverman, 2009, 2017; Hulme, 2009a, 2009b; Lövbrand *et al.*, 2015; Corbera *et al.*, 2009; Fisher & Brown 2015; Blaikie *et al.*, 1998; Setten & Brown 2018).

There are several key accounts of climate change research in human geography. Adger *et al.* (2002, 2003, 2009), Waters and Adger’s (2017) research on different social dimensions of adaptive capacity with interest in developing world contexts is an example. Liverman (2009, 2017) explored key climate issues of the 20<sup>th</sup> century and later proposed more research on climate equity that considers the effect climate policies have on communities. Hulme (2009a, 2009b; Turnhout *et al.*, 2016) exposed the linkages between psychological and cultural processes that play a role in shaping climate constructions and the realities they represent. In a further line of enquiry, Corbera *et al.* (2009) and Fisher and Brown (2015:261), conducted research in climate change regarding Payment for Ecosystem Services (PES) and “geographically widespread consequences” of adopting Ecosystem Service (ES) approaches. Blaikie *et al.* (1998) investigated other processes like climate change and Knowledge-In-

Action (KIA) regarding climate change interventions, where climate change was viewed as a challenge beyond the 20<sup>th</sup> century. Stakeholder engagements addressing “location specific conflict” within a political ecology framework was addressed by Brown (1998: 74). As a final example, Setten and Brown (2018:550) have undertaken work on ES as an integrative tool regarding sustainable resource management, “human-nature relations” with reference to locational geography. Such contributions emphasise that addressing climate challenges and the scales at which assessment is required involves breadth and depth in understanding the social and environmental complexities surrounding climate change.

Geography as a discipline was further progressively aligned with attempts at addressing issues such as Climate change and other international environmental obligations through a long history of natural hazards research associated with vulnerability (Montz & Tobin 2011; UNISDR, 2018). The study of vulnerability originates in Geography through geophysical and biological natural hazards research (Füssel, 2007). The connection between the discipline of geography, vulnerability, disaster risk reduction and transformation were further strengthened by global discussions on the complexities of climate change through research undertaken under the banner of the IPCC (IPCC, 2019). Various definitions and descriptions of vulnerability exist (IPCC, 2001b; UNFCCC, 2006; UNISDR, 2018; Prowse, 2003) though the preferred definition and description in this study comes from Adger (2006) where, “Vulnerability is the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt”. Today, strategic direction toward Vulnerability Risk Assessments (VRA) rely on Geographical Information Systems (GIS) and earth-system science research and programmes on ecosystems change and society (Montz & Tobin 2011; Castree, 2015:252; Victor *et al.*, 2014; Future Earth, 2020). Over time, the discipline of geography enabled the exploration of multidisciplinary issues through a transdisciplinary perspective such as climate change (Fu, 2020). In doing so, links between natural and social elements surfaced and filtered into global environmental discussions.

Shifting from geography as a discipline to the geography of adaptation, numerous climate change engagements have also taken place by several international organisations (UNFCCC, UNEP, CBD and UNISDR) to discuss climate change as a global concern, placing adaptation as a component of global developmental and environmental regimes (Booth *et al.*, 2015; Smit & Wandel, 2006; United Nations, 2018; Depledge, 2000; UNTC, 2018; Schaeffer *et al.*, 2013).

Global environmental decision-making meetings<sup>7</sup> involved extensive discussion around the science of climate change mitigation, processes of carbon accounting, later including aspects of adaptation (Schmidt-Thomé, 2017; Adger *et al.*, 2003; Swart *et al.*, 2014; Caripis, 2014). According to the UNFCCC (2018: par. 2) “Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts”. Despite the progress of global climate change discussions<sup>8</sup> there are still uncertainties about the costs of adaptation, inequitable impacts of climate change and concerns about the marginalisation of the adaptation agenda as opposed to mitigation aspects of climate change discussions (Parry *et al.*, 2005:2; Ayers & Huq, 2008:762; Schaeffer *et al.*, 2013 and Rennkamp & Marquard, 2017:455). Watts (2015:21) noted different descriptors and processes regarding adaptation appeared as “recycled” versions of 1960’s thinking. In sum, adaptation itself was shaped discursively and framed in the natural sciences through the dominance of mitigation, and marginalised as a socio-economic issue (Rothe, 2009; Matthews, 2011).

A movement towards responsible use of the Earth’s resources culminated in the aforementioned numerous international conventions and the interaction of differing levels of actors or “actor-networks” attempting to address issues of anthropogenic related climate change including governance, emission reductions and adaptation (deKoninck, 2009; Latour, 2010:11; Adger *et al.*, 2002, 2003). The array of actors and agendas is conceptualised in terms of ‘polycentric governance’ and ‘orchestration’, given the roles communities play in finding innovative solutions to cross-cutting issues involving common resources (Feldman, 2016; Arts, 2003; Bäckstrand & Kuypers, 2017:4; Vob & Schroth, 2018; Nanz & Steffek, 2004; Marquardt 2017:167; Okereke *et al.*, 2009). However, orchestration is challenging to achieve, and Bäckstrand and Kuypers (2017) and Holden *et al.* (2016) found that, although the UNFCCC facilitates actions across vast geographical regions, there remains uneven and inadequate participation of actors in the orchestration process. The need for more stakeholder participation in adaptation planning, design, and implementation is still noted on global platforms (Eriksen *et al.*, 2021).

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<sup>7</sup> Conference on the Human Environment (1972), The Brundtland Report (1983) also known as “Our Common Future” (Our Common Future, 1987), The Rio Declaration (1992), The Kyoto Protocol (KP) (1997), The Johannesburg World Summit on Sustainable Development (2002), Bali Action Plan, Copenhagen Accord, Cancún agreements, Durban Platform for Enhanced Action, Paris Agreement, Intended Nationally Determined Contributions (INDC), Climate and Development Knowledge Network (CDKN, 2014).

<sup>8</sup> Durban Platform for Enhanced Action in 2011 and the Paris Agreement, entering into force on November 4, 2016.

Mitigation, despite taking centre stage for three decades at global climate discussions, had a central but contested place in global climate governance (Depledge, 2000; UNTC, 2018; UNFCCC, 2006; UNEP, 2014a; Cook *et al.*, 2013). Due to the lack of action through mitigation, and increased risks of climate change, adaptation to climate change serves an equally important role if we are to live under changing climatic conditions (Ziervogel, 2018). To better understand the evolution of the Adaptation discourse, dominant climate change schools of thought that further enhanced various climate discourses over time, are discussed in the next section.

### **2.2.2 Dominant climate change schools of thought and their relation to adaptation**

To understand the expansion of the climate change dialogue, dominant schools of thought on how climate change is understood in different sectors of society, over specific periods are explored. These are understood here as, ‘discourse’. According to Arts *et al.* (2010:57), Discourses in simple terms are “dominant ideas, concepts and categorisations that give meaning to reality”, or mould forms of thought by individuals who share these thoughts. Discourse analysis requires an understanding of how the dynamics of discourse – actor relationships work, with actors building on thought processes and progressing the agenda of the discourse (Arts *et al.*, 2010; Schneider, 2013; Bäckstrand & Lövbrand, 2016).

Climate change discourses have developed around five dominant schools of thought focused on mitigation, adaptation, both, complete denialism, and transformation. These are: Climate Science (Budyko, 1982; Cook *et al.*, 2013; Hansen *et al.*, 2013), Climate Justice (Bell, 2014; MRF 2019), Ecological Modernisation (Pepper, 1998; Mol, 2009), Neoliberalism (Liverman, 2009; Castree, 2010), Climate Contrarian (Carlton *et al.*, 2015; Dunlap & McCRight, 2011; Lewandowsky *et al.*, 2018) and Transformation (Few *et al.*, 2017; Barrott, 2020; Lonsdale *et al.*, 2015, Taylor *et al.*, 2019; Eriksen *et al.*, 2021). While these schools of thought and their discursive influence are discussed in length, this is not an exhaustive list and other discourses will be mentioned briefly throughout this section.

#### *Climate Science*

Climate Science as a practice, approach to climate change, and school of thought built around hard science concepts using physics, chemistry, and modelling to build the case of increasing GHG effects on the atmosphere because of anthropogenic changes (Cook *et al.*, 2013). The consensus on climate science, was reached in the 1980’s with evidence by a few key theorists

and scientists such as Hans Oeschger, Willi Dansgaard and James Hansen (Conway, 2008). This evidence was preceded by multiple research efforts pointing towards warming of the atmosphere from 1896 – 1980 (Manabe & Wetherald, 1967). The IPCC was also established during this period (1989), producing the First Assessment Report (FAR) in 1990. In 1992 the launch of ethical and moral dimensions of climate change arose bringing with it strands of early thoughts on liberal environmentalism and as a result the UNFCCC was established (Bernstein, 2002; Bell, 2014). Preceding the negotiations and adoption of the Kyoto Protocol in 1997, the 1995 Second Assessment Report (SAR) was released. Among many others, prominent scientists like Hansen had significant influence on climate discourse, regarding the dangers of climbing emissions and the protection of future generations and nature (Hansen *et al.*, 2013). The climate science discourse continues to shape best practice and thinking through ‘big data’ modelling and advanced earth observation (IPCC, 2012; Brode, 2020).

### *Climate Contrarian*

In contrast to consensus scientific perspectives on climate change, the Climate Contrarian discourse finds its roots in climate scepticism and denialism and seeks to continue the inexhaustive use of the earth’s natural and non-renewable resources bases without any regard for future consequences (Carlton *et al.*, 2015). According to Dunlap and McCRight (2011:144) “Climate Contrarian Scientists, fossil fuel-based companies, conservative think tanks” and various media platforms set into motion the ‘Denial Machine’. This ‘denial machine’, referred to as an organised approach to climate denialism operated with a core discursive mandate to attack the anthropogenically exacerbated climate change consensus, marginalise the climate science community and enforce unbridled economic growth (Boykoff & Roberts, 2007; Dunlap & McCRight, 2010, 2011; Lewandowsky *et al.*, 2018; Tsonis, 2019). It is important to note the existence of climate denialism in the form of divided views on climate change science, modelling, forecasting, prediction, and uncertainty (Henderson *et al.*, 2018; Glen, 2012, Tsonis, 2019; Roberts & O’Donoghue, 2013). Though the Denial Machine maintains high levels of environmental scepticism through theories focused on denying the global consensus, negotiations forged ahead. The IPCC is currently in the sixth reporting session (AR6) which will be finalised in 2022 (IPCC, 2019) and entails special reports focused on transformative adaptation and warming in the 21<sup>st</sup> century. Despite the active climate contrarian discourse, schools of thought giving impetus to top-down mitigation techniques on a multilateral scale in the form of ecological modernisation approaches also influenced the climate debate.

### *Ecological Modernisation*

Ecological Modernisation arguably took shape with early discussions between 1980-1990 (Mol *et al.*, 2009), and came to impact climate discourse. Pepper (1998) viewed Ecological Modernisation as vehicle for the replacement of industrial capitalism to one that includes ecological integrity and technological innovation. This approach is pushed forward by the developed world economies as a calculated answer to avoid environmental crisis while maintaining certain rates of development. In part it has facilitated a shift in climate change approaches from being viewed as a global problem solvable by dominantly top-down solutions and approaches, to the possibility of effecting change through complimentary bottom-up approaches and reforms. The 2013/2014 Fifth Assessment Report (AR5) revealed observed impacts of climate change were happening faster than previously modelled and predicted, and BAU would push the earth into warming trends of over two degrees Celsius (Bradbury & Tompkins, 2013). However, it remains a contentious issue where critics assert that ecological modernisation will not go far enough to stave off disastrous climate change (Pepper, 1998). While the Ecological Modernisation discourse is supported by many, it has opened more doors of uncertainty and ambiguity rendering it an ongoing contested space endangering the importance and watering down the necessity of the UNFCCC (van Asselt *et al.*, 2016). Bäckstrand and Lövbrand (2016:3) highlighted the return of “civic environmentalism” discourse post-Copenhagen (COP15/CMP5), calling for more transformative order of “capitalistic societies” to enable a sustainable future for humanity, like the rise of Climate justice in 2015 and 2017.

### *Climate Justice*

In contrast to the gradualist ecological modernisation approach, the Climate Justice movement also significantly impacted climate discourse, which came to incorporate discussions of environmental justice and Climate Justice. The conversations held within the confines of this discourse began to unearth serious ethical dilemmas around climate change framing the issue in a ‘rights-based’ and political context (MRF, 2019). By the release of the 2001 Third Assessment Report (TAR) the need for humans, plant, and animal species to adapt to climate change brought to the fore social, environmental, gender-based, racial, and economic inequalities. This justice dimension of the climate discourse was reflected in the principles of Article three of the UNFCCC, focused on Common but Differentiated Responsibilities (CBDR) and the need for developing countries to be given adequate space to develop, as

developed countries have been given in the past (this is still relevant today). The unequal distribution of development between countries compounded by the burdens of climate change began to surface on multiple scales. Over this time, numerous global engagements, such as the World Summit on Sustainable Development (WSSD) and the Rio+20 conference, furthered discussions on curbing climate change and achieving sustainable development imperatives. These global platforms facilitated the movement of discussions from CBDR principles towards the use of market mechanisms. The 2007 Fourth Assessment Report (AR4) encouraged decision makers to see the importance in keeping global temperatures to below two degrees Celsius for the betterment and longevity of humanity, bringing ‘market-based mechanism’ discussions to the fore (Ciplet & Roberts, 2017).

### *Neoliberalism*

Almost diametrically opposed to climate justice perspectives, Neoliberalism can be described as a pathway for varying socio-economic thoughts and ideas, which privilege markets and reduced state intervention (Castree, 2010). A prime example displaying the foundations of the Neoliberal discourse in climate change is the commodification of carbon through carbon trading (Liverman, 2009). This has been argued by critics to be an agenda pushed by developed world economies to avoid being bound to significant emission reduction targets, thus reducing the power and effectiveness of the Kyoto Protocol (Lohman, 2008; Bond, 2010). Neoliberal influence in climate governance gave rise to the development of an abundance of market-based mechanisms under which carbon trading and other further monetary-value-based solutions (ecosystems services) became the order of the day such as the Clean Development Mechanism (CDM) and other emissions trading schemes (Nel, 2017). The impact of a depoliticised, market-based approach has been felt in climate negotiations, not least in Durban (a coastal city in KwaZulu-Natal, South Africa). Although the Durban negotiations claimed to have achieved diplomatic wins, subtle notions of the bearing of climate burdens and responsibilities by states were lost in the process. Ciplet and Roberts (2017:153) contend such notions were replaced by an “everyone is responsible” discourse, linked to carbon trading. However, Jones and Stafford (2021:331) contend that market-based approaches are not adequate in dealing with the climate crisis due to “operating beyond safe global limits”. In addition, Mavelli (2019:225) highlighted the “ontology of complexity at the heart of existing discourses and practices of resilience”, extending climate action beyond the neoliberal discourse.

### *Complexity*

Woven into this picture is the Complexity school of thought, focusing specifically on the complexities and unknowns existing in climate research, implementation, and communication. The main thought process in the Complexity approach is often to break down complex problems into smaller issues with individual aims and tasks thereby seemingly decreasing the size of the complexity into smaller more manageable problems (Fleming *et al.*, 2014). In this regard, uncertainty and the complexity of interpreting climate related data is key to the complexity discourse, social and ecological system research, and assemblage theorisation. The reduction of uncertainty and ambiguity is noted in assessing risks to climate change. However, some scientists and decision-makers continue to view uncertainty and ambiguity as a case for more action related to mitigation not boding well for advancing climate change adaptation action (Adger *et al.*, 2003; UNTC, 2018). Quantifying uncertainty is one of the greatest challenges faced by climate scientists and amongst the greatest efforts to achieve (Adger *et al.*, 2003; Ogurtsov *et al.*, 2013; Kjellström *et al.*, 2018; Pettengell, 2010).

The complexity discourse is laden with climate-jargon from numerous branches of scientific inquiry<sup>9</sup> advancing the uncertainty and ambiguity battle in climate change (Low & Buck, 2020). Uncertainty Theory was made known by Liu (2011:4), defining uncertainty as, “anything that can be quantified by the uncertain measure”. Modelling human uncertainty finds its place in a branch of mathematics. Although Liu’s (2011) definition embodies quantitative form, uncertainty is not quantified in any form in this research, it is merely noted as part of project implementation findings. Ambiguity in climate change definitions also affect the understanding of climate change and adaptation planning on local and community level geographical scales. Wasow *et al.*’s (2005:1) definition of ambiguity is that “an expression is ambiguous if it has two or more distinct denotations – that is, if it is associated with more than one region of the meaning space”. In keeping with the jargon-filled complexity discourse, uncertainty and ambiguity is sometimes referred to interchangeably where ambiguity aversion sometimes gives rise to secondary issues opening disaster risk management, loss and damage and, early warning systems information to controversy (Millner *et al.*, 2013; Desai & van de Sluijs, 2007; Travis, 2013; Taner *et al.*, 2017). Ambiguities and uncertainty in value-based adaptation, roles of communities and climate governance affect the framing of adaptation in

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<sup>9</sup> monitoring, evaluation, coping capacities, maladaptation, tipping points, climate engineering and responsible research and innovation.



CBA and EBA approaches, increasing complexities in decision-making processes (Turhan, 2016; Steenbergen & Warren, 2018; King & Jones, 2021).

The transformation climate debate has also grappled with climate change uncertainties and ambiguities by approaching adaptation through relational and systemic developmental approaches including Transformative, Incremental and Transformational concepts and perceptions (O'Brien, 2012; Dujardin, 2019, Barrott, 2020; Douwes, 2018; Eriksen *et al.*, 2021). Complex systems-thinking and socio-ecological interconnectedness in systems facilitated the move from the complexity discourse to transformation (Few, 2017).

### *Transformation*

Transformation as a school of thought, emerged as the most recent form of exploring how actor networks conceptualise adaptation in changing circumstances. These schools of thought are commonly associated with exploring shifts in governance, power relations, institutional structures, and developmental challenges (Pelling, 2011; Català, 2014; Toole *et al.*, 2016; Few *et al.*, 2017; Taylor *et al.*, 2019, Barrott, 2020; Eriksen *et al.*, 2021, Fox & Alldred, 2020). Català (2014) and Kates *et al.* (2012) view Transformational Adaptation in two ways; the first being implementation on large geographic scales concerned with the coping of risks, vulnerabilities, and the questioning of established systems, while the second view revolves around the idea of humans influencing changes based on co-evolution with the natural environment. The latter is aligned to Lang's (2019) view of transformational adaptation where it is perceived as a paradigm shift latent with complex-reality problems, power imbalances and long-term timelines. Eriksen *et al.* (2021:4) highlight the benefits of seeing adaptation interventions as more than "technical interventions", where the heterogeneous elements of the adaptation intervention and their relations to each other can be considered. One of the core considerations for transformational adaptation as a more inclusive and systemic approach to climate change is a systemic change rather than slow incremental changes to anthropogenically created climate change (O'Brien, 2012). Following the same train of thought, Dujardin (2019) argues for a hybrid response to climate change adaptation involving multiple perspectives of socio-ecological relations and knowledge building. He uses 'Hybridity' to explain climate-society relationships and embraces this approach in development planning for adaptation with a focus on "rethinking the extensive nature of systemic relations" (Dujardin, 2019:3).

Transformation is seen as a more inclusive and overarching approach to adaptation interventions employing aspects of polycentric governance, monitoring and evaluation,

poverty reduction, complex realities, social injustice, power imbalances and long-term changes. Numerous views on Transformative and Transformational Adaptation exist. Chhetri *et al.* (2019) recognise that systems undergo some form of incremental adaptation before arriving at transformed states of change; moving from coping with climate stresses to transformation of systems. Schulz and Siriwardane (2015) view transformative and transformational adaptation as interchangeable concepts depending on the nature of the response to climate change. According to Taylor *et al.* (2019:2) “transformative adaptation is a relatively new concept” used normatively and analytically, calling for system reform, making improvements to and increasing efficiencies of, the existing system respectively. Taylor *et al.* (2019) and Vermeulen *et al.* (2018) go further to describe the differences between Incremental and Transformative Adaptation. Incremental adaptation is said to increase efficiencies and make improvements on existing systems, while Transformative Adaptation is considered a disruption of the system with emphasis on changing power structures and associated paradigm shifts at landscape level scales where transformation can be seen. However, critiques of the Transformation discourse also exist. Dinshaw (2014) argues that without concrete criteria for what constitutes as transformative, facilitating transformational adaptation is challenging. Taylor *et al.* (2019) and Blythe *et al.* (2018) also warn of risks associated with this discourse, including defining transformation too loosely so as to justify a BAU scenario, shifting burdens to more vulnerable groups and a lack of attention to power and political dynamics among others. Fedele *et al.* (2019) also attests that limited information exists on what transformative adaptation looks like and when to implement it.

Considering the brief exploration of the various dominant climate change schools of thought and discourses, this research identifies with the Complexity and Transformation schools of thought as systemic shifts, ambiguity, uncertainty, impacts, and complex realities are explored in relation to CBA-EBA interventions. As will be seen, the influence of the neoliberal discourse is also evident, as the Wildlands CEBA Assemblage is partly influenced by an entrepreneurial neoliberal response to climate change. In the next section I delve into a discussion of the adaptation discourse, its beginnings and eventually the placement of the Wildlands CEBA Assemblage within the Adaptation Discourse.

### **2.2.3 Adaptation discourse and practice in response to climate change**

The extension of adaptation into climate discourse is seen in the evolution and expanding scope of adaptation as a discourse and practice, which is also a focus of this research inquiry.

According to Smit and Wandel (2006) adaptation first appeared significant to human and social studies through cultural ecology and anthropology, while Ziervogel (2018) highlights its presence in the biological and natural sciences. It did not appear as a standalone agenda item on international platforms until 1999/2000, as it was viewed as ‘taking away attention’ from the mitigation mandate of the UNFCCC at the time (Adaptation Committee, 2019). The arrival of adaptation as a standalone item on the climate change scene brought with it a growing list of concepts and definitions, including Adaptability, Adaptive Management, Adaptive Capacity and Maladaptation among others (Brooks, 2003; IPCC, 2001a; IIED, 2014; Perreault *et al.*, 2015). As mentioned by the IPCC (2001b) and OECD (2009:42), “Adaptation is defined as adjustments in human and natural systems, in response to actual or expected climate stimuli or their effects, that moderate harm or exploit beneficial opportunities”. Tompkins and Adger *et al.* (2003:5) note, “Adaptation refers to the actions that people take in response to, or in anticipation of projected or actual changes in climate, to reduce adverse impacts or take advantage of the opportunities posed by climate change”. The IPCC definition used the word “adjustments” whilst Tompkins and Adger *et al.* (2003) used “actions”, illustrating how the adaptation discourse steadily moved towards forms of action, beyond limitations of identifying adjustments, impacts, risks, and vulnerabilities (Wise *et al.*, 2014).

Adaptation gained more traction in mainstream climate discussions through a growing adaptation discourse. Fleming *et al.* (2014) and Fairclough (1989,1992, 2003) argue that discourses can change or reinforce social norms and practices. For adaptation, a shift in climate discussions mainstreamed adaptation programmes of work. The Buenos Aires Programme of Work on Adaptation and Response Measures and the Nairobi Work Programme (NWP) enhanced the footing of adaptation in the climate change discourse and agendas worldwide (Caripis, 2014; Parry *et al.*, 2005; UNFCCC, 2018). Various other approaches and programmes worked to entrench adaptation.<sup>10</sup> One of the first instances where adaptation came to prominence, was when it was included in the Subsidiary Body for Scientific and Technological Advice (SBSTA) 20 (June 2004). This considered “mitigation and adaptation as two separate new agenda items” (UNFCCC, 2006:76). Thereafter, new schools of thought on adaptation

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<sup>10</sup> Vulnerability and Adaptation Research Group; Convention on Biological Diversity; Country specific Climate Change Impact and Adaptation Program; research contributions using General Circulation Models (GCMs), risk and vulnerability assessments, bottom-up and stakeholder driven approaches (Watts, 2015).

including Transformational Adaptation dominated negotiations raising the adaptation agenda on various discussion platforms (Adger *et al.*, 2003).

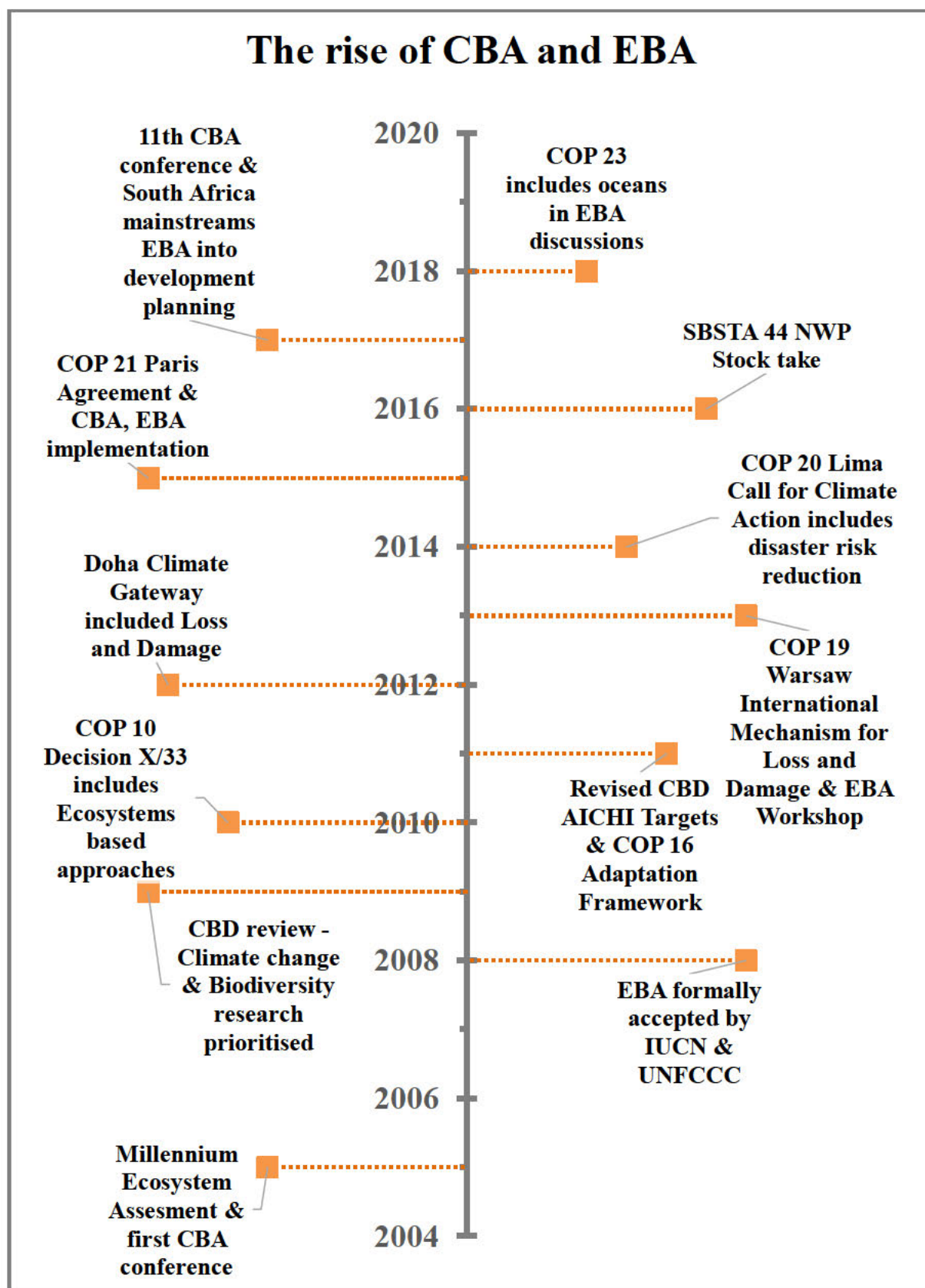
In recent times, the adaptation discourse alone is responsible for creating space solely for planned adaptation activities, however Eriksen *et al.* (2021:6) note the leaning towards “retrofitting of adaptation” into current development regimes in some instances (Adger *et al.*, 2003). The adaptation discourse also expanded further to include scoping ranges, risk, loss and damage, hazards, disaster risk reduction, disaster risk science and gender-responsive adaptation (Füssel, 2007; Montz & Tobin, 2011; Katic, 2017; Adaptation Committee, 2019). The adaptation discourse was reframed and repurposed to include water management practices, food security, green construction, integrated ecosystems-based adaptation, and coastal management among others, based on adaptive management approaches (Eriksen *et al.*, 2021; Magnan *et al.*, 2020). Adaptive management, referred to as a ‘learn-by-doing’ approach, was originally named “Adaptive Environmental Assessment”. It found its roots in systems theory, social learning, industrial ecology, and later through natural resource management. (Rist *et al.*, 2012:1; Macleod *et al.*, 2016; Kato & Ahern, 2008). Later, adaptative management became known as an integrated approach/solution to multifaceted environmental management problems, linking knowledge, action-research, and policy experimentation, though not without critique and persisting problems (Stankey *et al.*, 2005; Lee, 1999; Huq & Reid, 2007). Most recently, Singh *et al.* (2021) adds to the adaptation discourse by putting forward eleven framings of what they term, effective adaptation. The authors critically examine the links and trade-offs between the way adaptation is framed the resulting implications of each framing.

Various entry points to achieving adaptation have been identified with EBA and CBA becoming key focus areas in the global climate change debate (Chevallier, 2017). The links between integrative approaches and systemic changes are also evident in the IPCC’s Special Report on the impacts of global warming citing cross-sectoral and multifaceted responses to climate change challenges (IPCC, 2018). In this light, adaptation is seen as an opportunity to generate hope for a better future through fundamental systemic changes including component structures, institutions, research-practice linkages, and actor positions (Pelling, 2011; Chevallier, 2017; Lang, 2019; Pelling *et al.*, 2015). Integrative approaches also began to develop combining mitigation and adaptation through cost-effective integrated assessment models and “cause and effect interactions” (Bryant, 2015:74). These were intended to address the diversity of risks and effects of exacerbated climate change, such as Africa’s Adaptation Gap Report (Ayers & Huq, 2008; Bosello *et al.*, 2013; Schaeffer *et al.*, 2013). Community

Based Adaptation (CBA) surfaced as a bottom-up adaptation approach in several global discussions. Subsequently, the concept of Ecosystems Based Adaptation (EBA) attracted attention and gained momentum at COP10 of the CBD. Since then, global goals on adaptation have been set through the Paris Agreement (legally binding international climate change treaty), including increased participation of the private sector (Carter *et al.*, 2018; Di Bella, 2018; Ramanand & Ward, 2019; PIDG, 2020). The next section gives a detailed account of CBA and EBA in relation to this study.

#### **2.2.4 Community-based adaptation and ecosystems-based adaptation**

Adaptation, CBA and EBA were on the agenda of various international conferences and conventions, however, it was only in 2008 that EBA was formally introduced as a concept at the UNFCCC, after the link to adaptation in ‘Article 2’ of the UNFCCC had been made (WOCAT, 2016: par. 3; Caripis, 2014). Adaptation was given low priority in the early 1990’s, and as a result CBA research and approaches were also only given attention 15 years later. CBA is used interchangeably with EBA in most project contexts, and as highlighted earlier in this chapter, Kirkby *et al.* (2017:1) identified, “No publications to date have focussed on clarifying the CBA concept”. This section will cover both approaches and discuss their synthesis, which is of direct relevance to this study. The discussion begins with a chronological view of CBA and EBA into the Adaptation discussion (Figure 2.1).



(Produced by Ramanand, 2020)

Figure 2.1 CBA and EBA Timeline

CBA and EBA's entry into climate change adaptation discourse, began with the acceptance that adaptation is also a key piece of global climate change solutions proposed by the UNFCCC (Adaptation Committee, 2019). EBA was considered an approach utilizing the ability of ecosystems in a sustainable manner to provide food, water and air among others, also known as "ecosystem services" (WOCAT, 2016: par. 22). CBA was defined as a community-led process, based on communities' "priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of climate change" (Reid *et al.*, 2009:13).

CBA was first introduced in 2005/2006 as EBA, was equally gaining momentum on international platforms (Giot *et al.*, 2012; Kirkby *et al.*, 2015, 2017). The first CBA conference in 2005, aimed at defining the concept and brainstorming channels of dissemination on international platforms (IIED 2016). Since then, there have been 11 subsequent international CBA meetings based on knowledge sharing and a best practice foundation, where CBA is inherently linked to conceptualisation of vulnerability, seeking to improve resilience and capacity in the face of shocks (Koelle & Annecke 2018). Disaster Risk Reduction (DRR) is not discussed in this research but has been associated with CBA through natural hazards research and adaptive capacity (Reid *et al.* 2009). Vulnerability in a CBA context is viewed from a social perspective, encapsulating the ability of individuals to respond to "external stresses" placing pressure on livelihoods and wellbeing (Adger *et al.*, 2003; Adger & Kelly 1999:254). In recent times, there has been a scaling-up and scaling-out of CBA interventions over larger geographical landscapes to address vulnerabilities including the integration of EBA strategies and frameworks (Kirkby *et al.*, 2017). The pairing of Community Based Natural Resource Management (CBNRM), Climate Change-Integrated Conservation Strategies (CLICS) and CBA type projects has also sought to achieve climate change adaptation through ecosystem conservation, biodiversity preservation and socio-economic benefits (Midgley *et al.*, 2012; DEA & SANBI, 2017).

EBA, by contrast, focuses on ecosystem services (WOCAT, 2016: par. 22), and though it accounts for impacts on communities in its approach, socio-economic processes are not the primary objective. The notion of EBA stemmed from what used to be known as "natural solutions to climate change" in the circles of NGOs and others (DEA & SANBI, 2017:5). The IUCN promoted EBA as a "nature-based solution for addressing the impacts of climate change on people and their environment" (IUCN, 2018: par. 4). The consolidation of EBA definitions and technical practices were the result of the work completed by 1,360 experts worldwide under

the 2005 Millennium Ecosystem Assessment. Like adaptation, EBA is defined and framed differently by many theorists, practitioners, and Organisations. The UNEP, CBD, GEF and IUCN definitions frame EBA as part of an overall adaptation strategy helping ecosystems and communities adapt to the negative effects of climate change (Raasakka, 2013). However, in the CBD (2009:10) definition, “Ecosystem-based adaptation uses biodiversity and ecosystem services in an overall adaptation strategy...include(ing)...sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to the adverse effects of climate change” (FEBA, 2017; Swiderska *et al.*, 2018). This definition is used by the South African government as a foundation for national EBA imperatives (DEA & SANBI, 2017). In other definitions, EBA has been expanded to include the words and phrases, conservation, sustainable management, restoration of natural ecosystems and adapt to life in a less predictable climate system (Conservation International (CI), 2017; SANBI, 2018).

As the timeline above illustrates (Figure 2.1), CBA and EBA literature and practice developed alongside one another for approximately one decade before integration of the concepts began receiving global attention together, but as separate streams of work. The imbalance of attention is given to ecological concerns, where the ecological is prioritised over the social aspects of adaptation interventions can be seen. The words ‘biodiversity’ and ‘ecosystems’ are placed at the forefront, with ‘people’ and ‘communities’ appearing after, signifying a primary focus on natural systems. The Ecosystem and Livelihoods Adaptation Network presented a conceptual framework for integrating CBA and EBA in 2012 and subsequently, the term ‘EBA+’ interventions also briefly entered global discussions, aiming to show how growth in communities can occur through ecosystem service and biodiversity imperatives (Midgley *et al.*, 2012; Girot *et al.*, 2012). However, integrated interventions are not without their challenges, where an adequate understanding of socio-ecological dynamics, governance and stakeholder relations is also required before pushing towards adaptation action (Swart *et al.*, 2014; Carpenter *et al.*, 2012; Grygoruk & Rannow, 2017).

To synthesise, EBA and CBA approaches reveal the integration of the natural and social sciences in project implementation, monitoring and evaluation, can contribute to successes (Chevallier, 2018). In 2012, Girot *et al.* argued for an integrated approach to CBA and EBA by proposing a conceptual framework focused on empowering local communities and managing ecosystems under governance arrangements. As they put it, “EBA is being pushed to consistently incorporate human rights-based principles while CBA is pressed to integrate an environmental perspective and principles” (Girot *et al.*, 2012:3; Girot, 2013). This consistent



requirement teases out a significant gap in EBA and CBA approaches, pointing out that each is missing a component of the other (IIED, 2014; IIED, 2012; UNTC, 2018).<sup>11</sup> Relatedly, the 11<sup>th</sup> CBA International Conference ensured the prioritisation of the 'C' in CBA (Reid *et al.*, 2017a), ensuring knowledge sharing on achieving meaningful community participation. Successful examples have proven integrating aspects of CBA and EBA responded to socio-economic problems, incited new governance discussions, and championed biodiversity and conservation efforts.<sup>12</sup> While the conjunction of CBA and EBA is theoretically a good idea, there are more practical and technical issues to consider such as, the need for a 'common language' between the two schools of thought (CBA and EBA), more evidence-based impacts of integrated approaches on larger scales and monitoring and evaluation of project activities and outcomes (Tabara *et al.*, 2019; Girot *et al.*, 2012; IIED, 2014; Reid *et al.*, 2017b). Although the monitoring and evaluation technicalities and policies are not studied in detail, climate governance, stakeholder engagement, frameworks, and evidence-based impacts are highlighted in the next section and chapters to follow (*Chapter Seven*).

To conclude, integrating aspects of CBA and EBA approaches have proven thus far that understanding human-society linkages and interconnections play a significant role in the success of adaptation interventions (Reid, 2014). This growing consensus that EBA and CBA need to align and integrate is where the Wildlands CEBA Assemblage finds its place in the adaptation literature and the Complexity and Transformational Adaptation Discourses. With time, the CBA and EBA discussions have also attracted a range of scientists, practitioners and decision-makers enhancing the adaptation discourse in development planning regimes. The broad range of actors active in adaptation interventions are also able to view project interventions through more than one lens when attempting integrated solutions. The South African context in relation to climate change, CBA and EBA adaptation interventions is detailed in the next section.

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<sup>11</sup> The Kathmandu Declaration for CBA efforts and The Nairobi Declaration (IIED, 2014; IIED, 2012; UNTC, 2018).

<sup>12</sup> Bartang valley Tajikistan (Schumacher, 2017); Kanungu, South Western Uganda (Ivan, 2018); the Peam Krasop Wildlife Sanctuary (PKWS) in Cambodia project (Glémet, 2015); the shared governance approach to conservation of natural resources in the coastal zone of Soc Trang Province, Mekong Delta, Vietnam (Nguyen, 2015); the Global Initiative on Community-Based Adaptation (GICBA) initiative in 2010 and the weADAPT platform (weADAPT, 2007).

## **2.3 Adaptation in the South African Context: Actions and Techniques**

This section discusses the active steps taken by South Africa towards climate change adaptation action, setting out existing studies, including adaptation policy, stakeholder management, interventions and development and planning tools.

### **2.3.1 Climate change in South Africa**

South Africa remains a coal-reliant country with a current population of South Africa of 59,62 million (STATSSA, 2020). However, South Africa's GHG emissions are approximately 1.1% of the global emissions (DEA, 2018b). As a signatory to the UNFCCC Paris Agreement, South Africa's Nationally Determined Contribution (NDC) is consistent with the Copenhagen Accord pledge proposing emission reductions below BAU levels, by 34% by 2020 and 42% by 2025 below business-as-usual (GIZ, 2017-2020). Unfortunately, South Africa moved to a Peak, Plateau, Decline (PPD) trajectory indicating that emissions will only begin to stabilise between 2020 and 2025 (PMG, 2021).

South Africa is not a stranger to addressing global environmental issues in the face of socio-economic hardship (Kings & Wild, 2015; Shaxson *et al.*, 2016). This is achieved through the implementation of innovative climate change projects, multilateral discussions, upholding environmental integrity and lessons learned sharing approaches (Taylor *et al.*, 2019). However, a lack of adequate evidence-based, information and research on climate change adaptation interventions and frameworks have been noted (Wills *et al.*, 2016; DEA, 2012; DEA, 2019a). When addressing the potential of socio-ecological adaptation in the face of threats such as climate change, Kato and Ahern (2008) emphasise the importance of 'learning by doing' where obstacles are turned into opportunities of learning. This is evident in the case of CEBA in the eThekweni Municipality of South Africa (*Chapter Four*).

As a complimentary approach to meeting the challenges posed by climate change the South African government has adopted a 'Water-Food-Energy Nexus Approach', reflecting the country's commitment to Climate change mitigation and adaptation goals (DEA, 2018a, 2012; Nhamo *et al.*, 2020). This paradigm shift towards a policy, science and best practice triad considers the synergies and trade-offs between life-giving non-renewable resources (water, land, and energy) to realise the potential of the green economy through interdisciplinary and integrated mitigation and adaptation interventions (Liu *et al.*, 2018; SFSA, 2019; The Nexus Platform, 2019; GIZ, 2017-2020). Other key steps in South Africa's response to climate change

include: the 2019 Nexus approach Dialogue in Johannesburg, resulting in a draft WEF Nexus Governance Framework, governance mechanisms and investment project screening/appraisal tool (GWP, 2019); a draft publication of a National Climate Change Bill in 2018 (DEA, 2019b) and an approved carbon tax bill in 2019 (South African Government, 2021). South Africa has taken significant steps towards ambitious climate actions; however, independent studies have also found that South Africa's targets are still too conservative and weak to limit global warming to below 1.5 degrees (Fourie, 2021). The next section gives a detailed account of national and local level climate governance and stakeholder engagement.

### **2.3.2 Governance and stakeholder engagement in South Africa**

Climate governance and stakeholder management in South Africa prioritise a 'people centred' approach in climate change policies, flagship projects and local climate change interventions. Despite various socio-economic and apartheid-legacy challenges, legislation to coordinate government departments and local government entities have been set up over the past 15 years in South Africa, including climate change responses and platforms<sup>13</sup> (Giordano *et al.*, 2011). The *Governance of Climate Change in South Africa* report of 2011 highlights three coordination mechanisms when dealing with climate change: Vertical, Horizontal and Stakeholder coordination (idem). These refer to coordination of different spheres of government across different government departments and sectors; and public participation in government led forums (addressing climate change and socio-economic issues) respectively. According to the report, horizontal coordination refers to mainstreaming climate objectives across different government departments. Vertical coordination, more difficult to achieve, refers to functioning from national, provincial and the local levels of government (Giordano *et al.*, 2011:20). At the local municipality level dealing with the symptoms of climate change has been a dominant practice due to recent climate related disasters and inadequate physical and telecommunication infrastructure. Various flood and drought incidents in South Africa have been termed climate related disasters (Daron *et al.*, 2019; Stolley, 2015; News 24a, 2011; News 24b, 2017). Municipalities shifted their service provision towards disaster management in

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<sup>13</sup> The South African Risk and Vulnerability Atlas (SARVA), The Long-Term Mitigation Scenarios (LTMS), The Long-Term Adaptation Scenarios (LTAS), the South African Green Economy Model (SAGEM), National Climate Change Response White Paper (NCCRWP), National Adaptation Strategy (NAS), Durban Adaptation Charter (DAC), Intended Nationally Determined Contributions (INDC), 5th International Climate Change Adaptation Conference 2018 (DEA, 2018a).

recent times including DRR approaches and the Sendai Framework for disaster risk reduction into their basket of climate solutions (Tiepolo & Braccio, 2020; UNDRR, 2020).

Climate change stakeholder dialogues in South Africa prioritise the role and inclusion of communities in low-carbon development planning.<sup>14</sup> Many countries have legislated community involvement in climate change planning but struggle to implement it. However South African government structures, NGOs and the private sector are mandated to include community participation and capacity building at all levels of development. This is evident in Local Economic Development (LED) initiatives (van Niekerk 2014; NBI, 2017; South African Government, 2018). Local municipalities allocate more than 10% of their planning budgets to DRR, Gender mainstreaming and stakeholder engagement in response to disaster risks and losses in livelihoods (Tiepolo & Braccio, 2020). Furthermore, Polycentric governance in South Africa is considered central to achieving collective climate change solutions across sectors, actor-networks, communities, and ecological boundaries (Cole, 2011; Carlisle & Gruby, 2017). One of the guiding principles of the National Climate Change Adaptation Strategy (NCCAS) of South Africa is to include communities as part of the development and implementation of the NCCAS (DEA, 2019a). While this is the anticipated way forward, bottom-up participatory processes can also lead to further complexities such as a lack of cohesion, political deadlocks, and time-consuming discussions. Challenges include investment in decision-making frameworks and information sharing platforms, connecting stakeholders digitally and “facilitating meaningful public participation mechanisms” and participation slow down the process (Feldman, 2016:881).

Addressing the gaps and constraints in different planning systems is a helpful step forward when rethinking planning systems in the context of climate change. The consideration of real-life experiences, longer time frames and “changing environmental stressors” are considered key differences between development and climate change adaptation interventions (Wiid & Ziervogel, 2012:153). While planning processes in South Africa allow for the development of commonalities, alignment and linkages between sectors and stakeholders (at various geographical scales), the complex nature of climate change requires significant integration and mobilisation of actors and resources across multiple disciplines, geographical boundaries, and

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<sup>14</sup> The City of Johannesburg CBA assessment, Carbon Capture and Storage Roadmap, South Africa’s Carbon Tax, The National Climate Change Adaptation Strategy, South Africa’s Low-Emission Development Strategy 2050, Community based climate smart agriculture initiatives and the National Climate Change Bill among many others (Janoska, 2013; Beck *et al.*, 2013; DEA, 2018b; Adaptation Network, 2020).

cultural divides (Lorimer, 2018). Although project-based and city-scale examples of participatory stakeholder engagement exist in South Africa, there is still much learning to do before seamless integrated climate change adaptation interventions are implemented (Ziervogel *et al.*, 2014). Adaptation projects and associated frameworks and tools will be discussed in the next section. South Africa has implemented numerous climate change adaptation and mitigation interventions thus far, however, a limited number of interventions and tools will be discussed.

### **2.3.3 Adaptation interventions, frameworks and tools in South Africa**

Climate change adaptation interventions are aimed at increasing society's resilience to the negative effects of climate change. They also contribute to analysing real-time change using frameworks, tools, and M&E practices. The frameworks and tools must be viewed as a means to help communities understand climate change and assist them in planning for project interventions tailored to their needs in the long-term. These interventions should not be passed on as short-term 'fool-proof' solutions to complex socio-ecological problems, and must be fuelled by research, capacity building and technological advancement (Midgley *et al.*, 2011). It is in this light that institutional frameworks, M&E practices, and transformational adaptation practices are discussed, citing South African examples.

Transformational Adaptation frameworks in general are viewed separately to Incremental Adaptation in that they are characterised by systemic changes and include incremental adaptive actions and impacts such as small-scale management strategies or policy changes. In the South African, and developing world context, Marans (2015), Loorbach (2010) and Ziervogel *et al.* (2016a) recognise innovative governance and the move from adaptation to 'deliberate transformation' in the context of environmental injustice and capacity building, whilst maintaining environmental integrity for future generations. One of these innovative examples was the development of the South African Climate Change Response Policy. The policy developed through active engagement of scientists in the policy development process from the inception instead of the more traditional policy development process where policymakers involve scientists on a needs basis (von der Heyden *et al.*, 2016).

NGOs like Wildlands have also become instrumental in responding to socio-ecological challenges especially on behalf of the South African governments. However, eliciting funding and sponsorship has always been a primary concern (Matthews, 2017; Aldashev & Navarra, 2018). Though not explicitly dealt with in this study, the direct relationship between the NGO

community and reliance on funding is not a new body of literature. Islam (2016) and Ssekamatte (2018) noted reducing dependence on donor funding can avoid issues with credibility and autonomy and, reduce donor demands on the NGO. However, this is not yet primarily the case in South Africa. Being one of the largest NGO's, Wildlands prides itself on being a key role player/ actor in realising social innovation and responding to environmental concerns in South Africa through its various programmes (Wildtrust, 2018). Wildlands provides a good case for exploration of the organisations work operating under the CEBA domain, including exploring the 'workings' of the organisation and the roles of different actors in local CEBA adaptation interventions.

Innovative climate change interventions in South Africa consider the creation of sustainable communities and robust monitoring and evaluation systems as part of a learn-by-doing approach (Marans, 2015; Kato & Ahern, 2008; Soal & Diedericks, 2018). Section 12 of the 2012 National Climate Change White Paper (NCCRWP) emphasized that M&E is needed to "update South Africa's Knowledge"<sup>15</sup> (DEA, 2012:16). The Strategic Framework and Overarching Implementation Plan for Ecosystem-Based Adaptation in South Africa also revealed a significant gap in M&E exercises regarding costs versus benefits of climate change adaptation implementation (DEA & SANBI, 2017). Unfortunately, this gap is a double edge sword, for developing countries. The lack of finance, technology, capacity building assistance gives rise to limited resource challenges prohibiting M&E inclusion and advancement (Taylor *et al.*, 2014).

The modus operandi of South African projects emphasises a culture of learning from practical experience to reframe and understand climate change for the purpose of exploring and informing the development of new approaches (Roberts *et al.*, 2012). As such, a few South African examples and international examples of climate change tools are discussed for the purpose of comparison. Strategic Action Frameworks, Risk and Vulnerability frameworks and M&E frameworks are increasingly providing platforms for evidence-based knowledge archiving and auditing, each considering unique socio-ecological circumstances, the dynamics of human agency and an array of physical geographical variance (Chersich & Wright, 2019; Moulton & Sandfort, 2017; Porter & Goldman, 2013; Amisi, 2015; Umlaw & Chitepo, 2015).

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<sup>15</sup> Under the adaptation planning, goals, and aspirations of the INDC, South Africa made an obligation to contribute to national M&E information databases and, identified the need for a "vulnerability assessment and an adaptation needs framework by 2020" (AAI, 2016:15; CSIR, 2015b). The national Department of Environmental Affairs Climate Change branch is yet to realise a fully operational Chief-Directorate for M&E (DEA, 2018a).

At the South African level, the Department of Environmental Affairs and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) initiative, *Let's respond Toolkit* is an interactive website established through the Local Government Climate Change Support Program (LGCCSP). It provides the public with information on how to integrate and mainstream climate change knowledge, risks and opportunities into district and local municipality level development planning (Let's Respond, 2018: par. 1; DEA, 2012). However, this tool does not go beyond producing static information on the physical and biophysical elements of climate change but does provide CCRVA informational examples of local municipalities. There is no dedicated element of this tool to help decision makers understand the links between social-innovation practices and the disaster or natural hazards information available on the site. Another example includes monitoring of air temperatures in relation to outbreaks and occurrences of diarrhoeal disease in the city of Cape Town. In addition, the South African government established national disaster management frameworks where climate information from the South African Risk and Vulnerability Atlas is used to highlight forthcoming extreme heat occurrences (Chersich & Wright, 2019).

The South African Monitoring and Evaluation Association established in 2005, attempts to address the vast M&E needs of the country through independent third-party reviews and evaluations (SAMEA, 2020). However, by comparison, internationally designed tools far outweigh South Africa's current data management and M&E capacities<sup>16</sup>. The deficiencies in South Africa's current M&E capabilities at the national government level, and the lack of sufficient resources create difficulties for building a seamless, cross-pollinating, and user-friendly country-specific database. Despite aspects of M&E still receiving little to no attention upfront, programmatic CBA and EBA adaptation interventions have been at the forefront of responding to climate change in South Africa. According to Wise *et al.* (2014:328), EBA in South Africa has been the "best way" to deal with socio-ecological systems and adaptation to climate change noted in EBA interventions such as the pilot EBA project in the Namakwa region (Archer van Garderen *et al.*, 2008). Furthermore, DEA & SANBI (2017:9) recognise

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<sup>16</sup> Integrated Urban Metabolism Analysis, EverVIEW data viewer, Analytic Hierarchy Process (Hossaini *et al.*, 2015; Mostafavi *et al.*, 2014; Romanach *et al.*, 2014). The Vulnerability and Capacity Assessment Index (IGES, 2019). The model of private proactive adaptation to climate change (MPPACC) developed by Grothmann and Patt (2005). Vulnerability, Risk and Adaptation Framework by the Tyndall Center for Climate change research (Brooks, 2003).

EBA “as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change” through biodiversity and ecosystem services.<sup>17</sup>

South Africa’s overarching climate change adaptation priorities are focused on transdisciplinary work involving ecosystem health, increasing resilience and adaptive capacity (DEA & SANBI, 2017:25). These approaches have taken shape through initiatives such as the 10-year Innovation Plan, by the Department of Science and Technology’s Global Change Programme from 2008-2018, attempting to increase South Africa’s knowledge base. Though the plan saw some success, younger generations suffered to grapple with issues around the global commons (Dhansay *et al.*, 2015). South Africa has been a key participant in adopting climate change adaptation into policy, development planning and implementation through innovative project interventions funded by the Green Climate Fund and Adaptation Fund. Some of those innovative interventions include, *Building Resilience in the Greater uMngeni Catchment* (uMgungundlovu District - KwaZulu-Natal) and *Taking Adaptation to the Ground: A Small Grants Facility for Enabling Local Level Responses to Climate Change* (Mopani District - Limpopo Province and the Namakwa District - Northern Cape Province) (Adaptation Fund, 2018).

Both project interventions involved multidisciplinary integrative approaches to increase climate resilience in rural and urban communities, and socio-economic systems as well as strengthening household and access route infrastructure. Significant parts of both the projects recognised and documented challenges and opportunities, capacity building, lesson sharing and scaling-up the interventions. Vulnerability and adaptive capacity were used in the *Building Resilience in the Greater uMngeni Catchment* project without adequate explanation on whether the project focused on social or biophysical vulnerabilities and to what extent/degree each vulnerability was to be explored and dealt with (Adaptation Fund, 2018). Gender-based considerations are also considered in the Adaptation Fund and Green Climate Fund. The Green Climate Fund guidelines for project proposals and female participation is recognised in project interventions such as the *Building Resilience in the Greater uMngeni Catchment* project and the newly UNFCCC adopted Gender Action Plan (GAP) (WILDTRUST, 2018; Adaptation Fund, 2018 and UNFCCC, 2019).

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<sup>17</sup> Conservation South Africa in conjunction with Department of Environment Affairs Programmes, piloted EBA work (Reid *et al.*, 2018; Scorgie, 2016).



Though South Africa has made significant strides in climate policy development and climate action, several barriers to adaptation and low-carbon resilient economy still exist (Belynda *et al.*, 2018:55; Averchenkova *et al.*, 2019; Davis-Reddy & Vincent, 2017).<sup>18</sup> To some extent, this is changing through various research inquiries aimed towards understanding the enabling factors necessary for mainstreaming climate change into planning and grant regimes and, eliciting more involvement from the private sector in South Africa and abroad (Marke *et al.*, 2020; Ramanand & Ward, 2019). To this end and although formally undefined, transformational adaptation approaches are gaining more attention as being all-encompassing, flexible approaches to understanding specific socio-economic climate challenges, the externalities and complexities that underpin those challenges (Mummery & Mummery, 2019; Dinshaw, 2014; Pelling, 2011).

Adaptation research is most needed in developing countries (Pasquini *et al.*, 2013), however socio-ecological relationships and complexities in climate change adaptation are under-researched, overlooked, misunderstood, or ignored due to the heterogeneous nature and complexity in the relationships between humans and nature (Ojea, 2014; Schreckenber *et al.*, 2018). To address the current climate crisis and understand the associated complexities, the entirety of the problem (the ‘whole’) should be considered together with the ‘parts of the system’ that are deemed complex (Fox & Alldred, 2020). The next section advances the discussion towards the development of the CEBA Analysis Framework using an assemblage approach. The section begins with introducing the theoretical material chosen for the development of the CEBA Analysis Framework and goes further to highlight the uses of each theoretical base regarding the analysis of the Wildlands CEBA Assemblage.

## **2.4 Theoretical Framework: An Assemblage Approach to Adaptation**

This section is focused on the theoretical underpinnings of the research and the development of the CEBA Analysis Framework. Building on the complexity and Transformation discourses, the selection of source material, the referenced theorists, models, approaches and frameworks used in this study are heuristic. Often, a theoretical framework is viewed as a “blueprint” for the entire dissertation inquiry (Grant & Osanloo, 2014:13). This thesis ‘blueprint’ is

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<sup>18</sup> Slow regulatory reform and restructuring governance arrangements; focus on short-term strategies and incremental successes; M&E; few integrated assessment models have been developed and tested in the African region and assessing impacts of adaptation interventions.

heuristically based. An assemblage approach is the first literature base employed in the study (Deleuze & Guattari, 1987; Anderson & McFarlane, 2011; Li, 2007). Li's (2007) six generic practices of assemblages afforded the opportunity to discuss and describe the findings of the research in a systemic way through assemblage theorisation.

The Wildlands CEBA Assemblage as characterised through this research, hosts numerous heterogeneous elements with varying degrees of authority. Assemblage theory, more specifically Li's (2007) six practices of assemblage (forging alignments, rendering technical, authorizing knowledge, managing failures, anti-politics, and finally reassembling) was used to characterise the Wildlands CEBA Assemblage. Li's (2007) account of assemblages focus on which practices should exist to hold an assemblage together. Li (2007, 2011) applied the six practices of assemblage to forestry assemblages and tracking how 'community' and social development were related. Her focus was exploring the will to govern and address those processes that make governing difficult. Li (2007) used Foucault's work to better understand the dynamics of social control and power inequalities. Foucault explored various avenues of agency, governmentality, objectivity of truth, power and hegemonic discourse, stating that society places emphasis on the 'correct' way to look at a word/ issue/ definition/ problem. Foucault also defined 'government' as the conduct of conduct, drawing to attention how the state and individual affect one another by the mannerisms, behaviours and processes interchangeably enforced on one another (Foucault, 1982). Drawing on Foucault's ideas, two significant outcomes of Li's (2007:5) work is the faltering (collapse) of assemblages under their own weight, and a "map of parties". Collapsing signifies the assemblage reassembling to take on a different form and thus, can no longer function under the original assemblage's name. While map of parties simply refers to the various actors involved in an intervention. As a first step, a similar 'map of parties' will be applied in the research (*Chapter Four*).

To briefly explain the practices of assemblage, forging alignments refers to the making of actor-networks involved in the assemblage, including the relations, tensions or rearranging the interests that exist among the actors. The term rendering technical refers to the process and procedures developed to create boundaries around a particular socio-ecological issue for the purposes of dealing with the reality through a set of devised practices, matrices, or frameworks. Authorising knowledge simply refers to differentiating between the specific bodies of knowledge that will be drawn on for the execution of practices within the assemblage and those that will be left out. Managing failures is the act of presenting failures in a solvable manner, expressing any contradictions/ failures as part of a superficial, fixable issue and not a central

concern. Anti-politics as Li (2007:3) presents it is the reposing and reframing of political questions towards technical conversations. This allows for engagement and debate but heavily limits the degree of engagement based on a limited and technical agenda rather than an open-ended agenda; focusing on the expertise necessary to solve the issue instead of discussing “what and how to govern”. Finally, reassembling refers to recognising the elements of the assemblage that work and do not work so well, identifying where older elements may need to be revived, redeploying schools of thought/ discourses for new purposes and ultimately adapting the assemblage to the reconfiguration.

The CEBA Analysis framework is further discussed and explained providing a rationale for the choice of the theoretical influences in the CEBA Analysis Framework. Reiterating the links to post-structuralist school of thought, the Wildlands CEBA Assemblage also involves a fair amount of relation between power and knowledge, a sense of governmentality and control as well as how language (discourse) is used to influence decision-making. The CEBA Analysis Framework engages the integration of the social, environmental, and economic aspects of an integrated CBA-EBA intervention, to investigate inception, evolution, scale, and impact of the intervention. This is the lens through which the data and information in this research is studied. The choices made to use the select few, to develop the CEBA Analysis Framework was based on the premise that they will yield the most fruitful linkages and dialogues to the empirical data in forthcoming chapters. If a person or organisation wishes to understand adaptation interventions as an assemblage, the following should be considered:

1. The emergence of the intervention, the multiplicities and socio-spatial relations, processes, and interconnection between moving parts of the system (Practices of assemblage)
2. How people talk about adaptation (Discourse analysis)
3. Organisations, the roles, and responsibilities for implementation (Managerial aspects)
4. The anticipated impacts, uncertainties and ambiguities from the implementation of adaptation frameworks (exploring livelihoods, capabilities, individual functioning, and vulnerabilities)

The development of the CEBA Analysis Framework considered these four aspects when tracking the evolution of an integrated CBA-EBA approach. These aspects afforded the opportunity to explore and contribute to evidence-based CBA and EBA knowledge. The first

being how practices of assemblage can be used to characterise and explain the interconnectedness and socio-spatial relations in adaptation interventions. Secondly, how adaptation is approached in terms of the socio-political and economic agenda underpinning the adaptation discourse in each time. Thirdly, the managerial roles and to lesser extent organisational dynamics required to achieve operational success in climate adaptation intervention. Finally, describing socio-ecological impacts, more specifically, Livelihood and individual capability and functioning resulting from the project intervention.

#### **2.4.1 Assemblage theorisation and practices of assemblage**

The assemblage approach is used to discuss the relations between moving parts (human and non-human) of the Wildlands CEBA Assemblage. Deleuze and Guattari (1987) explain an assemblage as a constellation of elements, an approach where entities are never fixed and the ‘parts of the whole’ are not bound to stable forms or locations, in other words, the potential for movement always exists. Li’s (2007) practices of assemblage were applied to each stage of the Wildlands CEBA Assemblage to explore the relationships forged between entities, scaling up of the assemblage, associations with global discourses, the reframing of political and development issues into implementable actions and, managing ambiguities and uncertainties. Assemblages are used to emphasise, describe, or characterise inter-related processes using different signifiers as described in Table 2.1 below.

Table 2.1 Assemblages and signifiers

<b>Theorist/ Practitioner</b>	<b>Signifier/ Descriptor</b>
Deleuze and Guattari (1987)	Connection and heterogeneity; Multiplicity; Assignifying rupture; Mapping (Cartography) and Tracing (Decalcomania)
Latour (2005)	Ordering of things (humans and non-human elements), actors and actions, separating the material connotations from the word ‘social’, culminating in Actor Network Theory (ANT)
Li (2007)	Forging alignments, rendering technical, authorizing knowledge, managing failures, anti-politics, and finally reassembling
Anderson and McFarlane (2011)	Coherence and gathering (assembling and disassembling), differences of parts (heterogeneous elements), multiple co-existence/ plurality (multiple connections) and fissures and fractures (reassembling)
Muller (2015)	Relational, heterogeneous, productive, desired, and territorialised

The accounts listed above (Table 2.1) recognise that the ‘moving parts’ of a system must be engaged with to explore and understand the social and spatial ordering of ‘things’. An assemblage has the potential to contract and expand depending on the factors affecting the stability of the assemblage and ‘parts of the assemblage’. In doing so, assemblages dominate the geographical boundaries upon which they are acting, organising the boundary as a territory, territorialising the boundary. On the other hand, any decrease in stability of the assemblage or its ‘parts’ force a territory outside the assemblage itself, thereby de-territorialising it and “freeing the fixed connections” (van Wezemaal, 2008). Assemblages territorialise and de-territorialise according to the coming together and coming apart of heterogeneous elements within the assemblage further emphasising the endless interconnections of assembling, disassembling, and reassembling (Deleuze & Guattari, 1987; Anderson & McFarlane, 2011; Li, 2007). Territorialisation is of importance as it is seemingly impossible to understand assemblages in their ‘entirety’ without a spatial element. Van Wezemaal (2008) and Deleuze and Parnet (2006) also attribute the functioning of assemblages to two axes attached to different aspects of reality, material and virtual. Here the two axes of co-functioning are used to explain

shifts and relations between material aspects of the assemblage (project activities, stakeholder relationships) and changes in the assemblage associated with virtual aspects (associations with global discourses). The preferred terms in this study will be referred to as the virtual and material axes of an assemblage (Dittmer, 2014; Ball, 2018). Finally, aspects of coding and decoding are used to describe parts of the assemblage that worked towards keeping the assemblage intact, and aspects that create fractures in the assemblage (Delanda, 2016; Ball, 2018).

Assemblage theory can be used to explain socio-natural relations in the face of ‘wicked problems’ such as climate change has also proven to be useful in engaging power, political stances, ethics, market mechanisms and the commodifying of nature in contested territories (Nel, 2015, 2017). Bracking *et al.* (2014) and Fredriksen *et al.* (2014) argued that valuation processes regarding the nature of environmental value and effects on human and non-human constituents were best described through institutional assemblages. In another account, Dovey (2012) combined assemblage theory with theories on complex adaptive systems forming the concept ‘complex adaptive assemblages’, to explore and understand urban informality. Assemblage theorisation has been further engaged by numerous theorists and practitioners diversifying the use of assemblage thinking<sup>19</sup>. The usefulness of assemblage thinking is further attributed to a state of “manipulability”, relations to socio-economic and land-use changes, practices of power and scale, and rise of new political and governance assemblages in response to crisis, including climate change<sup>20</sup> (Anderson & McFarlane, 2011:126; Head, 2010; Larner, 2011). Whilst assemblage theory is useful in explaining human and non-human relations, Allen (2011:156) also recognises the utility of an assemblage approach to “open up new questions...forms of engagement and not merely tell us what we have known”.

Describing assemblages also depends on the relationships of the ‘parts of the system’ to the ‘system’. Relationships of interiority exist when all ‘parts of the system’ are fully dependent on one another in the assemblage (Delanda, 2006). While relationships of exteriority exist when ‘parts of the system’ can remain autonomous whilst still influencing the assemblage. Delanda (2006) recognised relationships of interiority and exteriority suggesting an acknowledgement

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<sup>19</sup> Ethnography (Ghoddousi and Page, 2020), Anthropology (Crate & Nuttall, 2016), Botany (Bedford *et al.*, 2012), Policy research (Gillard *et al.*, 2016; Savage, 2020; Ober & Sakdapolrak, 2020; Fox & Alldred, 2020), Ecology (Head, 2010; Hobbs *et al.*, 2018; Jones & Magurran, 2018), Political Ecology (Nel, 2015; 2017); Gender and education (Tamboukou, 2008), Buildings (Rose *et al.*, 2010), Population Geography (Duffy & Stojanovic, 2018), Architecture (Dovey & Fisher, 2014), climate terrorism in contested climate politics (Telford, 2020).

<sup>20</sup> ‘credit crunch’, climate change, China and the other ‘BRIC’ economies, crusades, and cyborgism (Larner, 2011)

of the ‘whole’ and ‘parts of the whole’, where elements retained a degree of autonomy when separated from the ‘whole’ (relations of exteriority) and those parts which seemingly ‘fused’ in a particular totality are referred to as relations of interiority. This is an important insight when examining adaptation interventions as the many heterogeneous elements involved in such interventions have the tendency to forge ahead faster than others or more successfully than others, constantly reconfiguring the form of the intervention. To this end, relationships of interiority and exteriority surface enabling discussion around assemblage elements, that is, how social movements/ discourses can enable or constrain people, exploring aspects of negotiations, unity, collectiveness, complexities through scale and the dominion of structures from below (as rhizomes do). Overall, assemblage theorisation and assemblage thinking practices have received wide attention in describing relational phenomena. However, studies with socio-ecological and climate relevance have only recently begun to pick up speed in recent years (see Footnote 17), further emphasising the contribution of this research inquiry.

#### **2.4.2 CEBA Analysis Framework**

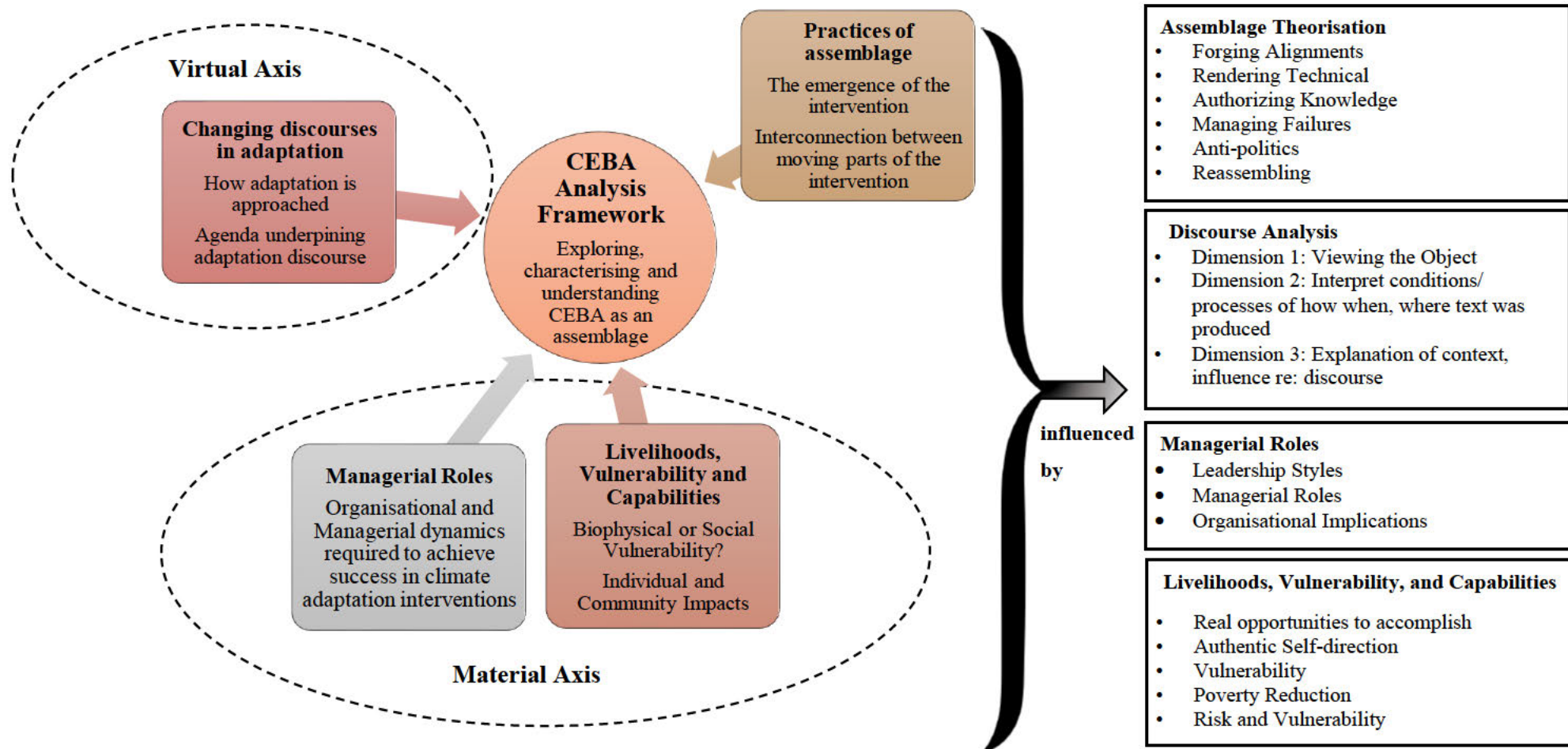
The CEBA Analysis Framework is theoretically based and includes six influences from which concepts are heuristically borrowed (Figure 2.2). Due to the heterogeneous nature of the Wildlands CEBA Assemblage selected aspects from five additional theoretical lenses have been used to describe the data. These include, livelihood outputs; use of climate discourse in decision making; numerous actor-networks and internal Wildlands organisational and managerial influences, further explained below,

1. The emergence of the intervention, the multiplicities and socio-spatial relations, processes, and interconnection between moving parts of the system – using practices of assemblage.
2. How people talk about adaptation (Discourse analysis) – borrowing from Norman Fairclough’s (1989, 1992) Critical Discourse Analysis (CDA) model.
3. Organisations, the roles, and responsibilities for implementation (Managerial aspects) – using aspects from the Management Theory of Mintzberg (1973), concerned with the Managerial roles in an organisation.
4. The anticipated impacts, uncertainties and ambiguities from the implementation of adaptation frameworks (exploring livelihoods, capabilities, individual functioning, and vulnerabilities) – drawing livelihood concepts from The Institute of Development Studies (IDS) Sustainable Livelihoods Framework (Scoones, 1998); insights concerning individual capabilities and functioning from Sen’s Capability

approach (Sen, 1979) and adapting adaptation planning questions from The Tyndall Center for Climate change research, Vulnerability, risk, and adaptation conceptual framework by Brooks (2003).



## THE CEBA ANALYSIS FRAMEWORK



(Produced by Ramanand, 2020)

Figure 2.2 The CEBA Analysis framework and theoretical influences

Choosing appropriate theories to include in an emerging framework is a significant task and in the case of KwaZulu-Natal, South Africa it was based purely on the integrated CBA-EBA intervention (CEBA). Determining and adapting the selected aspects of literature to include in the heuristic CEBA Analysis Framework was based on the study aims, objectives and guiding questions (*Chapter One*). Fairclough's model offered insights into language used in the evolution and operations of the CEBA intervention, in this way deductions and meaningful knowledge claims were made about the influence of climate change adaptation discourse. Regarding organisational growth, aspects of Mintzberg's managerial functions gave a detailed explanation of what management roles are in an organisation and how they may or may not be of value. Scoones (1998) livelihood aspects and Sen's (1979) individual functioning insights completed the analysis framework by providing two sources of independent information that complimented one another. This created a platform to demonstrate both positive and negative impacts of livelihood and individual-level changes, supported by Brooks (2003), providing three fundamental grassroots-level questions that needed to be asked in initial project phases. The discussion continues with brief outlines of the parent theories and associated practices informing the development of the Theoretical Framework.

### **2.4.3 Analysis of changing discourses in adaptation**

Discourse is viewed through assemblage theorisation as a point or relation of exteriority in the context of this study, in Van Wezemael's (2008) terms, the 'virtual axis' of the Wildlands CEBA Assemblage. Reference is made to the 'Climate change Adaptation Discourse'. Discourse analysis is key for drawing inferences and relations between material operational decisions and discursive shifts in global environmental regimes. Discursive shifts in global regimes, including through legally binding climate agreements, multilateral developments can be said to exert influence on the scope and scape of climate change adaptation projects (Eriksen et al., 2021; Magnan et al., 2020). A brief theoretical history of Discourse Analysis reveals the rich array of work on the subject dating as far back as 2000 years ago (van Dijk, 1985; Hart, 1989; Elden, 2016).<sup>21</sup> Critical Discourse Analysis according to Bäckstrand and Lövbrand (2016) focuses on how discourses arise and how power operates through them. The 'father' of

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<sup>21</sup> This era also included anthropological, methodical, and functional approaches to discourse analysis (Propp, 1968; Hymes, 1964; Pike, 1967; Grimes, 1975; Givón, 1979). By 1974, Discourse analysis began to emerge as a newly revived discipline in conjunction with shifts in various related disciplines and sub-disciplines including but not limited to, sociolinguistic work, speech act theory, grammatical theory frameworks and pragmatic structures of language use (Fishman, 1968; Labov, 1972; Maas & Wunderlich, 1972).

discourse theory, Michel Foucault, believed that the world we live in, is constructed through knowledge, and is the selected point of departure for the discourse analysis employed in this research (Foucault, 1982). Using a light Critical Discourse Analysis<sup>22</sup>, the relationship between language through textual examples, the processes by which the textual material was produced (by the entity producing the text) and the associated socio-historical and political conditions that govern those process were reviewed. In an adaptation context CDA can be used to highlight changing social circumstances through exploration of text and language.

Fairclough's (1989, 1992) model for CDA shows three interrelated processes of analysis and dimensions of discourse, namely, description, interpretation, and explanation (Janks, 1997). Description relates to the type of material; interpretation refers to how the material influences circumstances and explanation aids in understanding the circumstances under which the material was produced. CDA further analyses dialectical relations and radical change (Fairclough, 2003) and is often used to analyse documentation by means of content analysis (*Chapter Three*). Janks (1997:331) and Rahimi and Riasati (2011) endorse the usefulness of discourse analysis and attributes this to the “multiple points of analytic entry” in CDA. One can choose any of the three dimensions to begin the analysis with. It is with this rationale that the model was chosen to analyse all discourse related elements of this study and become an adapted component of the CEBA Analysis Framework. Managerial roles are discussed in the section to follow.

#### **2.4.4 Managerial roles**

Managerial roles in this research were viewed in relation to flexible structures where multiple levels of relationships exist. The management theory of Mintzberg, specifically managerial roles are used to describe what management roles are in an organisation and how they may be of value or not (Mintzberg, 1973). Mintzberg's work emphasised clearly defined managerial roles and created room for more innovative thinking in organisations with flexible management structures (Mintzberg, 1973; Dolan, 2010).

Aspects of managerial roles can be used to ‘make sense’ of the adaptation activities implemented in relation to the personnel employing the adaptation intervention activities. Emphasising clearly defined managerial roles benefit CBA-EBA integrated interventions,

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<sup>22</sup> The word light refers to analysis of socially situated text and speech in the context of this study.

especially ‘nexus-approaches’ in adaptation as these roles can respond to fluid adaptation interventions (Baudoin & Ziervogel, 2017; GWP, 2019). When approaching managerial and organisational dynamics, relationships of interiority on what can be termed the ‘material axis’ of the adaptation assemblage, are important to analyse. Fusing together aspects of an organisation’s strategic direction, actors, and project implementation can create confusion between organisational shifts, managerial responsibilities and executive decisions. As noted by Delanda (2006) relationships of interiority explains that ‘parts of the whole’ cannot be separated from the ‘whole’ itself, there is total fusion and blending.

Numerous accounts of organisational dynamics investigation exist<sup>23</sup>, but for Mintzberg the overall aim is to “create better management who create better organisations for a better world” and this study refers to his managerial functions categorised in 10 roles and three groups: Interpersonal, Informational, and Decisional (Table 2.2) (CNN, 2004: par 3; Mintzberg, 1973).

Table 2.2 Mintzberg’s managerial functions (adapted from Mintzberg, 1973)

MANAGERIAL FUNCTION	ROLE
INTERPERSONAL	<ul style="list-style-type: none"> <li>• Figurehead</li> <li>• Leader</li> <li>• Liaison</li> </ul>
INFORMATIONAL	<ul style="list-style-type: none"> <li>• Monitor</li> <li>• Disseminator</li> <li>• Spokesman</li> </ul>
DECISIONAL	<ul style="list-style-type: none"> <li>• Entrepreneur</li> <li>• Disturbance Handler</li> <li>• Resource Allocator</li> <li>• Negotiator</li> </ul>

Aspects of managerial roles as described above (Table 2.2) are best suited for parts of this research as the research conducted was on an individual basis seeking to explain managerial

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<sup>23</sup> Joan Woodward (1916-1971) pointed out direct shared relationships between organizational structure and types of production technologies (Oshita *et al.*, 2017); interrelationships amongst organizational characteristics, economic performance, integration and external environment demands/ needs (Lawrence *and* Lorsch, 1967); interrelated aspects of organisational strategy and structure (Lunenburg, 2012) and viewing organisations as open and closed systems (Kamps & Po’los, 1999).

roles and qualities, and not investigate Organisational processes and growth. According to Hage (1999), adhocracy provides flexibility to adapt to change in an organisation. Managerial roles in integrated CBA-EBA interventions can be viewed in relation to Adhocracy, where multiple levels of relationships exist (Clayton, 2018). Mintzberg's theories on management, strategy and function are revolutionary where forms of '*adhocracy*' appear innovative in organisations (Brovkin, 2017; Kumar, 2015; Caramela, 2018; Burgaz, 1997; Hage, 1999; Pietersen, 2015; Clayton, 2018). The final section details the analysis of grassroots level effects through exploring livelihoods and capability outcomes, and vulnerability and adaptation likelihood.

#### **2.4.5 Analysis of effects on the ground – livelihoods, capabilities, and vulnerability**

Part of demonstrating the contribution adaptation research is exploring new evidence-based knowledge on integrated CBA-EBA climate change adaptation interventions. Only selected aspects of the supplementary theories were used to explore the livelihood impacts of an integrated CBA-EBA adaptation intervention. The discussion will outline aspects of Livelihood analysis first, followed by capability and functioning, and finally vulnerability using the IDS definition of a Sustainable Livelihood:

“A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base”. (Scoones, 1998)

The elements of Vulnerabilities and Poverty reduction were chosen based on the needs of the research and to substantiate an assemblage approach to adaptation interventions. The IDS SLF definition comprises five key elements. These include creation of working days, poverty reduction, well-being and capabilities, Livelihood adaptation, vulnerability and resilience and natural resource base sustainability. The first three focus on livelihoods concerns and the latter two focus on sustainability components, further defining stresses and shocks. “A ‘stress’ is a small, regular, predictable disturbance with a cumulative effect while a ‘shock’ is a large infrequent, unpredictable disturbance with immediate impact” (Scoones, 1998: 7). One livelihood component was chosen, *Poverty reduction* and one sustainability component was chosen, the *Vulnerability* aspect of Livelihood adaptation, Vulnerability, and resilience. In adaptation research vulnerability and poverty are described as interlinked and can be exacerbated through the effects of climate change (Eriksen *et al.*, 2021). The researcher views

the issues of poverty and vulnerability as important to the current need for more local South African information on these issues at project level scales (Wills *et al.*, 2016; DEA, 2012). Well-being and capabilities are discussed under Amartya Sen's Capability approach as the approach provides an additional lens through which impacts of intrinsic value, such as a sense of purpose can be described. The approach can be used to reduce the distance between the quantitative outcomes of project interventions and the intangible real-life experiences of participants in the project intervention (Introduction to Capability Approach – Sabina Alkire, 2016; Alkire, 2005; Robeyns, 2003).

The Capability Approach (Sen, 1979) provides a platform to interpret, explain and analyse well-being within the context of various social, personal and environmental factors. The connection between resource, capability, functioning and utility are used to describe data. The approach serves as an evaluation framework that claims, firstly, the freedom to choose what can be achieved, related to procedural aspects of projects. Secondly, the approach can be understood in terms of people's freedom to achieve a sense of well-being through opportunities (Sen, 1992). Two capability sets were chosen to determine the impacts of an adaptation intervention on a person's functioning, *Real Opportunities to accomplish* (what is valued can be achieved) and *Authentic Self Direction* (ability to decide your fate). Most literature critiquing the CA relates specifically to the lack of a scale of measurement, its applicability to a situation or circumstance as opposed to the actual framework itself (Clark, 2006; Pogge, 2012). However, Sen's Capability approach recognizes individual capacity or ability allowing the researcher to apply value-based judgements as per the data retrieved or nature of the research/ exercise (Clark, 2005, 2006). It is for this reason Sen's Capability approach is deemed a best fit for this study, among others. Observable achievements and utility have been used to describe the functioning of a person. This research focuses on data and information based on individual experience regarding opportunities to convert challenges into achievements and does not explore policy, legislation, and human rights (Frediani, 2010; Kirkemann & Martin, 2007; Sen, 1979; Clark, 2006).

Finally, the vulnerability of socio-ecological systems to climate change has seen an abundance of studies investigating the potential of humanity's ability and capability to adapt (Adaptation Network, 2018; Adger, 2006; Fussler, 2007; Magnan *et al.*, 2020; Eriksen *et al.*, 2021). The Tyndall Center for Climate change research produced a tentative vulnerability, risk and adaptation conceptual framework focusing on the relationship between vulnerability and adaptive capacity and external obstacles to adaptation (Brooks, 2003). Uncertainties,

ambiguities, implications, risks, and vulnerabilities are of concern when considering adaptation interventions. The linking of Brooks (2003) conceptual framework (and in part theory) has been adapted and used in the development of the CEBA Analysis Framework. The concluding questions posed for further research by Brooks (2003) have been adapted for this research regarding exploration of ‘on-the-ground’ work and organisational level thinking (Table 2.3).

Table 2.3 Adapted questions - vulnerability, risk, and adaptation conceptual framework

<b>ORIGINAL QUESTION (Brooks, 2003)</b>	<b>ADAPTED QUESTION</b>
1. Are we principally concerned with biophysical or social vulnerability?	1. Is the principle concern biophysical/ social vulnerability? And at what scale?
2. What are the principal hazards with which we are concerned and how do they affect the adaptation process and the relationship between vulnerability and adaptive capacity?	2. What are the principal hazards with which Wildlands is concerned, do they have the necessary resources to resolve them and how do they affect vulnerability and adaptive capacity in project interventions?
3. Are we defining adaptive capacity at the system and sub-system level only, or does our definition include the “exogenous” factors that facilitate or inhibit the realisation of sub-system capacity?	3. Is Wildlands defining adaptation at the system level (regional/ecosystem) or the sub-system level (project site-specific) for implementation?

(Produced by Ramanand, 2020; adapted from Brooks, 2003)

Briefly, the three adapted questions focus on identifying whether different types of vulnerabilities and principle hazards were of any concern during implementation activities in the Wildlands CEBA Assemblage.

To conclude, Discourse Analysis is related to the discursive dimension in this research inquiry. These can be termed the virtual axis of adaptation assemblages, while the managerial roles and livelihoods, vulnerability and impact are related to on-the-ground shifts and implementation procedures in the Wildlands CEBA Assemblage, that is, the material axis (*Chapter Five*). A brief conclusion below brings this chapter to a close.

## 2.5 Conclusion

Adaptation has surpassed being a secondary agenda item on international platforms and risen to being viewed through the lenses of ‘hybridity’ as a systemic approach to climate change problems (Dujardin, 2019; Eriksen *et al.*, 2021). In this reading of the literature, assemblage theorisation is viewed as a useful overarching approach and point of departure for interrogation of adaptation interventions, supplemented by additional theoretical lenses. An interdisciplinary pool of theory and knowledge were drawn together to understand the development of CEBA interventions through what I termed the CEBA analysis framework, intended to provide new and contributing knowledge on climate change adaptation. This responds to concerns highlighted by DEA and SANBI (2017) regarding a lack of evidence-based knowledge in ecosystems-based adaptation in South Africa. In this Chapter, I have detailed the core theoretical concepts used to develop the CEBA Analysis Framework. Li’s (2007) six generic practices of assemblages will provide the foundation upon which the Wildlands CEBA Assemblage will be explored. The literature explored emphasised the links between the discipline of geography and climate change adaptation through reviews of mitigation and adaptation followed by discussions on CBA, EBA, dominant schools of thought and discourses and the local South African context. Ambiguity and uncertainty are also noted.

The plethora of information drawn upon on climate change and associated branches of research in this review have one common observation. That is that there is no denying that the climate is changing, and systemic solutions are required. It has also been deduced that “information, knowledge and funding are expected to play a key role in enabling adaptation in Africa” with further research required on collective action initiatives (Schaeffer *et al.*, 2013:27; Adger *et al.*, 2003, 2009). CEBA interventions can be viewed through the lens of assemblage and placed within the Complexity and Transformation schools of climate change adaptation thought. This approach has the potential to fill identified gaps present in the literature. These include exploring the utility of characterising adaptation interventions in ways that do not diminish a focus on incremental changes on a per project basis.

In parallel to the complexity and transformation discourses, an assemblage approach is recognised as key to understanding relational and spatial dynamics of systems including the ‘parts of the system’. While both transformational and transformative adaptation are not clearly defined (Kates *et al.*, 2012), O’Brien (2012) and Pelling (2011) advocate for transformational and transformative adaptation approaches to respond to global environmental change and clear



a path for challenging the status quo. Unlocking possible approaches and solutions to addressing climate challenges especially in adaptation requires a significant amount of understanding, thought leadership, technological advancement, funding, and ‘re-thinking’ (Eriksen *et al.*, 2021). This chapter highlighted the links between nature-society relationships, emphasising the systemic-hybrid interlinkages, relations, and connections in adaptation interventions (Muller, 2020). The utilization of the exploratory CEBA Analysis Framework is undertaken in *Chapters Four, Five, Six and Seven*. The next section details the research methodology.

### 3. RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter describes the research methodology, philosophy and design employed in this study, including brief inputs on the CEBA Analysis Framework and assemblage approach. A fundamental distinction in research is between ‘method’ and ‘methodology’. In a brief explanation provided by Saunders and Rojon (2014), method refers to the procedures and techniques used to obtain and analyse data, while methodology relates to the theory of how the research should be undertaken. This chapter is referred to as the ‘Research Methodology’ chapter, comprising the techniques and steps used in obtaining and analysing the data. Although the definitions of research philosophies, paradigms and descriptions are stretched far and wide by numerous authors, Bryman’s (2012) descriptor of a research philosophy is preferred. This refers to the set of beliefs concerning the nature of the reality being investigated. For this research, I have employed philosophical assumptions of Pragmatism, as I evaluated adapted parts of existing theories in terms of their practical application through the theoretical framework presented in *Chapter Two*. The Wildlands CEBA Assemblage is described as a territorialised rhizomatic assemblage, and I am focusing on three of the territorialised sites (Section 3.2.4). The CEBA Analysis Framework and assemblage approach through which I evaluated and described the data and findings is also discussed further in Section 3.5.

The backgrounds and overview of each case study site, sampling approach and data analysis are explained in this chapter. Data was gathered through a qualitative approach using purposive and snowball sampling techniques. Interviews, semi-structured interview guides, informal Skype conversations and observation were utilized. For data triangulation purposes, documentary analysis including media sources from the eThekwin Municipality and Wildlands were thoroughly examined and interview material was cross-examined. The chapter also briefly describes researcher positionality and ethical issues associated with the research.

For the most part, this is an a-posteriori study, exploring and understanding experience-based interaction, depending on experiential evidence (Yin, 2003). The Mixed Methods Research design (MMR), choice, strategies, approaches, sampling processes, data capture and analyses were carefully thought-out. To set this all out, this chapter begins with the research design, followed by the sampling process, data collection, capture and analysis, ending with ethical considerations and a conclusion.

## 3.2 Research Design

### 3.2.1 Research philosophy

This study focused on four objectives: First, understanding the complex range of factors that influenced the mainstreaming of the Wildlands CEBA intervention - characterised in the thesis as an assemblage - and a marginalised (adaptation) agenda; second, explore the upscaling of the Wildlands CEBA Assemblage and; third, exploring the livelihood impacts of the Wildlands CEBA Assemblage on participating communities in KwaZulu-Natal finally, exploring the utility of an assemblage approach to adaptation. Due to the exploratory nature of these objectives, the research philosophy, Pragmatism, resonates with this study. Pragmatism rooted in John Dewey's version of *inquiry*<sup>24</sup> (Dewey, 1910) assesses theoretical or philosophical material in terms of their practical application supporting a wide range of qualitative and quantitative methods. Dewey's views, along with many others, favoured a naturalistic approach to inquiry involving interaction with one's natural environment. Pragmatism created room for the 'real-world' practical application of philosophical discoveries and ideas, linking practice, theory and human action (Hays, 2004; Walliman, 2015; Pratt, 2016). In other words, drawing from lived or first order experiences (Kaushik & Walsh, 2019).

Despite views on Pragmatism being complex (Denzin, 2012), Walliman (2015) points out that Pragmatism adopts triangulation as a best practice approach for data collection and verification, utilising interpretivist, and positivist approaches. For this study, triangulation of data sources was utilised to verify the potential implications of project implementation activities in the study site communities and create reliability of the findings, through observation. In addition, pragmatism has also been viewed as an epistemological justification for MMR in research (Onwuegbuzie *et al.*, 2010). Pragmatism employed in this study, is most concerned with exploring and understanding the interconnections between complex lived realities and transformational adaptation theory, informing new ways of thinking regarding climate change adaptation (Rorty, 1980).

An interpretivist paradigm is used in this study, and both deductive and inductive reasoning were applicable to the study. Both qualitative and limited quantitative data was collected, reviewed and analysed, and therefore an MMR design was used. While deductive reasoning is

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<sup>24</sup> It is a late 19<sup>th</sup> century and early 20<sup>th</sup> century philosophy originally coined by Charles Sanders Pierce, and further developed by William James and John Dewey (Morgan, 2014).

informed by a known or existing trend, theory, or logic (Bryman, 2012; Walliman, 2015; Creswell, 2009), the process of induction involves drawing interpretations of data and thereby producing theory (Bryman 2012). This research involved the collection of new socio-economic data from which new themes and trends presented themselves in the data analysis phase, hence the applicability of inductive reasoning. These themes and trends were then used to produce the findings and ultimately contributed to building knowledge around the Wildlands CEBA Assemblage. Information was elicited during the data gathering phases of the study through Key Informant Interviews and administering Questionnaires to project Community Participants. The CEBA Analysis framework, Assemblage approach, MMR approach, the sampling and data collection processes, data capture and analysis; and finally, ethical considerations followed by a conclusion are also discussed in detail in the next few sections.

### **3.2.2 Mixed Methods Research (MMR) approach**

Though the exact definition of MMR remains a contested area since its first appearance in 1959, various definitions exist (Creswell, 2013). For this study, mixed methods (MM) are considered for various reasons, most importantly it allows the researcher to gain breadth and depth in understanding of the empirical material<sup>25</sup>. In this study, the MMR choice is attributed early insights towards action-oriented and value-based research as well as the use of a theoretical lens/ framework (Creswell, 2009; Greene *et al.*, 1989). Detailed accounts of the MMR sampling and analysis techniques are explained in Sections 3.3 and 3.5 (Creswell, 2013). The data collected through the study sample population groups required different types of data analysis techniques elaborated in Section 3.5. The section to follow discusses the research timeline horizon applied in this study.

#### *Research Time horizon*

This study was undertaken for a period of six years, tracking the Wildlands CEBA Assemblage where community participant data was collected at a specific point in time within this 6-year cycle, while engagements with Key Informants extended over the 6-year period. The consideration of past data or future changes to the lives of the community research participants

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<sup>25</sup> Johnson *et al.* (2007) notes that while MMR is not a new concept, many theorists such as Tashakkori and Teddlie (2003), Creswell (2003), Clarke and Braun (2014), Bazeley (2018) work towards bridging the gap between qualitative and quantitative data ensuring a more holistic perspective on research matter. Additionally, Mason (2006) advocates for the linkages between social experience and lived reality as well as multi-dimensional thinking in support of MMR.

was not considered in this study. It is for this reason that the cross-sectional time horizon was best suited for this study. Cross sectional studies are commonly associated with case study research gathering data from a population or subset thereof at a given point in time (Creswell, 2013). The study is exploratory and descriptive in nature. Different groups of people from urban, peri-urban, and rural backgrounds were studied over a snapshot in time without manipulating their environments. Data was gathered in the form of observations and conversations within the research participants day-to-day environments only once within the 6-year cycle. A longitudinal time horizon requires research to be undertaken for several years and data collection to be consistent with the same participants or respondents accounting for past or future changes (Walliman, 2015), but this was not possible with the available time and resources. The next section describes the multiple case study strategy used in the research.

### **3.2.3 A multiple case study research strategy**

Yin (1984:13, 2003, 2014) describes the case study approach as “an empirical enquiry that investigates a (single case) contemporary phenomenon within its real-life context...”, Creswell (2013) argued, the multiple case study approach is similar and involves multiple bounded systems (cases) investigated over time. According to Gustafsson (2017) a multiple case study strategy is employed when the researcher is investigating more than one case uncovering differences and/or similarities, making comparisons across different settings, allowing for participants to describe their reality as they experience it and finally the desire to obtain more robust empirical data and information as well the need for data triangulation. A multiple case study strategy was used in seven communities involving data collection from multiple sources of information. In this study, a multiple case study strategy was chosen due to the advantages of providing more robustness to the data (collected from different sites). The CEBA sites were explored using a replication strategy with the ability to adjust research techniques due to using multiple cases in the pilot study phases.

Yin (2003, 2014) states that the multiple case study approach should be used when the focus of the study is to answer the “how” and “why” questions, when you cannot manipulate the behaviour of those involved in the study (*Chapter One*). As such the research was also exploratory in nature with clearly defined “how” questions stated in *Chapter one*. The multiple case study strategy is further described as one in which the researcher focuses on an issue, selecting numerous bounded cases to illustrate that specific chosen issue. This strategy was chosen for this research as each ‘CEBA project’ required independent inquiry based on varying

socio-economic characteristics and project decisions made to fulfil a common project goal. The case study approach allowed for the unearthing of the different lived realities and experiences of the project actors and participants in various socio-economic and socio-ecological situations. Themes, trends, and comparisons between the different CEBA project sites were uncovered. While the multiple case study strategy is preferred due to the large number of CEBA project communities, it does not go without critique as a few scholars highlight the lack of time spent on in-depth inquiry, lacking a foundation of scientific generalisability (Baxter & Jack, 2008; Gustafsson, 2017; Idowu, 2016). In addition, numerous logistical, financial and time stringent challenges also exist with the multiple case study approach (Baxter & Jack, 2008; Gustafsson, 2017).

The series of case studies chosen for this research (Figure 3.1) provided various geographical and socio-political settings where qualitative data was gathered from ‘real-life’ experiences as opposed to a normative construct (expectations) of what a ‘CEBA project participant’ would ideally experience, hypothesised by Project Managers or the implementing entity, Wildlands.<sup>26</sup> The qualitative data collected can be used to enhance Wildlands already existing quantitative database of information. The permission granted by local political and traditional authorities created ease of access for the researcher and her team into the communities.

In this research, The Wildlands CEBA Assemblage was under question in varying aspects including its inception, scaling up and associated livelihood impacts on participating communities. Each case study community was chosen based on various criteria including socio-economic settlement type, the attainment of necessary permissions, physical ease of access and Wildlands on-site team assistance. The first of the criteria, socio-economic settlement type, related to rural, peri-urban and urban classifications for project comparability considerations. The second criteria being that permission was granted by local political and traditional authorities timeously for these specific communities in line with research timelines. Although a gatekeeper’s letter was provided (Appendix 9), the researcher and her team still sought the verbal permission of local political and traditional leadership to conduct the research as a form of respect towards the communities and their respective leadership structures. Thirdly, the ease of access to the communities in terms of logistics and transport was vital throughout the process. The seven chosen case study sites were most physically accessible for

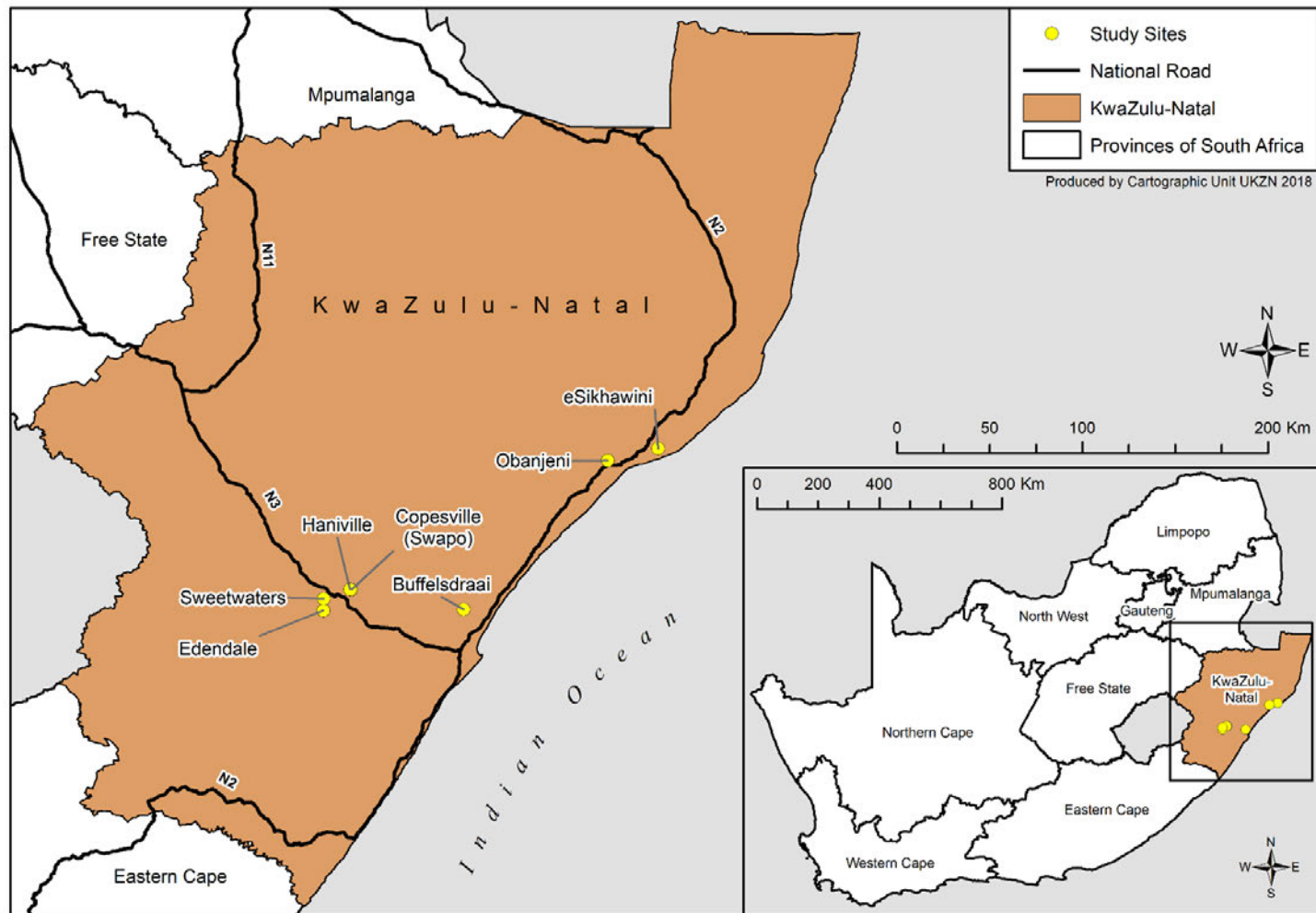
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<sup>26</sup> Case studies allow for the exploration of complex issues, enhance quantitative data in research, explore settings and provide qualitative understandings through the research participant’s/actor’s perspective (Gustafsson, 2017).

research purposes. Lastly, the willingness of Wildlands on-site project teams to assist with interview processes in these seven sites was graciously provided. The seven case study communities included in this research met those criteria and are discussed in the next section.

### **3.2.4 Case study sites: background and overview**

This section provides a map, socio-political and demographic descriptions of all seven case study sites. The map (Figure 3.1) shows the locality of the seven study sites involved in the research in the province of KwaZulu-Natal, South Africa.



(UKZN, Cartography unit, 2018)

Figure 3.1 The seven case study sites in KwaZulu-Natal



A more detailed description and analysis of project activities, stresses, shocks, observations, and vulnerabilities for each case study site is presented in *Chapter Six*. The sites are as follows: Obanjeni, Esikhawini (Rural Context), Buffelsdraai (Peri-urban context), Edendale, Swapo (also known as Copesville), Haniville and Sweetwaters (Peri-urban/ urban context). Two cities (Durban and Pietermaritzburg) described below also belong to the South African Cities Network (SACN). SACN is a platform for South African cities and partners encouraging the sharing of ideas, experiences, and information (uMgungundlovu District Municipality, 2018b).

The Wildlands CEBA intervention profile consisted of 12 CEBA project clusters with 60 project communities across South Africa displaying similar characteristics and socio-economic circumstances. The 12 CEBA cluster projects are in the following provinces: KwaZulu-Natal (18 CEBA projects), Western Cape (2 CEBA projects), Eastern Cape (4 CEBA projects), Mpumalanga (2 CEBA projects), Gauteng (1 CEBA project) and the Northern Cape (1 CEBA project) (Wildlands, 2017). Seven CEBA project communities (case study sites) combined were explored in the above-mentioned District Municipalities using the multiple case study strategy (Figure 3.1). The series of case studies revealed a range of different geographical and socio-economic settings, namely, rural, peri-urban and urban. Including a geographical, socio-economic and socio-political range of case studies in the research provided the opportunity to assess and compare similarities or differences in responses from project participants. It also allowed for the researcher to assess the perceptions of CEBA project activities by people living in varying socio-economic environments. The geographical range of the seven case study sites included two District Municipalities, the King Cetshwayo District Municipality and uMgungundlovu District Municipality, and one Metropolitan Municipality, eThekweni Metropolitan Municipality. A detailed overview of the seven study sites in their respective District Municipalities is discussed further, providing information on municipal categories, settlement classification, political authorities, natural surroundings, and the purpose of CEBA project activities.

Data gathering for comparative analysis between study sites included consultation with several actors and sources. A variety of data sources and methods were used to classify the study sites in preparation for analysis.<sup>27</sup> Field observation notes and GIS data available to the Cartography

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<sup>27</sup> I consulted a 'GIS Technologist' and a 'Geomatics and GIS Specialist' (Tshwane Municipality) who was also involved in the 2003 publication 'Classification for census data collection information', A 'Geo-Spatial Property Technician' (Transnet) regarding land zoning information in KwaZulu-Natal, a 'GIS and Cartographic Specialist' (Cornerstone Mapping-KZN) regarding settlement types (CSIR, 2015a) and lastly, academic publications.

unit, Department of Geography at University of KwaZulu-Natal were used for data triangulation purposes regarding information sourced from Tshwane Municipality, Transnet, Cornerstone Mapping-KZN and academic publications. Where it was possible to gather data, the study site data points were superimposed over the land zoning/ land-use data from each source to extract the assigned classification (Table 3.1).

Table 3.1 Settlement type classification

Source	Project Site Classification						
	Buffelsdraai	Copesville	Haniville	Sweetwaters	Edendale	Esikhawini	Obanjeni
2016 <b>Land Zoning</b> (Transnet)	Not Data holders of these areas	Single Residential	Single Residential	Afforestation	Education	Not Data holders of these areas	Not Data holders of these areas
2013/2014 GTI Landcover Database (UKZN, Cartography Unit)	Thicket dense bush	Urban Township	Urban Informal	Urban Residential	Urban Township	Urban Township	Urban Village
2011 <b>CENSUS</b> (STATSA)	None Available	Urban Informal Settlement	Urban Informal Settlement	None Available	Township Community	None Available	None Available
2015 Service Type classification (CornerStone Mapping) (CSIR, 2015a)	Remote Village	Village	Village	Remote Village	Large Town	Dense Dispersed Settlement	Remote Village

(Produced by Ramanand, 2019)

According to Statistics South Africa (STATSSA, 2003), cadastral and land-use data informed the demarcation of the 1996 and 2001 municipal boundaries, occasionally absorbing previously known peri-urban areas into urban areas. Populations living in areas classified as settlements in 1996, were added to the rural demarcation boundaries in 2001 census data. As a result, the proportion of the populations living in previously allocated areas deemed rural, peri-urban and urban changed. The definitions of both the 1996 and 2001 census data were different, and population density was proposed as a possible method of deriving definitions between urban and rural areas revealing further inconsistency (STATSSA, 2003). After thorough consultation with a variety of sources, each case study community description was deemed as follows for the purposes of this research:

- Buffelsdraai Community – Peri-urban Township
- Esikhawini Community – Rural
- Obanjeni Community – Rural
- Edendale Community – peri-urban Township
- Copesville and Haniville Communities – Urban Township
- Sweetwaters Community – Rural to Peri-urban Township

Rural Contexts: The Obanjeni and Esikhawini communities in the King Cetshwayo District Municipality

King Cetshwayo District Municipality (Municipal code: DC 28) previously known as the uThungulu District Municipality, is in the North-east of KZN, South Africa covering 8 213 square kilometres (km<sup>2</sup>). It is a Category C municipality, housing five local Municipalities: uMhlathuze, uMlalazi, Mthonjaneni, Nkandla and uMfolozi (previously Mbonambi) with the third highest in population in KZN, at 907 519 citizens (STATSSA, 2016). Politically, traditional Authorities and the State Authority govern the various parcels of land collectively in the District. The District has a competitive dual economy of commercial agriculture and traditional agriculture. Ecologically, the Greater uMhlathuze Wetland System near the Esikhawini area and the Ongoye Forest in the vicinity of the Obanjeni community, are rich in biodiversity (KCDM, 2016). Eighty percent and over half (53%) are younger than 20 years of age. Unfortunately, the District is challenged by severe unemployment rates, a lack of scarce skills, and water and sanitation delivery backlogs to name a few (Uthungulu District Municipality, 2016). Wildlands CEBA restoration project activities featured in the Dube, Mkhwanazi, Obanjeni and Esikhaweni communities within the uMhlathuze, uMfolozi and uMlalazi local municipalities. The emphasis in King Cetshwayo was placed on restoration activities through the Indigenous Trees for Life (ITFL) programme, community and youth development (Ramanand *et al.*, 2016a).

Peri-urban contexts: Buffelsdraai township community in Verulam, the city of Durban, eThekwni Municipality.

The eThekwini Metropolitan Municipality (Municipal code: ETH), is located on the east coast of South Africa covering 2,297 km<sup>2</sup>. It is a Category A municipality and is the largest City in this province and the third largest city in the country (eThekwini Municipality, 2011a). The Municipality boasts approximately 3 442 398 people living within its boundaries. Politically, traditional governing Authorities and the State Authority work together in the pursuit of understanding and further exploring the balance between formality and informality (eThekwini Municipality, 2011c). While known for its steady economic growth over the years, the Municipality still suffers from high numbers of the population being illiterate, unemployed, poor and the mushrooming of informal settlements. This has led to unwanted health related hazards and issues, overcrowding and immense pressure on biodiversity and ecosystems (eThekwini Municipality, 2011b). In addition, the Municipality's natural capital is of intrinsic

value as it belongs to the Maputaland-Pondoland-Albany Region of endemism but is also under constant pressure of degradation (eThekweni Municipality, 2007). Wildlands CEBA project activities featured in the Inanda Mountain, Buffelsdraai, uMbilo, Cornubia and Tongaat communities. CEBA related project activities include tree propagation, reforestation, waste collection, Small and Micro Enterprise Development and a Clothes for Life component (Ramanand *et al.*, 2016b).

Peri-urban/Urban Contexts: The Edendale, Swapo, Haniville and Sweetwaters communities in city of Pietermaritzburg, uMgungundlovu District Municipality.

The uMgungundlovu District municipality (Municipal Code: DC 22) is a Category C municipality comprising of seven local municipalities, Msunduzi, Richmond, uMngeni, Mooi-Mpofana, Mpendle, uMshwathi and Mkhambathini, with Msunduzi as the legislative capital of KwaZulu- Natal. It covers and are of land spanning 9515 km<sup>2</sup> of land with 1,017 763 people (uMgungundlovu District Municipality, 2018a). Most of the population reside within the Msunduzi Municipality with 223,448 people concentrated in and around the second largest city in KwaZulu-Natal, Pietermaritzburg (STATSSA, 2016). Pietermaritzburg is also the administrative and legislative capital of the province. Politically, Traditional Authorities and the State Authority govern the various parcels of land collectively in the Msunduzi Municipality. Pietermaritzburg is the economic hub of uMgungundlovu District Municipality, however, like many local Municipalities in South Africa, the Msunduzi Municipality and city of Pietermaritzburg are also challenged by poverty, unemployment, uneven development and infrastructural backlogs (Msunduzi, 2018). The Edendale, Swapo, Haniville and Sweetwaters communities are found in the city of Pietermaritzburg, uMgungundlovu District Municipality. The Haniville suburb is situated along the New Greytown road adjacent to an informal settlement, Swapo in Pietermaritzburg. Wildlands CEBA project activities comprising of conservation activities, recycling and tree propagation featured in uMsunduzi, uMngeni, Richmond and Karkloof where the so called ‘GreenPreneurs’ are participants from these four communities and a few others (Ramanand *et al.*, 2016c). The next section describes the sampling process and study population.

The next few sections describe the general characteristics of the Study population and ‘why’ these specific study sample populations were chosen. A brief account of the pilot study is also discussed. The pilot study was conducted in other CEBA communities, as part of the main

study, to interrogate the comprehension and responsiveness to the community questionnaire. The discussion begins with the sampling strategy.

### **3.3 Sampling Process**

#### **3.3.1 Sampling strategies**

Purposive and snowball sampling techniques were employed in the study reflecting what is known as non-probability sampling techniques (Bryman, 2012). The non-probability, purposive sampling method was used to select both population groups in this study. The intentional selection of participants was based on their ability to elucidate information specific to the Wildlands integrated CBA-EBA intervention. A ‘snowball’ sampling effect began to emerge making it possible for a good collection of a variety of responses on one specific issue (Gustafsson, 2017).

These techniques applied to both Key Informant stakeholders and Community Participants as respondents recommended interviewing other significant role players and community participants. Engaging in purposive sampling techniques is significant of a series of strategic choices based entirely on the context of the research (Bryman, 2012). The multiple case study approach required substantial financial resources for travel to project sites, hence the researcher focused on a purposive sampling technique to avoid financial expenditure over and above the research budget, interviewing suggested leads from other interviewees. Additionally, setting up interviews with both Key Informants and field project staff required following interviewees work schedules which did not always coincide with research timelines. Hence, purposive sampling aided in obtaining the best representative data at the judgement of the researcher and saved time and money (Bryman, 2012).

As an initial step in the sampling process, a meeting with Wildlands and the research Supervisors were held discussing the pilot research site choices. Upon deciding on the pilot research sites, the required Questionnaires and Interview Guides were constructed. A pilot study was then conducted to test the responsiveness to and the understanding of the community Questionnaire (Section 3.3.3). Data resulting from the Pilot study was analysed, Questionnaires were revised accordingly, research sites for the main study were chosen and the final sampling process was underway. Due to the exploratory and investigative nature of the study over large project communities, no number depicting the sample population size was chosen as in purposive sampling, sample size is emphasised by data saturation (Etikan *et al.*, 2016). The

purposive sampling technique was also chosen as the best fit for the main study, with data saturation as a guide for the sample size, despite the proximity of participants from one another in some cases. This research included three cases consisting of 157 community participant interviews and 29 Key Informant interviews.

The study employed inclusion and exclusion criteria during the criterion sampling process (see below) and allowed for reach participants to nominate other interviewees following the snowball sampling method. This occurred in both population samples (Key Informants and Community members). However, the limitations of both sampling techniques in the form of human error, possibility of bias and unevenness in proportionality of the population were noted (*Chapter Nine*). Nonetheless, the effectiveness of the combination of techniques to explore socio-ecological relationships and livelihood implications in this study out-weighed the disadvantages (Etikan *et al.*, 2016). The next section describes the study population.

### **3.3.2 Study population and sample**

This study consisted of two types of population groups. A population is described as people who comprise of similar characteristics and eligible for inclusion in the study (Bryman, 2012). Population group one included key Informant stakeholders from Wildlands, national and local South African government entities, and corporates. Population group two included participating community members in the seven CEBA case study communities.

As discussed in Section 3.2.2, this study is predominantly qualitative in nature with limited quantitative aspects. Qualitative research is focused largely on experience, feelings, thoughts, and the quality of the data, and requires specifically selected smaller samples instead of larger samples (Etikan *et al.*, 2016). Key Informants involved directly with climate change work were sought out as this research focused solely on climate change adaptation issues and not on broader environmental issues. In the case of the seven case study communities, purposive sampling was employed to begin the process in each community, followed by snowball techniques (de Vos *et al.*, 2011; Creswell, 2013). Furthermore, participants in qualitative studies are required to be involved in or have experienced the phenomena being explored or investigated (O’Leary 2010). A combined total of 186 interviews were administered during this study. In both groups of study sample populations, race, religious creed, and gender were not important. The ability to speak English was also not critical as two research assistants fluent in English and isiZulu were available to assist the researcher.

### Population Group One: Key Informants

The first sample population group consisted of 29 Key Informants. This study sample population possess knowledge of or has experience in climate change mitigation and adaptation or a combination of both. In the case of Wildlands on-the-ground Project Managers and Facilitators, the Key Informants also had knowledge of climate change issues and held management positions at Wildlands. Other Key Informants outside Wildlands held positions of Managers, Experts, Advisors, Directors and Governmental officials. In terms of the Key Informants, the need for inclusion and exclusion criteria was to interview only those Environmental Specialists familiar with or experienced in climate change science and interventions.

#### Inclusion criteria

- Professionally or academically active in the fields of climate change (Mitigation and Adaptation).
- Active Project/ Field Manager, Field facilitator, Community liaison Officer in a Wildlands CEBA project.

#### Exclusion criteria

- Not an active professional in the fields of Climate change mitigation and Adaptation
- Not an active Wildlands employee/ staff member

### Population Group Two: Community Participants

The participating community members in the seven CEBA case study communities are included in the second sample population group. For community participants, I wished to understand the positive and negative livelihood impacts, emotions, and thoughts regarding the project implementation elements of the Wildlands CEBA Assemblage. Interviews were conducted within different political, socio-economic and livelihood settings in the hope of gaining a more realistic and holistic picture of the ‘on-the-ground’ CEBA experience in the seven communities. Based on findings by Richie *et al.* (2003) a sample size of at least 50 interviews per case study site was the initial goal for gathering data from community participants. The authors stated that a sample size of 50 interviews was sufficient for qualitative studies to ensure a good standard of data collection and analysis. However, a total of 157 completed interviews were undertaken in the seven case study sites. This was the maximum number of interviews achieved for two reasons. The first being, achieving data saturation (upon



approximately 150 interviews) and the second being time, financial and logistical constraints during the research process.

However, the briefly described inclusion and exclusion criteria below highlight specifics considered during the sampling and data collection process. For community participants, it was necessary to sift through each study site's community population, to interview only those community members actively involved in CEBA Implementation projects. Whilst inclusion criteria reflected characteristics ensuring a participant's eligibility, exclusion criteria were a deciding factor on whether the participant should be excluded from the research process (O'Leary, 2010). The criteria also added value to the research duration in the field by saving daylight hours.

#### Inclusion criteria

- An active participant in a Wildlands CEBA project

#### Exclusion criteria

- Community participants below 18 years of age were not included in the research.

As pragmatism is the chosen research philosophy, acquiring a 'real-life' or 'real-world' account of a person's experience is highly desirable in this study (de Vos *et al.*, 2011). Additionally, in the context of the research objectives (*Chapter One*) application of inclusion and exclusion criteria gave the researcher the ability to move more timeously through more potential study sample population candidates as described above. The sampling method discussed in the next section is an account of the step-by-step process of how participants were selected, and data was collected.

### 3.3.3 Sampling method

This section discusses the step-by-step process on how study sites were selected. key informants and community participants were also included in the sampling process. It must be noted the researcher was still employed at Wildlands at that point in time. After receiving ethical approval from the UKZN Ethics Committee and a Gatekeepers Letter from Wildlands (Section 3.8), the following steps were taken in selecting participants for the pilot study and the main study, respectively:

Step 1: This step also involved a brief conversation with Wildlands Project staff to assess the feasibility of doing research in participating communities. The researcher was allocated two

personnel by Wildlands CEO to serve as research assistants during the data collection phases of the pilot study, whom the researcher was already familiar with, as these were team members of the researchers Sustainability team at Wildlands.

Step 2: The pilot case study sites were chosen (Khula and Zwenelisha, and Ongoye Forest Sokhulu and Mbonambi). The relevant stakeholders were contacted to begin the stakeholder engagement process where the purpose of the study was explained. The research was welcomed by the local leadership stakeholders and research processes began. Table 3.2 below gives a brief description of the CEBA project sites and communities visited in KwaZulu-Natal. Field trips along with logistical preparations were arranged for 14-17 July 2015 in Dukuduku and Ongoye; and 20-24 July 2015 in Richards Bay and uMhlatuze. Achieving data saturation as opposed to a chosen numeric sample population was explained to the research assistants.

Table 3.2 Pilot study sites, days in field, responses

<b>CEBA Project</b>	<b>Site</b>	<b>No. of days spent on site</b>	<b>No. of Responses received</b>
Dukuduku CEBA	Khula and Zwenelisha	2	29
Ongoye CEBA	Ongoye Forest	2	27
Richards Bay Coastal Dune CEBA	Sokhulu and Mbonambi	2	28
Mhlathuze CEBA	Dube	2	22
		<b>8</b>	<b>106</b>

Changes in questions were noted and the final questionnaire for community participants was translated from English to isiZulu with the help of the research assistants.

Step 3: After data analysis phases of the pilot study, the seven case study sites were chosen for the main study (Section 3.2.4), and permission was attained from political and traditional leadership and stakeholders of each community via the Wildlands Gatekeepers letter. The Ethics Committee at University of KwaZulu-Natal in Pietermaritzburg (UKZN-PMB) subsequently approved the Key Informant semi-structured interview guide (Climate/Sustainability/Environmental Expert), Semi-structured interview guide for Wildlands

Community field staff and the semi-structured interview questionnaire for CEBA community participants (Appendices 1, 2, and 3).

### **3.4 Data Collection Process and Methods**

This section discusses the data collection methods chosen for the research. Numerous data collection methods exist, namely, interviews, administering questionnaires, observations, documents, media, maps, photographs, and artefacts which are widely used in qualitative research (Bryman, 2012; de Vos *et al.*, 2011). For this study, data were collected by means of semi-structured interview questionnaires, key informant interviews involving semi-structured interview guides, Skype conversations, observation, and media related videos and/or reports and internal Wildlands and eThekwini documents. During the data collection phases, key informant and community participant interviews were undertaken through separate semi-structured interview questionnaires and guides. Thereafter additional trends, patterns, new themes, and information were identified utilising both inductive and deductive reasoning.

#### **3.4.1 Data collection techniques**

The data collection techniques used are briefly highlighted in this section. For community participants a semi-structured interview questionnaire was administered by the research assistants in all seven case study communities. The questionnaire was chosen for two reasons. First, the researcher wished to expose the sample population groups to the same questions, with the aim of gathering differences or similarities in responses. Second, the researcher wished to delve into the plight and experience of the community participants to further understand the responses received.

The purpose of the community questionnaire was to collect a dual set of data that reflected local and traditional knowledge; section one of the questionnaire reflected perspectives on their current natural and socio-economic circumstances and section two, data that reflected their understanding of the Wildlands CEBA Assemblage as well as their participation in a CEBA project. An outcome of the pilot study revealed that most of the participants did not speak English and required translation. The questions in the semi-structured interview questionnaire for community participants were partially structured and open-ended in cases where elaboration was required.

Semi-structured interview guides were used to collect data from key Informant stakeholders by means of face-to-face, Skype or telephonic interviews, as various digital communication interfaces were readily available to both parties (researcher and Key Informant). In both cases the advantage of developing a semi-structured interview guide and a semi-structured interview community questionnaire allowed for the researcher to set out questions in a respectful and non-prejudiced manner whilst also giving the chance to the research team for further probing (de Vos *et al.* 2011).

Additionally, observation was employed as a data collection technique to note down visual elements of the physical surroundings (appearances of infrastructure, housing, and ecology), key words used by respondents, thoughts, feelings, and reactions from the respondents as well as socio-economic circumstances. Observational and documentary analyses were the best tools for discovering the non-verbal nuances and inferences in the case study sites. Document sources used were to augment documental analysis and supplement the interview material. These included: international and local media content, online and hardcopy documents from UNFCCC, NASA, eThekwini, King Cetshwayo and uMgungundlovu Municipalities plans; Climate Letter (2009), Wildlands *Reflections* documents, Internal and Donor documents, News, and media related material. The primary justification was to uncover more descriptive information from various sources other than interviews to avoid gaps in the data collection process.

Where possible, interviews were audio recorded during data collection phases for participating project community members and key informants. This was done for further clarification, coding during analysis and for the purposes of data triangulation. The apparatus used was a Dictaphone. For further verification and exploration, content analysis was employed to analyse available documental sources from Wildlands and the eThekwini Municipality regarding climate change adaptation and the Wildlands CEBA Assemblage. Duly noting that data saturation may be reached at any point in research. Data saturation was the guiding principle for data collection as the researcher wished to explore ample data until such time that there was no longer new information being heard or seen, also known as thematic exhaustion (Bryman, 2012).

### **3.4.2 The interview process and setting**

#### *Key Informants*

Interviews were conducted once ethical clearance was granted by UKZN and informed consent was given by the Key Informant. In total, 29 Interviews were conducted with Key Informants at Managerial or Expert levels at Wildlands and Other organisations. Each Interview had a duration of approximately 70 minutes. For those interviews that could not be audio taped, electronic mail (email) and Skype communication methods were used. Key Informants reside in different provinces of South Africa as well as travelled abroad at any given time, therefore the interview setting was always at the Key Informants place of work and time convenience, and the researcher travelled to Key Informants by air or road transport. Where the Key Informant was abroad in another country, the researcher postponed the interview until such time where the Key Informant could avail themselves for a face-to-face, email or Skype interview.

In terms of Key Informants, the following entities were interviewed in this study using semi-structured interview guides: -

- Wildlands (Hilton Office Staff and Empangeni Office Staff),
- Wildlands 'on-the-ground' Project Managers and Facilitators across the seven case study project sites in KwaZulu-Natal (KZN), which meant the creation of two separate Key Informant semi-structured interview guides. One for external stakeholders listed below and another for Wildlands office and field staff,
- External Stakeholders: Climate/ Sustainability/ Environmental experts and corporate Companies to elicit responses on project implementation from a donor perspective (Eskom, PWC, KPMG, Unilever) and the Department of Environmental Affairs and the eThekweni Municipality (South African Government entities).

### *Community Participants*

Upon approval of ethical clearance from UKZN, interviews commenced. Informed consent was gained and signed by each CEBA community participant during interviews in the field by the researcher and her team (Appendix 8). The informed consent form was attached to the semi-structured interview questionnaire with a note to each participant. The note to each participant was a brief explanation of the purpose of the research. The interviews which involved the administering of the semi-structured interview questionnaires were carried out in each of the seven case study communities by two research assistants (Section 3.7.1). A step-by-step process in this regard, is listed below: -

- 1) The Wildlands satellite project Management office in Empangeni (KwaZulu-Natal) was informed of the research to take place, two weeks before the research team arrived. Field project Managers ensured that the participating communities were informed of this in advance but were not given extensive information about the interview content as per the researcher's request, for example that Wildlands is funding the research. An instruction of this nature was given so that the best possible experience of the community participant's reality was given to the research assistant without any data skewness. That is, giving a false account of the CEBA project experience to please the implementing agent (Wildlands).
- 2) A site visit plan was then organised in conjunction with Wildlands project management team and both research assistants (Plate 3.1 and Appendix 5).



Plate 3.1 Research Team planning community interviews

- 3) Before each Research Assistant interviewed a community participant, each participant was welcomed and informed of the research purposes of the interview (Plate 3.2), after which an informed consent was given by the participant. Community participants were told why they were being interviewed and the detail of Wildlands being a part of this research was then explained at the end of the interview process. However, the majority of the participants were comfortable about Wildlands receiving this research as they were optimistic about seeing positive changes. A handful were also comfortable about Wildlands receiving this research as they wished to lay their grievances through this research in the hope of a better future with project implementation challenges.



Plate 3.2 Interviewing a community member in Obanjeni

- 4) Each community participant Interview duration lasted approximately 25 minutes excluding journeying from one participant to another. At the end of the process 157 community participants were interviewed.
- 5) All 157 responses were given pseudonyms during the data analysis phase. No names were used in any part of this research unless indicated otherwise by written permission of the person themselves. The data was ready to be analysed by the researcher as it trolled in. The research assistants once again were of great help in this regard as no time was wasted between the data collection phases and data analysis phases.

### 3.5 Data Capture and Analysis

This section highlights the data capture and analysis procedures and processes involved in the research. Thematic and Content analysis were adopted as preferred tools of analysis for Key Informant and community participant data. Large amounts of data management occurred in the study through capturing data from 157 community participants, numerous sourced documental material and approximately 50 hours of audio taped interviews. Data analysis involves sifting through data in a thorough, coherent, and structured manner to give data meaning (de Vos *et al.* 2011). Furthermore, a heuristic theoretical framework consisting of various theories, “ensures that the issue is not explored through one lens, but rather a variety



of lenses which allows for multiple facets of the phenomenon to be revealed and understood” (Baxter & Jack, 2008:545). Nalau *et al.* (2021) recognise that heuristic approaches to adaptation research inquiry is increasing. Data capture and analysis occurred simultaneously to avoid time lag in the research process and to leave adequate amounts of time to follow-up on issues that required clarification.

The heuristic nature of the CEBA Analysis Framework and the assemblage thinking lens allowed for heterogeneous aspects of the Wildlands CEBA Assemblage to be explored in relation to vulnerability, poverty alleviation and adaptation likelihood. Both qualitative and to a lesser extent quantitative data was collected and analysed using Thematic Analysis (Clarke & Braun, 2014), Content Analysis and Observation. Evaluating the qualitative data from Key Informant stakeholders and community participants involved Thematic Analysis where the evaluation of both the qualitative data and to a limited extent quantitative data was analysed. Content Analysis involved the exploration of a variety of data existing in document format. In addition, MMR strategies created more room for exploring and interpreting both qualitative and quantitative data.

Data capture and analysis is explained for both qualitative and quantitative data collected in the study. For both Qualitative and Quantitative data, Microsoft Excel was used to capture the raw data as well as sort and manipulate the data to identify percentages, similarities, patterns and themes in responses, further explained in a step-by-step procedure below and the data analysis techniques used included the following: -

- Thematic Analysis: the use of a Dictaphone permitted audio taping each interview with Key Informants. Each recorded interview was listened to carefully and transcribed. These interviews included one-on-one face to face interviews and Wildlands Management level CEBA. Key themes, categories and sub-categories were formed from the data such as organisational culture.
- Content Analysis: where all CEBA related documents such as the Annual CEBA Documents as well as documents listed in section 3.4.1 were interrogated and used for data triangulation purposes.
- Observational Analysis: where the researcher noted information relating to physical surroundings and socio-economic circumstances such as housing structure and presence of traditional leadership among others.

Data capture and analysis procedures for Key Informants involved the following steps:



- 1) Transcribing audio recorded interviews and noting down time-stamped word-for-word information that the researcher deemed significant to the aims and objectives of the study, to find familiarities, similarities, trends, patterns, and themes in all the transcribed interviews. By capturing the data in its original format, the researcher aimed to achieve transparency and data integrity by not subjecting the data to interpretation and subjective belief on the researcher's part (Bryman, 2012).
- 2) The notes that were taken during the interview reflecting thoughts by the researcher were also considered during data interpretation and reporting.
- 3) The '6-phase approach' adapted from Clarke and Braun (2014) was also employed in this data set.

The analysed data from Key Informants, including 34 CEBA review questionnaires (Appendix 4), was also categorised and themed (*Chapter Five*), however more original quotes and phrases were extracted from this set of data as compared to the data from community participants.

Data capture and analysis for CEBA Community Participants included:

1. The raw data was captured from the written questionnaire into a Microsoft Excel worksheet in the original form, as written by participants. Due to the large volume of written data, the raw written data, original data tables and normalised data tables were not included as appendices and can be provided upon request<sup>28</sup>.
2. To establish the trends in the participant responses, the data was then sorted by methods of normalisation based on similarity of responses. The data was normalised based on a participant's use of common words and responses of similar nature (like thematic coding). For example, responses such as: "*I paid my childrens school fees*" and "*School fees was paid*" when normalised, became "*payment of school fees*". This process allows for the researcher to code similar or linked ideas in the text related to similar characteristics. This is a significant step towards retrieving all associated texts or passages that relate to the same theme during the categorisation stages of data analysis.
3. Pivot tables in Excel were necessary due to data volumes and used to establish the count of each response per case study community using the Count formula built into the Excel Pivot table options. This enabled the researcher to identify the common trends, patterns and subsequently themes in the responses received.

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<sup>28</sup> Although "laborious and time-consuming" (Creswell, 2014: 195) data from the questionnaires received at all case study communities, were manually reviewed.

4. The researcher used Clarke and Braun's (2014) six-phased thematic analysis approach to analyse the data as it allows the researcher to relate interpretive accounts of a story whilst also encapsulating trends and patterns in the data.

The objectives of the research required different lenses through which data could be analysed. The assemblage approach was useful in “emphasising emergence, multiplicity and socio-spatial relations and processes” (Anderson & McFarlane, 2011:124), as well as explaining the interconnection between the moving parts (human and non-human) of the Wildlands CEBA Assemblage. Analysing changing discourses in adaptation assisted in identifying the evolution of the Wildlands CEBA Assemblage as a climate change adaptation tool using interview material and content analysis methods to review documentary material (*Chapters Four and Five*) (Fairclough, 1989, 1992). Exploring managerial roles provided a platform to discuss the scaling up of the Wildlands CEBA Assemblage (*Chapter Five*) (Mintzberg, 1973). Analysing on-the-ground effects regarding livelihoods, individual capabilities, and vulnerability (Scoones, 1998; Sen, 1979; Brooks, 2003) allowed the researcher to discuss both intrinsic and tangible, positive and negative shocks, stresses, and livelihood impacts (*Chapters Six and Seven*). The next two sections provide an account of the ethical considerations and trustworthy issues considered during the research process.

### **3.6 Researcher positionality**

It is common practice and ethically responsible to be transparent and clear about my position in relation to the study (Holmes, 2020). Positionality in this case directly referred to my awareness of my relationship to the field and subject of study, in this case, the Wildlands CEBA Assemblage. Before embarking on a Doctor of Philosophy degree, I gained 10 years of professional experience in the field of climate change through employment at the national Department of Environmental Affairs (Government sector), The United Nations Framework Convention on Climate Change (International) and Wildlands (NGO sector). While the significance of positionality is noted to preventing bias and asymmetry in the findings, it also aided in demonstrating how the “researcher’s position can manifest in the research findings while still yielding useful insights” (Moon *et al.*, 2016:3). In the case of this research, the insights gained from a multisector working experience aided in my ability to engage with theoretical research material and practitioner level implementation imperatives.

While fulfilling my role as a Strategic Manager of Wildlands, leading the Sustainability agenda for the NGO and a funded PhD student (June 2014 – June 2016), the need for research to

understand CEBA as a climate change adaptation framework became apparent. Wildlands accepted my research proposal and deemed the research important, forward thinking, and innovative, and readily agreed to support the research. The support was in the form of a financial bursary for a stipulated period. In addition, full permission was granted to the researcher (Section 3.8) to access Wildlands project sites, political, donor, social, executive board management networks, and quantitative data dashboards. As a researcher, this was a welcoming and relieving feeling. From a community perspective, I was viewed as an important person associated with CEBA projects and Wildlands. At times, this association created false impressions and unwanted expectations on the side of the community participants. It was a heavy burden to bear as I was forced to continuously explain that I cannot ‘fix’ any problems associated with project frustrations. It is also important to note that I hosted an annual CEBA review and noted gaps that I felt required further investigation. At first, the undertaking of the PhD was to create a monitoring and evaluation toolkit, this focus shifted after spending some time engaging in the PhD. I realised that the interconnections and relationships in an integrated CBA-EBA adaptation intervention warranted a more exploratory and descriptive study, sparking an avid interest in assemblage theorisation literature.

It was only upon leaving the organisation as a formal employee that the research began taking shape. With a twist of fate, I was retrenched from Wildlands employment in June 2016 and focused on the research since. This circumstance was not ideal, however, in hindsight afforded me the opportunity to distance myself from the daily workings of the organisation and the concept of CEBA. I was better positioned to view CEBA from an academic perspective. Unfortunately, escaping the practitioner’s mind-set proved to be difficult when analysing findings (*Chapter Five*). One of the ways I dealt with this shortcoming was the triangulation of data with different sources and conducting further interviews on the subject matter with new Interviewees. It is also important to mention that my view of CEBA changed after leaving Wildlands. I was able to distance myself from the normative views of CEBA projects, that is, ‘feel-good’ positive interventions to viewing CEBA in a more holistic manner including the complexities, relations, and movements. The heuristic analysis framework assisted in this regard. Dedicated time spent on researching CEBA allowed me to view the ‘system’ and not just consider ‘parts of the system’. A significant circumstantial challenge however was not being privy to operational conversations and the inability to gain timely access to data which negatively affected data analysis timelines in the research process. Follow-up interviews were conducted to accommodate this shortcoming. However, throughout the research process

quantitative data, documents, and conversational material in terms of note taking by the researcher during brief conversations regarding the Sustainability Unit work at Wildlands, was available to me from 2014. This is primarily because I was an employee of Wildlands from 2014 until June 2016.

### **3.7 Trustworthiness**

According to Moon *et al.* (2016), an increasing number of researchers are becoming more cognisant of the dependability, confirmability, credibility, and transferability of research. This section briefly highlights the aspects considered to improve upon the trustworthiness of the research.

#### *Credibility*

Credibility signifies, how sincere and truthful the interpretation of the data is in relation to the actual meaning of the data collected from participants (Bryman, 2012). To improve and enhance the confidence levels in the interpretations of the data, data triangulation was employed in the study (Section 3.2.2) and excerpts of exact words of participants were used adding to richness of the study. Evidence of direct quotations can be seen in *Chapters Four, Five, Six and Seven*. In addition to building confidence with data interpretation, building trust with each case study community was also of the utmost importance (Creswell, 2013). The researcher and the two research assistants were fully supported and assisted in this regard by all Wildlands Project staff both at the office management and on-the-ground management levels. Community participants trusted the research team based on the association with Wildlands, whom they were familiar with. Some community participants were not welcoming to the research team. In such instances the research team did not pursue these individuals and moved ahead with research activities by eliciting participation from those that were willing. A final account of ensuring credibility was note-taking during observation in the field, presenting additional opportunities to verify data where possible.

#### *Confirmability and Dependability*

In terms of confirmability Morrow (2005:252) acknowledges that the findings of the research should “represent, as far as is (humanly) possible the situation being researched rather than the beliefs, theories or biases of the researcher”. Bryman (2012) refers to confirmability as objectivity. Numerous back-and-forth discussions transpired regarding the raw and analysed data throughout the research process between the researcher, research supervisor and external

key informants. It must also be stated that all data (audio recordings, transcripts, excel workbooks and related documentation) are kept under 'lock and key' for a minimum of five years as best practice data integrity measures. Dependability refers to the consistency, reliability, and stability of the data as well as the degree to which research methods, procedures and protocols are documented (Morrow, 2005). In the study the methodology chapter thoroughly describes the research methods in detail for every step of the research process. Researcher positionality was also highlighted to reduce researcher bias, state the position of the researcher, and increase trustworthiness where possible. Finally, the raw data and analysed data is kept in its original form and available to any person(s) outside the research to audit, critique, or follow-up on a specific element of the research for further studies.

### *Transferability*

Transferability refers to the degree to which findings can be transferred or be applied in other settings or groups (Morrow, 2005; Moon *et al.*, 2016). Transferability in relation to the findings of this research is significant as the study serves as the first ever information base for the Wildlands CEBA adaptation intervention. In this study transferability was achieved to a certain degree by documenting a detailed account of the results supported by original quotes from respondents (*Chapters Four, Five, Six and Seven*). It was seen that certain themes and similarities were evident in the seven case study communities and this indicated the possibility of these findings appearing in other CEBA project communities. The heuristic analysis framework used in this research can be used in other integrated CBA-EBA adaptation studies of similar nature. However, the researcher is not in a position to ascertain the degree of similarity between the findings of other research and this research. This is considered a gap in this research inquiry and can be a future research consideration. Based on researcher positionality, the researcher is confident that the methods, results, and interpretative findings will add value to further research on the use of assemblage thinking practices in adaptation, other CEBA project sites or other elements of the research outside CEBA project sites. However, it must be acknowledged that qualitative research studies are not always easy to generalize (Moon *et al.*, 2016).

#### **3.7.1 Research assistants**

As mentioned above the research assistants were team members working within the team of the researcher, who headed the Sustainability Unit at Wildlands before being retrenched. Each research assistant was fluent in both isiZulu and English. One male and one female made up

the researcher's team. The male member of the research team, from this point known as Research Assistant 1, was a BSc Honours Geography major with limited industry experience in climate change issues, however academically knowledgeable about climate change. The second female member of the research team, known as Research Assistant 2 from this point, was a MSc Biology major with an equal amount of industry and knowledge around environmental management issues but limited knowledge of climate change. Both research assistants were passionate about the research and afforded the researcher their time and effort in every respect, for which the researcher is grateful.

A final team meeting was held with the researcher and research assistants where itineraries and field sampling instructions were discussed. During the data collection and capture phases debriefing meetings were held between the researcher and the research team to discuss observations, the field experiences and any challenges experienced. In all cases, the research assistants were separated to decrease any bias during the interviewing process. A debriefing session was held daily after interviews were conducted to discuss challenges, insights and better streamline the data gathering process,

### **3.8 Ethical Considerations and Limitations**

This study entailed close involvement with people connected to the data sources, that is, the Key Informants and Community participants. It also related to the conclusions reached about those that were connected to the research as well as those that were not connected but had displayed interest. In both cases it included the research supervisors, Key Informants, the implementing organisation, and the community participants. Bryman (2012) notes that ethical considerations entail professional, legal and social commitments, procedures, rules and criteria the researcher is required to follow, these are discussed below. Limitations of the research conclude this chapter followed by concluding thoughts.

#### *Research ethics and informed consent*

Ethical clearance was obtained from the UKZN Ethics Committee through formal documentation procedures to ensure all participants in the research are legally protected and highlights, no intention to harm any research subject (Appendix 6). Informed consent ensures privacy and confidentiality (Tracy, 2010) also ensuring the research subject is aware of their right to know the details and consequences of the research and their participation thereof. In all forms of external presentation or publication no names, places, institutions of any kind were

(or will be used in the future), in their original form without the written permission and consent of the original owners of that information. If approved and provided by the original owner, the written consent will be attached or referenced to the presentation or publication. Each Key Informant and community participant was briefed about the study before any data collection procedure began, an informed consent form was signed by each person involved in this research (Appendix 7).

### *Permissions and Confidentiality*

A gate-keepers letter (Appendix 9) from Wildlands was kindly provided giving the researcher permission to conduct research and use data from both the organization and its associated projects. This letter also served as guiding permission for the researcher to gain access to key informant networks where Wildlands already established long-term political relationships. Hence, there was no need to obtain separate permission letters from each study site traditional council or associated state municipality. Instead, the researcher contacted the lead municipal project authority associated with Wildlands project work and briefly described the study objectives, permission was received after each telephonic conversation. In the case of Buffelsdraai, the newly appointed ward councillor also provided the researcher with a letter of permission (Appendix 10). For key informants, before a face-to-face, Skype or Telephonic Interview was conducted, email and telephonic permission was also gained by the researcher, as the researcher took the initial step of explaining the study to each key informant. Confidentiality was maintained by not disclosing personal details of key informant or project community participant to any person and by changing real names to pseudonyms in the research. Each key informant was assigned the title of 'Anonymous' and a number to distinguish responses received, for example, *Anonymous (Anon.) 3*. A pseudonym and associated numbers were also assigned to each person in the data capture and analysis phase, for example, *Participant (P) 3*. Identities were protected during the data analysis and reporting phases of the research. Permission to use Wildtrust (formerly known as Wildlands, The Wildlands Conservation Trust) was also granted to the researcher through electronic mail correspondence. In addition, permission was granted to use Dr J. Glenday's name and the names and designations of the ex-CEO (Dr A. Venter), the new CEO (Dr R. Kloppers) and Professor Debra Roberts, in the research (Appendix 11).

### *Limitations*

Limitations of the study are expressed as methodological concerns, data management and logistical challenges. The discussion begins with methodological limitations followed by data and logistical challenges, and researcher reflexivity concerns.

Regarding methodological concerns, various limitations were recognised in the research regarding data management and analysis. Sampling techniques were chosen based on the geographical spread of communities spanning South Africa and limited research funding. The inability to reach remote project locations without adequate transport resources presented a challenge regarding increasing the research sample population size. Most of the responses from community participants contained similar elements and as a result presentation of direct responses may appear duplicated to an extent with only a few words changed in every quotation. However, a valid dataset was ensured by employing data saturation and thematic exhaustion as guiding principles, where similar responses from independent interviewees were noted until no new information was heard or seen (Bryman, 2012).

Regarding data management, all the Wildlands datasets shared with the researcher were formatted as Microsoft Excel databases and did not readily support data transposing, therefore, the analysis was limited to the use of Microsoft Excel. In addition, existing datasets within Wildlands were not consistent or comparable with other independent datasets focused on the same project community such as eThekweni Municipality datasets. To avoid any data loss through transposing, data was entered into a Microsoft Excel database and analysed within this software package. Unfortunately, Wildlands did not share their 2015/2016 and 2016/2017 CEBA documents and the 2017/2018 PowerPoint presentations for use in the research undertaking. These challenges were navigated by electronically or telephonically contacting the relevant Wildlands Managerial staff to elicit the necessary information. Subjectivity was also a concern and noted in terms of translation of interview material from English to isiZulu and vice, versa. However, this issue was difficult to move around as translation services were limited. The number of interviews conducted was not uniform in every case study community due to logistical and weather constraints as well as the unavailability of participants. The differing sample population numbers per project case study community are unequal and potentially impacted the comparability amongst case study sites. Gaining equal numbers of interviews per project site was particularly challenging as research funding was limited and did not always allow for follow-up visits. In this case, audio recordings of interviews, observational analysis and CEBA review data were heavily relied upon. In addition, the initial focus of the study was on M&E practices and tools, however, the study became more descriptive in nature



and data saturation became a point of focus with the qualitative dataset as opposed to gathering more data of a quantitative nature.

In every research inquiry the importance of recognizing limitations is imperative in reflecting research reflexivity and integrity and identifying potential future research recommendations. Though subjectivity, bias and prejudice were always considered when formulating research findings, deductions and inferences, it could not be removed entirely from the research process. Although not ideal, from time-to-time my ‘practitioner’ voice began surfacing contemplating the pragmatic responses to climate change adaptation challenges. In the initial years of my research, it was particularly difficult for me to navigate normative thinking. Over time and upon gaining more theoretical and field insights I began applying my mind to ‘*what is*’ rather than ‘*what should be*’. I view this as a pinnacle moment in my research journey as this progression enhanced my ability to engage more meaningfully with academic material. Regarding reflexivity in the thesis, one of my major oversights was to assume that because some communities were receptive to the implementing agent, others might appear the same. As a result, the unexpected unwelcoming nature of community participants from the peri-urban and urban communities in the eThekweni and uMgungundlovu districts affected the number of interviews conducted and visual data collected.

### **3.9 Conclusion**

This chapter provided a detailed account of the research philosophy and multi-pronged, heuristic approaches chosen for the study. The research strategy involved a description of the case study sites, sample population and sampling strategies. A MMR approach was used highlighting qualitative and quantitative data collection and analysis techniques used in this study. This is further detailed in the data collection, capture and analysis sections of the chapter. Additionally, issues related to trustworthiness and ethical consideration affecting fieldwork and data analysis is described in the chapter. Finally, researcher positionality was also considered in the research. Shifting from creating a monitoring and evaluation toolkit to exploring the various aspects of the Wildlands CEBA Framework created a more enriching research undertaking. *Chapters Four, Five, Six and Seven* present the results and discoveries with descriptions and discussions of the findings in the research.

## 4. OPPORTUNISTIC ADAPTATION

### 4.1 Introduction

This chapter is key to understanding the evolution and inception of the Wildlands CEBA Assemblage. It explores the origins of CEBA and its shift from an idea to its progression as a project implementation tool through ad-hoc and coincidental relationships. The Wildlands CEBA Assemblage became an opportunistic adaptation vehicle to engage with poverty reduction and ecosystem preservation simultaneously. The chapter also highlights aspects that were used to drive the adaptation agenda forward, using Durban as a focus. These include governance structures and arrangements in relation to adaptation project implementation, as well as interactions and connections between different stakeholder groups, formulated technical processes and the use of specific bodies of climate knowledge. These elements provide insight on the complex range of factors and opportunities that were used to mainstream the CEBA concept and a marginalised adaptation agenda. What I term, the Wildlands CEBA Assemblage includes numerous heterogeneous elements. This chapter also brings to light the factors at the local levels, which I will call hooks and drivers, that draw attention to CEBA, as well as practices of assemblage operating at a larger scale.

Durban formed a good study site to investigate the evolution and scaling of the Wildlands CEBA intervention, as the eThekweni municipality has a history of innovative local environmental governance in pursuit of biodiversity planning for over three decades. Innovative governance arrangements, at a variety of scales, are increasingly recognised as significant for fostering inclusive developmental, migratory, and adaptive processes in the face of environmental and climate crises (Tormos & García-López, 2018; Bennett & Satterfield, 2018; Swyngedouw, 2005; Larner, 2011). Accordingly, Swyngedouw (2004, 2005) challenges traditional state-centred forms of governance and draws attention to a form of ‘governance-beyond-the-state’. Scalability in this sense refers to the functional dimension, where decision making and governance structures are enhanced through the involvement of extended non-state actor networks, without disrupting those existing structures (Simpson *et al.*, 2020). In this light, multi-stakeholder networks are a vital piece of the ‘Transformational Adaptation’ school of thought through sharing of responsibility, risk, and decision-making in the project process (Galafassi *et al.*, 2018). I argue that the relationships necessary for an integrated CBA-EBA intervention to take shape and form is facilitated through an assemblage approach.

The chapter draws from interviews with CEBA proponents and stakeholders, documentary reviews of Wildlands ‘Data dashboards’, reflection on documents from 2010 to 2019, and insights drawn by the researcher. It describes the inception of the Wildlands CEBA intervention through exploring the complex range of factors and opportunities that were used to mainstream CEBA and a marginalised (adaptation) agenda. This was achieved by using Li’s (2007) practices of assemblage in relation to the complex range of factors and opportunities that propelled the CEBA idea forward and mainstreaming the adaptation agenda. In exploring environmental governance and the inception of the Wildlands CEBA intervention the words ‘hook’ and ‘Driver’ are used when exploring the complex range of factors influencing the adaptation agenda in Durban (Ammer, 2017; English Oxford Living Dictionaries, 2017).<sup>29</sup> These concepts are defined in the sections to follow.

The discussion begins with understanding the change in governance structures as a necessary element for mainstreaming the adaptation agenda, followed by an exploration of the origins of CEBA. A brief outline of the project sites in Durban is also presented. The focus is then placed on exploring various actors and networks involved in its inception through Li’s (2007) practices of assemblage.<sup>30</sup> The complex range of factors used to mainstream adaptation are discussed along with operationalisation of CEBA. The chapter ends with a conclusion.

## **4.2 Understanding Changing Attempts at Governing Climate Change: from Global Governance to Polycentrism and Governance Assemblages**

For successful attempts at adaptation, governance systems must function in part with non-state actors and role-players. Global environmental governance, catalysed by the UNFCCC, created an entry-point for the regulation and institutionalisation of GHG emissions control, multilateral environmental agreements, and adaptation imperatives (Jagers & Striiple, 2003; Sanwal, 2007; IISD, 2019). During the climate science and climate justice movements, focus was placed almost entirely on the development of the processes required to assert a ‘*tonne-is-a-tonne-is-a-tonne*’ in the emission reduction and market-based approaches at the time, with some contested views (Thompson Reuters, 2015). Climate change governance regimes were more concerned with the sharing of the global carbon budget and which portions of the budget belong

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<sup>29</sup> Metaphorically speaking, just as a fish would be enticed by and caught with a hook, elements of the CEBA process acted as hooks, enticing actors and role players in the process to engage with climate change and adaptation. ‘Driver’ is used to describe moving towards a certain goal but not limited to one direction.

<sup>30</sup> These are rendering technical, forging alignments, authorising knowledge, managing failures and to a lesser extent, anti-politics. The analysis excludes the practice of reassembling at this stage of the study.

to which countries (CBDR Principles). It was not until the larger international discussions (WSSD and Rio+20) highlighting the green economy, sustainable communities, and disaster risk reduction, that governance began changing, shifting the bulk of adaptation decision-making to local municipalities and governing structures (Huitema *et al.*, 2016). According to Sending and Neumann (2006) the last two decades revealed that NGOs and civil society actors emerged as both objects and subjects of government with autonomy and rights reshaping government rationality.

Adaptation decision-making requires engagement between governments and local communities through a ‘common language’, flow of power and shared vision. The hybridization of governance structures and processes are considered beneficial towards achieving systemic change through adaptation interventions. However, the lack of early ‘up-takers’ with an interest in aligning climate action through the vertical and horizontal spheres of government impedes the process. Ziervogel (2019) recommends the need to change the relationship and means of engagement between local governments and local communities to bear more fruitful discussions. New governance approaches, “directing” power across stakeholder networks may facilitate more meaningful conversational exchanges inciting greater uptake of climate action (Ziervogel *et al.*, 2014; Pasquini *et al.*, 2015; Savage, 2020:11).

Swyngedouw (2005) characterises new governance regimes as forms of ‘governance-beyond-the-state’, consisting of ‘institutional fixes’ to traditional state centred forms of policy making, applied to address contemporary problems. In Swyngedouw’s (2005) policy construction the state and non-state actors interact at a variety of geographical scales, in ways that are increasingly horizontal and networked, which facilitate new forms of participation and ownership of project implementation tasks. Savage (2020:12) and Li (2007) note the significance in forging alignments and “maintaining connections” through the ability of stakeholders to exercise agency in such arrangements. Assemblage thinking with its origins in Deleuzian theory, has also spread across diverse sets of scholastic thought like governance, through what is termed ‘policy assemblages’ (Savage, 2020). Climate change and environmental problems transcend political and economic boundaries eliciting the need for both top down and bottom-up approaches to climate governance to be ‘assembled’ (Taylor *et al.*, 2014; Roberts, 2008).

The next section will cover climate governance in eThekweni, KwaZulu-Natal to contextualise the opportunistic approach taken to mainstream the Wildlands CEBA intervention as an adaptation response.

#### **4.2.1 Institutionalising climate governance in Durban, KwaZulu-Natal: the context for CEBA's emergence**

The discussion briefly highlights how multi-actor networks and public-private partnerships aided in mainstreaming the adaptation agenda and the emergence of CEBA as an implementable concept. On a local front, forward-thinking climate change discussion and practices in Durban opened doors of engagement for discussions around institutionalising and mainstreaming climate change adaption. On one hand, adaptation planning in Durban highlighted that most urban governance innovations are motivated by internal goals and independent action to advance local climate and development agendas (Anguelovski & Roberts, 2011). On the other hand, global ambition and local action were intertwined in the local Environmental Planning and Climate Protection Department (EPCPD) through various biodiversity and climate change initiatives, CEBA included (Roberts, 2016). The eThekweni municipality undertook widespread advocacy approaches to climate change through various mega-events (discussed in the next section) and lobbied for non-state actor involvement at COP21/CMP11 to familiarise local communities with green issues and gain their interest and support (Roberts, 2016).

Durban like other cities in South Africa is plagued by social and environmental pressures. Durban was once under the rule of apartheid through 'The Group Areas Act of 1950' among many other oppressive acts (SAHO, 2019). The socio-economic plights and poverty-legacies of apartheid can still be seen in Durban, including in the CEBA case study communities through the presence of informal settlements, townships, high unemployment rates and socio-economic inequalities (STATSSA, 2017). The city is housed within a sensitive ecological biome, the Maputaland-Pondoland-Albany Region of endemism (one of the 36 global biodiversity hotspots) (eThekweni Municipality, 2009).

Durban was the focus of climate activity after Durban played host to the 17<sup>th</sup> Conference of the Parties and seventh Conference of the meeting of parties (COP17/CMP7) to the United Nations Framework Convention on Climate Change (UNFCCC) as well as the Durban Local Climate Convention (DLCC) in 2011. Drawing on the long history of biodiversity work in the eThekweni Municipality (eThekweni Municipality, 2018), the eThekweni Environmental

Services Management Plan (EESMP) recognised the links between climate change and biodiversity preservation, informing a key part of the Municipality's Climate Change Adaptation Strategy. To this end, the Durban Adaptation Charter (DAC), formally endorsed at the DLCC by 107 Mayors and officials representing 950 local governments worldwide, focused activity on municipal climate change adaptation interventions. This offered a change in "local-global patterns of influence in the climate change debate" (Roberts *et al.*, 2016:108; Roberts & O'Donoghue, 2013:317) away from its former mitigatory focus, and thus, a downscaling of climate change governance from national to local level. The DAC was intended to serve "as an advocacy tool in order to highlight the need for comprehensive and contextually appropriate adaptation in the world's cities, particularly those of the global South" (DAC, 2016: 2) thereby eliciting and advocating for more inclusivity regarding stakeholder engagement in policy and development planning. The DAC recognised both that climate impacts on infrastructure, livelihoods, water security and food security are felt locally, and that local government are also most equipped to take rapid action to 'prepare for and adapt to' those impacts. In doing so the DAC offered a change in "local-global patterns of influence in the climate change debate" (Roberts *et al.*, 2016:108; Roberts & O'Donoghue, 2013:317), departing from the focus of the COP negotiations, which since 1992 have predominantly focused on mitigation, national action, and the regional and multilateral scale.

Polycentric approaches are positive in some areas as a local response to global dilemmas. As I will demonstrate in relation to CEBA, a polycentric governance approach emphasised mutual learning, highlighted the benefits of innovation processes, considered societal relevance and evolution of knowledge, and the power to increase number of actors and enhance cooperation (Dorsch & Flachslund, 2017). Key to this approach a reliance of government on NGOs when it came to implementing CEBA in Durban, "*Our flexibility, respect for government policy and protocols, willingness to take risks*" and *projects have clear positive environmental impact and allows DEA to reach its mandate*" (Anon.17, Wildlands senior management, Personal communication, June 2017, Hilton).

The practice of out-scaling elements of project implementation was the case with the Wildlands CEBA case study communities involved in this research, however still relying on local government support in implementation (Rose, 1996). For the purposes of this study the 'out-scaling' exercise is achieved through a 'rendering technical' practice where socio-ecological development issues recognised as important by local government was broken down into 'bite-

sized' pieces of implementable actions out-scaled to Wildlands (Li, 2007; 2011). This is discussed in greater detail in Section 4.3.1.

While new strategies, techniques and procedures can be pathways towards greater inclusiveness and potential democratisation through their horizontal and networked nature, Swyngedouw (2005) cautions that such new arrangements can also be 'janus-faced' or two-sided, as meanings of political citizenship can be redefined through the way state and civil society relationship are rearticulated. In practical terms this can mean at the extreme new arrangements can be undemocratic, or in more modest terms can be haphazard and 'ad hoc'. The latter is more the case with the emergence of CEBA.

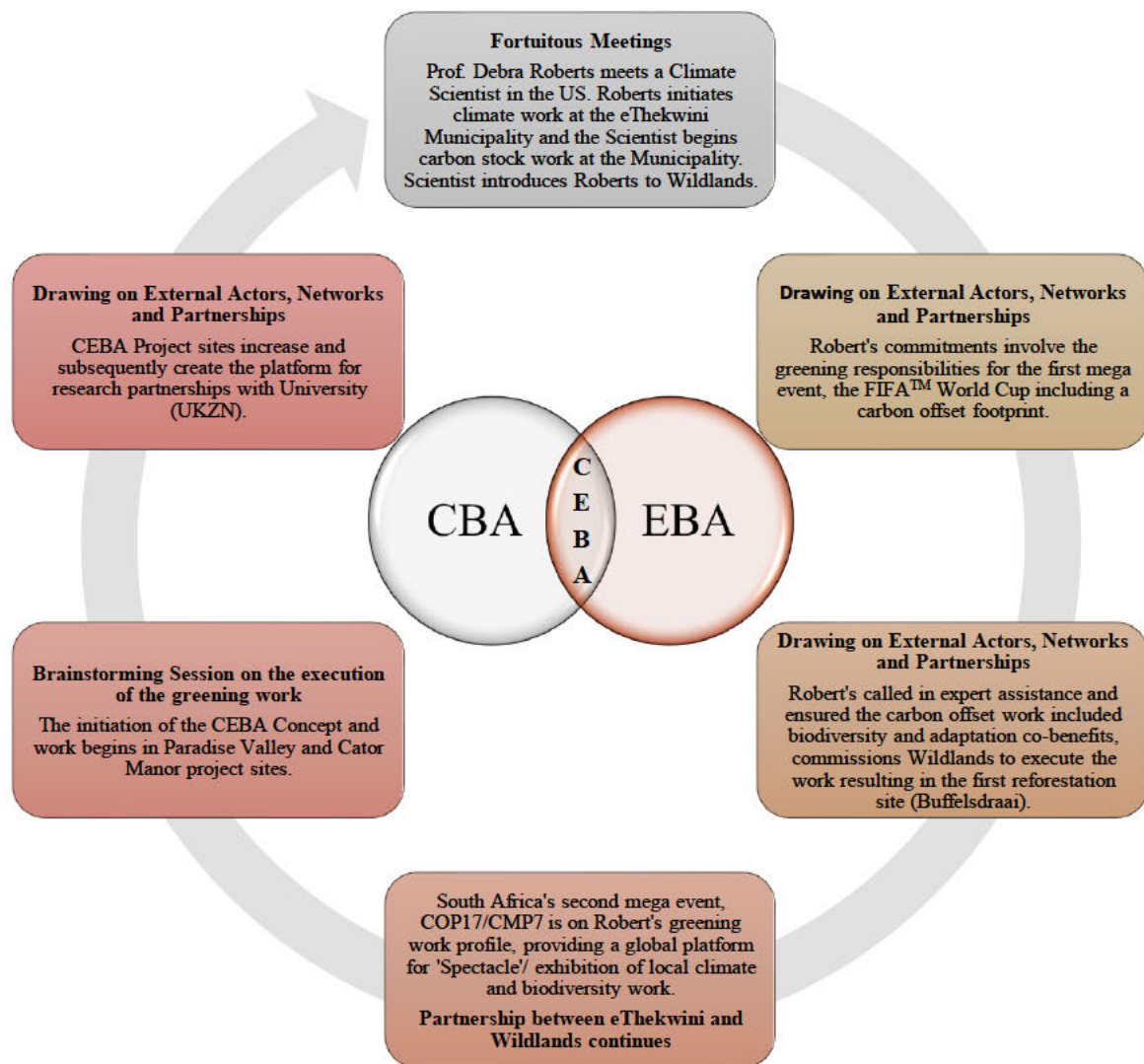
The city of Durban through interventions such as CEBA, has proven multi-actor networks and public-private partnerships hold a significant portion of power in global climate governance regimes (Andonova, 2010; Brinkerhoff & Brinkerhoff., 2011; Pattberg, 2010:285). However, Giordano *et al.* (2011) suggests both vertical and horizontal actions are required at greater scales through the structures of government in South Africa to demonstrate purposeful climate action. Linking back to the complexity discourse, two major components of complexity during CEBA's evolution was apparent. The first being the fact that adaptation on a global platform was subservient to the greater CO<sub>2</sub> mitigation discussion, "*We entered a very carbon-heavy world in terms of the narrative*" (Prof. D. Roberts, Interview, December 2016, Durban). This meant that championing CEBA's evolution required greater focus and attention on political and development platforms. The second highlighted that aspects of 'shadow' governance were at play where individuals drove much of the city's adaptation efforts. These hidden 'shadow' governance power asymmetries whilst historically looked at in a negative light (Cheeseman et al, 2020), informed the institutionalisation of CEBA.

Wildlands CEBA Assemblage is explored in greater detail in the next section, beginning with a characterisation of CEBA as viewed by the researcher. The evolution of CEBA as an idea is discussed and, Li's (2007) 'map of parties' approach has been employed to categorise each actor in the assemblage.

### **4.3 The Origins of CEBA**

This section details the opportunistic and coincidental way in which CEBA originated (Figure 4.1). The Wildlands CEBA intervention was indeed opportunistic, ad-hoc and to an extent

coincidental. As I will show, through an implicit practice of ‘forging alignments’, initial relationships between independent role players were forged through fortuitous meetings.



(Produced by Ramanand, 2020)

Figure 4.1 A chain of coincidental and opportunistic events

A chain of events (Figure 4.1) that led to a closed-door discussion between eThekweni and Wildlands, was fundamental to the CEBA concept. CEBA was strategically placed by Wildlands at the nexus point of the CBA and EBA bodies of climate change work facilitating combined CBA and EBA ‘on-the-ground’ work by being a first-time adjoining approach of CBA and EBA concepts in South Africa (Reingold, 2019; Girot *et al.*, 2012). The co-incidental and ad-hoc aspects of forging alignments between actors at this juncture, was shaped by unplanned ‘corridor’ conversations and meetings. CEBA’s origin, according to Prof. Debra



Roberts (Prof. D. Roberts, Personal communication., January 2018, Durban), was opportunistic and *“arose out of the co-incidental interactions of the Municipality and Wildlands that resulted in a partnership being established focused on reforestation opportunities and was driven by strong personalities in both organisations”*. Roberts was one of the initiators and Deputy Head of the Environmental Planning and Climate Protection Department at the time. According to Roberts (Prof. D. Roberts, Interview, December 2016, Durban), Political leaders at the time were of the view that, *“responding to climate change should not derail the development imperatives in the city of Durban”*. Roberts further stated that the lessons learned from the greening<sup>31</sup> of a sporting mega event, the 2010 FIFA™ soccer world cup, informed the greening of a second mega event (COP17/CMP7) (Prof. D. Roberts, Interview, December 2016, Durban). Both these global events set the stage to expand the city’s EBA work and develop the CEBA concept.

The initial momentum for action occurred following Roberts’ return from a sabbatical at Brown University in 2004, where she met an early career climate scientist, Julia Glenday, interested in spending time working in Durban (Prof. D. Roberts, Interview, December 2016, Durban). Upon her return to Durban and the planned initiation of the Municipal Climate Protection Programme (MCP) Roberts appointed this young scientist, to undertake a Carbon Storage and Sequestration Analysis of the Durban Metropolitan Open Space System in 2008. This work enabled the development of potential reforestation opportunities within the municipal area (Diederichs & Roberts, 2016). The Carbon Storage and Sequestration Analysis received attention from the then Chief Executive Officer (CEO) of Wildlands, Dr A. Venter, culminating in a closed-door discussion between eThekweni and Wildlands, on Wildland’s implementation activities, particularly the reforestation initiatives. Once a greening programme for the FIFA™ World Cup was initiated, the additional availability of funding from the Danish International Development Agency (DANIDA) meant that Roberts, and the consultant working with her on the Greening Programme, could approach Wildlands about working with the Municipality on the development of a new large-scale reforestation programme at the Buffelsdraai landfill site focused on carbon sequestration and ecosystem-based adaptation.

During the development of a separate greening programme for COP17/CMP7 the original ecosystem-based adaptation focus was expanded during discussion between the Municipality

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<sup>31</sup> Greening in the context of CEBA and this thesis refers strictly to tree planting, reforestation activities, alien plant clearing.

and Wildlands to include sustainable livelihood considerations, thus resulting in the coining of the term Community-Ecosystem Based Adaptation i.e., “CEBA” (Roberts & O’Donoghue, 2013). The desire of the two entities was not to have ‘another reforestation project’, but to add elements like waste management and renewable energy to expand the social benefits of the project. Further funding from DANIDA made it possible for Wildlands to initiate a second project at Inanda Mountain which was eventually handed over to the Municipality for long-term management. The eThekweni Metropolitan Municipality and Wildlands enlisted the participation of local climate scientists, political decision makers, NGOs, and community actors, forging alignments. The Wildlands CEBA Assemblage gained traction through networking opportunities, developing relationships with the different actors involved, and championing the adaptation agenda.

At the evolution stages of CEBA, it was first known as an ecosystems-based adaptation concept with socio-economic benefits. Ad-hoc, opportunistic and coincidental interactions, and successful pilot project sites saw the concept develop into an intervention that extended project activities to other parts of eThekweni. As a result, a key question arose: *“are the greening project activities providing integrated CBA-EBA responses to pro-poor community development OR is the integrated CBA-EBA response to pro-poor community development creating restoration of the environment?”* (Dr A. Venter, Wildlands ex-CEO, Personal Communication, March 2017, Hilton). At this juncture, ambiguous definitions, and perceptions of CEBA arose amongst office and field staff at Wildlands.

Building a formal definition for an idea such as CEBA is much like developing a blueprint, in this case for adaptation assemblages (Grant & Osanloo, 2014). The steps described above represent a ‘rendering technical’ where a concept becomes operationalised and refined over time, and where problems are rendered in technical terms to be accomplished/overcome. In addition, questions are posed as questions of technique. This will be covered in more detail in the next section. CEBA is one amongst many steps to opening doors and new avenues to investigating *“Africanised”* climate change adaptation in the local South African contexts (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton). *“CEBA highlighted the link between local communities and their supporting ecosystems”*, emphasising the holistic aspects of human interaction and biodiversity (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton). The CEBA philosophy was therefore somewhat different than its forebearers CBA and EBA, placing intentional focus on the joint coexistence of sustainable communities and ecosystem preservation (Roberts *et al.*, 2012).

Additionally, CEBA was a vehicle that integrated the ecosystems and community aspects of adaptation in Durban, through a response from a participant of the closed-door CEBA discussion between Wildlands and the eThekweni municipality, *“It allows you to say, we are also ticking the community box”* (Anon.14, Senior Manager, eThekweni Municipality, Interview, January 2016, Durban).

The presence and connectivity of heterogeneous elements, exchangeability between global discourse and material decisions, and influence over spatial geographical boundaries renders CEBA an adaptation assemblage. Therefore, I characterise the Wildlands CEBA Assemblage as: *“an integrated socio-ecological adaptation assemblage designed to facilitate practical entry points to climate change adaptation for the coexistence of Pro-Poor Community Development and Ecosystem Preservation”*. The Wildlands CEBA Assemblage evolved from a conceptual standpoint to an operational framework for four reasons, which I will cover in order.

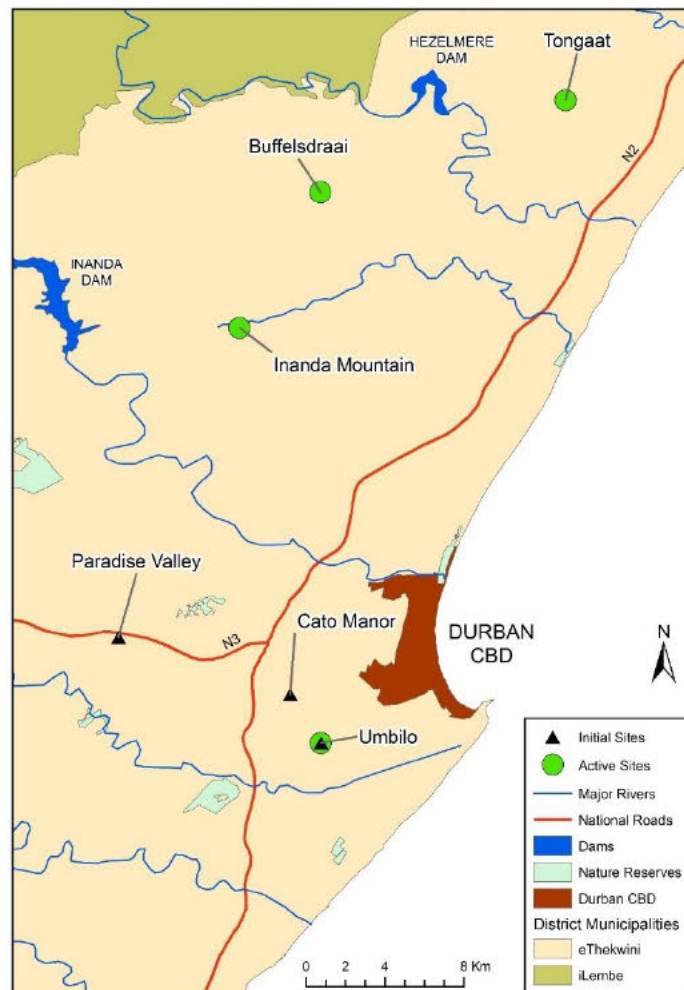
Firstly, alignments were forged as multiple actors convened for CEBA concept discussions. The Wildlands CEBA intervention took shape through the *“adjoining of the CBA and EBA principles”*, playing a dual role of creating sustainable communities and assisting with ecosystem preservation simultaneously with a broader sustainable livelihood focus (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2016, Howick). Secondly, through the practice of rendering technical, governmental climate change imperatives were broken down into smaller implemental technical tasks and different geographical locations were absorbed into the discussions through the process of territorialisation (see further discussion in *Chapter Six*). With community stability and sustainability issues at the top of political agendas in South Africa, Wildlands used the opportunity of the community upliftment niche created by government and skilfully shaped the Wildlands CEBA intervention around creating sustainable communities with environmental co-benefits. A supporting statement by a Wildlands Executive Board Member (Corporate Sector) indicated the thinking processes that are involved in summoning attention towards CEBA by saying, *“I think the fact that a number of Wildlands projects have community upliftment impacts, appeals to political leaders”* (Anon.18, Wildlands Board, Personal Communication, June 2017, Durban). Hence the CEBA concept began evolving and embedding community participation more deliberately and methodically into ecosystems-based interventions, through structured project activities. The CEBA concept shifted from a theoretical idea into action through Wildlands suite of programmes, in multiple locations.

Third, failures such as the lack of monitoring and evaluation in the Wildlands CEBA Assemblage were managed through feedback discussions. This is dealt with in more detail in *Chapter Seven*. The discussions on initial CEBA project activities (relationships, successes, and challenges) were convened with the view to improve the CEBA concept before formal presentation at COP17/CMP7. Finally, CEBA began as a “*doing-by-learning and vice versa*” concept (Prof. D. Roberts, Interview, January 2018, Durban). The first project (Buffelsdraai, Durban) revealed on-the-ground evidence-based information on implementing such a concept, placing emphasis on the practice of authorising knowledge. Where logical implementation steps produced the evidence-based information subsequently used to improve the CEBA concept for every project thereafter (Potts *et al.*, 2015; Hernantes *et al.*, 2019). CEBA project interventions presented an opportunity to view socio-ecological issues in an integrated way. Wildlands and eThekweni Municipality realised early on the results from the evidence-based information pointed towards CEBA operating more like an “*analytical tool than purely a theory*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, January 2018, Hilton).

Whilst initial conversations during the inception stages of the Wildlands CEBA Assemblage involved discussion on EBA and CBA literature, principles, concepts and experiences, there was little amalgamation of the EBA and CBA concepts in KwaZulu-Natal, South Africa, with a broader climate change adaptation focus (Roberts *et al.*, 2012). Acknowledging the reflection, brainstorming and work undertaken by the eThekweni Municipality and Wildlands has led to the inception and evolution of the CEBA concept (later widely implemented by Wildlands as a guiding philosophy for the organisation’s work). The initial strategic focus was placed on social cohesiveness, inclusiveness, sustainable development, and the realisation of Green Economy related opportunities. To this end, CEBA project sites in Durban were used experientially and are presented in more detail in the next section.

#### **4.3.1 Rendering technical: CEBA project sites in Durban**

This section entails a brief description of CEBA project activities at each site within the eThekweni CEBA Cluster (Figure 4.2) using Li’s (2007) practice of rendering technical.



**CATO MANOR:** Emphasis was placed on establishing networks of Tree-preneurs in Cato Manor and Nazareth, the trees grown through these networks were planted out through several restoration projects including Paradise Valley and Umbilo. In 2012, 6 Tree-preneurs grew 1 056 trees, and bartered these for R5 280 worth of livelihood support.

**BUFFELSDRAAI:** A flagship restoration project for South Africa, part of the official carbon offset for eThekweni's 2010 FIFA™ World Cup carbon neutral pledge. establishment of Tree-preneur nodes in the Osindisweni, Ndwedwe, Buffelsdraai and KwaMashu communities for the restoration of the 809ha buffer zone around the Buffelsdraai landfill. In 2012 - 517 Tree-preneurs from these communities grew 211 966 trees, and bartered these for R1 142 696 worth of

**UMBILO:** Initiated as a new generation partnership project between the eThekweni Municipality and Wildlands focused on the restoration of the uMbilu River.

**PARADISE VALLEY:** The process of restoring Paradise Valley was catalysed off the back of COP17/CMP7. In May 2012, 31 000 trees were planted in this area associated with the Comrades ReLeaf Campaign.

**INANDA MOUNTAIN:** A cultural heritage site and one of the last intact natural areas within the eThekweni Municipality. Activities support ongoing protection and restoration of Inanda Mountain. In 2012- local network of 60 Tree-preneurs grew 19 648 trees and bartered these for R102 340 worth of livelihood support.

**TONGAAT:** A new project supported by ACSA – King Shaka and aims to restore the ecosystems and support the ongoing restoration of ecosystems around King Shaka Airport and within the Ndwedwe traditional area. Significant expansion of Tree-preneur and Waste-preneur networks occurred through this increased funding support. In 2013 - 102 Tree-preneurs bartered 18 378 trees worth R97 700 and 12 Waste-preneurs collected 5 755kgs of waste.

(Produced by Ramanand, 2019)

Figure 4.2 The CEBA eThekweni Cluster

Even though the Wildlands CEBA intervention was implemented through a partnership between Wildlands and the eThekweni municipality, CEBA came to be embodied in seven Wildlands related programmes. The grouping of CEBA projects became technically referred to as the eThekweni Municipality's 'CEBA cluster'.

The 'Mainstreaming of Climate Protection' initiated in Durban from 2007, focused on pilot projects, institutional planning, particularly around disaster risk reduction and reduction of local vulnerability, as well as Mega projects. The latter, in the form of the FIFA<sup>TM</sup> World Cup and the COP17 were significant in giving impetus to local initiatives. As part of the greening of both mega-events, opportunities were sought to offset the carbon footprint of the events in a way that generated adaptation and biodiversity co-benefits. The CEO of Wildlands attested, *"packaging and spectacle was key in the process"* (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2016, Howick). Since the mega event offset activities, two other CEBA project sites were established at (Umbilo and Tongaat) with Wildlands alone initiating project activities due to widespread community interest in neighbouring communities. Wildlands viewed CEBA in the context of contributing towards the livelihood of participating communities and buffering these communities against the impacts of Climate Change (Ramanand *et al.*, 2014; Wendo, 2016). In addition to eThekweni Municipality's biodiversity work the Wildlands CEBA intervention centred adaptation on the notion of entrepreneurship, or 'Enviropreneurship', to align actions of diverse stakeholders, thus forging alignments between actors (Thoo *et al.*, 2014; Li, 2007). Within CEBA, Enviropreneurship models reflect a particular climate governmentality which is premised upon the extension of market-like mechanisms to align stakeholder interests and facilitate adaptation relevant activities; construed through a partnership with communities to make ecosystems 'more robust'.

The Wildlands CEBA Assemblage itself is a complex knowledge-driven vehicle shifting decision-making and influencing actors to adopt 'CEBA thinking' through practices of rendering technical. The initiation of a CEBA project in Durban included a few standard components. A basket of CEBA project activities representing these components included: the interaction between Wildlands and a donor or local government structure, ecological conditions that would support tree growth and planting, poor and vulnerable communities, large quantities of recyclable waste, field project staff and finally, physical infrastructure to support office administrative tasks. The basket of standard CEBA project activities proposed during every CEBA project initiation can be seen through the practice of 'rendering technical'. In this regard the Wildlands CEBA intervention has positioned itself as a pragmatic adaptation intervention

with specific factors serving to attract political leaders and socio-ecological change. To this end, the Senior Manager from eThekweni Municipality (Anon.14, Personal communication, July 2017, Durban) believes that political leaders are drawn to two key outcomes: *“1) job creation or infrastructure development in their wards, and 2) their political party being affiliated to the creation of those jobs or delivery of infrastructure (e.g., water pipes, houses, roads etc.)”*. This was further supported by a Wildlands Executive Board Member from South Africa’s cooperate sector and a national government official, stating that *“The team is always looking for ways to ensure project and programme sustainability - another aspect that appeals to government officials and political leaders”*. *“Poverty alleviation, job creation, improved management and utilisation of environmental resources, in line with the NEMA and associated regulations”* (Anon.16, Government Official, Environmental Affairs, June 2017, Pretoria). For the South African government, a multi-beneficial approach is the most lucrative option, as job creation and promoting project sustainability gain political support and drive leadership. It was also found that the environment is not tagging too far behind since the South African Government’s NCCRWP and the recent realisation of the approved Climate Change Bill (DEA, 2020; 2011).

The socio-ecological and poverty reduction challenges existing in potential CEBA communities were subject to dissection and reformulated into smaller chunks of problems that could be engaged with through technical activities. As described by Wildlands CEO *“the outlay of every community was physically visited by project field staff and scanned for the potential institutionalisation of activities”* (Dr Kloppers, Wildlands CEO, Interview, March 2018, Hilton). This included tree propagation, waste collection, reforestation, alien plant clearing and biodiversity management. Initial CEBA Project activities involved Wildlands and eThekweni forging relationships with local community members and traditional authorities in the Cato Manor and Nazareth communities. Following this successful undertaking was the establishment of a tree-propagating network of community participants geared towards the provision of trees for restoration activities in the Paradise Valley and Umbilo areas. Although the recruiting of ‘Treepreneurs’ as Wildlands labels these community actors, took place through a top-down approach, the remaining community involvement occurred without intervention through *“word-of-mouth”* (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2016, Howick). Ultimately the act of Treepreneurs joining CEBA projects ‘at will’ resembles what Deleuze and Guattari (1987) referred to as self-replication

and self-regulation where ‘parts’ within the ‘system’ expand and influence that expansion through their own accord.

For the inception of such initiatives, Carmin *et al.* (2012:28) asserts that successfully championing climate change adaptation efforts requires “creatively navigating an ambiguous domain”. Championing climate change efforts in Durban is well documented (Douwes, 2018; Roberts, 2008; Roberts & Diederichs, 2002; Roberts & O’Donoghue, 2013; Roberts *et al.*, 2012; Roberts *et al.*, 2016). Considerable progress has been made in Durban regarding the recognition of climate change in municipal plans, with the allocation of staff and funding to the same, including recent progress through CEBA regarding buy-in from the political leadership.

Data from 2011-2016 (Table 4.1) shows that CEBA related achievements positively impacted eThekweni Municipality’s goal to increase climate change related activities in the form of reforestation and restoration of the landscape and, increased waste management.



Table 4.1 eThekwini Municipality CEBA Cluster Achievements

CATEGORY →	TREES PLANTED	ALIEN PLANTS CLEARED (Ha)	GULLIES RESTORED	HECTARES PLANTED (Ha)	WASTE TRADED (Kg)	NO. OF PEOPLE EMPLOYED (permanent and temporary)
YEAR ↓						
2010/2011	0	0	No existing data	0	No data provided	No data provided
2011/2012	175778	0		0	No data provided	875
2012/2013	220 997	0		0	No data provided	103
2013/2014	208 554	54		32	No data provided	No data provided
2014/2015	184 582	258,31		41,5	No data provided	No data provided
2015/2016	33073	47,09		13,72	1 381 523	No data provided
2016/2017	No data provided					
2017/2018	No data provided					
2018/2019	No data provided					
TOTAL	822984	359,4	0	87,22	1 381 523	978

(Adapted from Wildlands, 2018; eThekwini Municipality, 2018)

CEBA project interventions in the eThekwini Cluster contributed to the planting of approximately 822 984 indigenous trees; 360 hectares of alien plants cleared, 87,22 hectares reforested, and 1,381 523 kilograms of waste<sup>32</sup> recovered (Wildlands, 2018; eThekwini Municipality, 2018). *Chapter Seven* will delve into project outcomes across all the case study sites. Tangible evidence such as bartered goods from CEBA project activities, incited curiosity amongst other surrounding community members and community leaders. This interest was met with Wildlands Management and eThekwini municipality upscaling project activities in the eThekwini CEBA Cluster. To gain a better understanding of the complex range of factors eliciting buy-in from stakeholders and driving CEBA forward, I refer to Li's (2007) practices

<sup>32</sup> Noting that waste data was available as a consolidated number for 2015/2016 and not available to the researcher for prior years. With the exception of 2 financial periods, employment data was not conclusive and could not be included.

of forging alignments, authorising knowledge, and Managing risks and failures. The words ‘hooks’ and ‘drivers’ are used to supplement explanations in the next section.

#### **4.4 A Complex Range of Factors Influencing a Marginalised Adaptation Agenda in eThekweni**

This section highlights and explores the said, complex range of factors, used to secure buy-in, political leadership and support for the positioning and establishment of the Wildlands CEBA Assemblage. The evolution of CEBA was not birthed through a set of structured processes and state governing laws, it emerged amidst complex realities, ad-hoc circumstances and piecemeal decision making in project communities. Drawing from the literature on adaptation and transformational adaptation (Roberts & Diederichs, 2002; Roberts *et al.*, 2012:169; Anguelovski & Roberts, 2011; Fünfgeld, 2015; Carmin *et al.*, 2013; Català, 2014; Wang, 2017; Lang, 2019; Barrott, 2020), the word ‘hook’ represents the elements used for enticing actors and to participate in the process “attracting attention”, while a ‘driver’ is “a factor which causes a particular phenomenon to happen or develop” propelling action towards goals (Ammer, 2017: par. 4; English Oxford Living Dictionary, 2017: par. 6). Hooks and drivers (as uncovered in this study) acted as influencing factors at an immediate local level, attracting attention to CEBA. These hooks and drivers accumulate and function at the assemblage level. The referred complex range of factors were categorised into three ‘hooks’ and two ‘drivers’ of change, lobbying actions and responses to climate change in development and planning from Political leadership, Government, and the private sector; and others playing complementary and supplementary functioning roles. For the purposes of this research these ‘hooks’ and ‘drivers’ are: Common Ground and Evidence Based Information, Managing Risk; Triple Bottom Line (TBL) scenarios, Social Inclusiveness and Local Citizen Involvement, and Spectacle. Table 4.2 shows how incremental changes accumulate to shape transformative practices within CEBA. The ‘hook and driver’ findings in this study were extrapolated from the data gathered through key informant and community interviews. The findings were then compared with Li’s (2007) practices of assemblage to show how each resulting data finding of this study played a role in ‘hooking’ interest in CEBA or ‘driving’ the interests of the CEBA assemblage.

Table 4.2 Incremental changes and transformative practices within CEBA

Practices of Assemblage (Li, 2007)	Research findings	Description
Forging Alignments	Champions and Networks	Driver: Well networked transformational leaders are system drivers, taking a higher moral stance on issues, working outside channels of bureaucratic rules, utilising available opportunities to unblock and harness change (Crawford 2005; Ziervogel <i>et al.</i> , 2014; Roberts & Diederichs, 2002).
	Social-ecological inclusiveness and participation	Hook: Collaboratively undertaken research, understanding dynamic human-environment interrelations, leading to improved understanding for decision making (Pain, 2003; Cockburn <i>et al.</i> , 2016; Lawrence & Haasnoot, 2017).
Authorising Knowledge	Common Ground and Evidence Based Information	Driver: The process of coming to speak ‘the same language’, building functional conversation and collaboration amongst stakeholders (Hwang, 2018) and co-producing new knowledge through common objectives and lived experiences (Adger <i>et al.</i> , 2002; Roberts <i>et al.</i> , 2016).
Anti-politics	Spectacle	Driver: The way a ‘worldly picture’ reposes highly political issues into manageable ones - driving a social relation amongst people, for example a Marketing billboard, COP17/CMP7 (de Bord, 2002; Lotman, 2001).
Reassembling	Traction Discourses - win win scenarios	Hook: A communication of ideas and broadened institutional innovation yielding more collective action between stakeholders. The production of meaningful solutions aimed at promoting developmental priorities and reducing risks (Bettini, 2017; Bowyer <i>et al.</i> , 2014; Anguelovski & Roberts, 2011).
Managing failures and contradictions	Managing Risk	Hook: This pertains to the need for increased risk resilience, forward thinking practices, the exigency of mainstreaming climate risks into policy and the creation of flexible adaptation strategies (Bowyer <i>et al.</i> , 2014; Jones, 2003; Li, 2007).

(Produced by Ramanand, 2018)

Table 4.2 draws relation between the research findings and practices of assemblage by Li (2007). Using Li's (2007) practices of assemblage to explore these research findings allowed further analysis into how each aspect was used to initiate interest in CEBA and help it evolve into an implementable adaptation concept. Careful insight was given to words that 'hook' and 'drive' political support and promote action aligned towards socio-economic and environmental sustainability. The next section details the actors and associated relationships involved (Li, 2007) under the heading forging alignments. Thereafter, specific information bases used to anchor CEBA are discussed under the practice Authorising Knowledge. This is followed by a brief outlook on how failures at this stage of the CEBA process was managed.

#### **4.4.1 Forging alignments**

The Wildlands CEBA Assemblage evolved through the interconnectedness of stakeholder relationships fostered along the way with little input from Wildlands or the eThekweni Municipality, further establishing itself as an assemblage. This is evident through self-interest driven actions by community participants within the assemblage as they wished "*to learn how to survive with natural resources and create businesses*" (P.137, Interview, September 2016, Esikhawini) and as put by another community member, "*respect the work I am doing and encourage others to join*" (P.94, Interview, September 2016, Obanjani). Exploring the Wildlands CEBA Assemblage as an adaptation response involved communication and physical interaction with numerous actors. Polycentric governance and governance-beyond-the-state was partially evident as part of the Wildlands CEBA Assemblage. Multiple levels of authority were required for decision making and a network of various non-state actors contributed to action on the ground. Whilst governmentality is the same as governmental authority, "governance can take on various forms" (Jagers & Striiple, 2003: 386).

Government officials and political leaders (including traditional leaders) where possible, facilitated the leadership necessary for project buy-in through national political platforms and networks. Political and Traditional leadership refers to those placed in a position of authority regarding mobilisation and use of resources, public administration, and ensuring the well-being of people (Teles, 2012). They Donors/ Funding agencies unlocked the means of implementation in the form of technology, finance, and capacity building. Wildlands staff, community participants, Environmental Industry Experts, and corporate professionals (non-state actors such as communities and NGOs) permitted on-the-ground implementation through project inception and participation. Unfortunately, direct interaction with donor agencies was

not possible, however this actor will be included in the analysis as a key role player in the Wildlands CEBA Assemblage, with information stemming from Wildlands interview material. It is important to note, multi-stakeholder involvement is also viewed as a potential discouraging barrier to realising transformative adaptation due to varying stakeholder interests and agenda (Fedele *et al.*, 2019; Okereke *et al.*, 2009). However, Dujardin (2019:10) views multi-stakeholder involvement as key aspects of project design processes and adaptive planning practices “that often go beyond institutional processes of adaptation”. A deeper look at the events and actors involved in the evolution of CEBA draws together what Li (2007) terms, the map of parties. Following the success of having a ‘green’ event (2010 FIFA<sup>TM</sup> soccer world cup), Durban won host city to the second mega event (COP17/CMP7) and with it boasted a large greening profile including CEBA project work. The Wildlands CEBA Assemblage took root in Durban and began expanding to different locations in a rhizomatic fashion with the involvement of numerous actors. These actors include:

- National Government: Fulfilling South Africa’s multilateral obligations is of key importance to national government, being a developing country and bearing sizeable climate obligations. To this end, it is important that all climate change actions towards emission reductions and addressing the adaptation deficit be accounted for. CEBA presented itself as a forerunner and flagship adaptation initiative in the host city of Durban, attracting the attention of national government. CEBA project activities responded to national government climate imperatives outline in the NCCRWP, setting the stage for South Africa at COP17/CMP7.
- Political and Traditional leaders: Political leadership in South Africa is mandated by national government through the NCCRWP to include sustainable development, green economy, and climate change imperatives as part of their local development plans. In the run-up to the COP17/CMP7 meetings, some political leaders advocated for climate change issues and sought tangible opportunities to get involved in CEBA (Prof. D. Roberts, Personal Communication, December 2016, Durban).
- Local eThekweni Government: Local municipalities in South Africa are faced with executing national policy mandates. As one of South Africa’s coastal municipalities, the eThekweni municipality and Durban in particular, proactively began shaping the city’s climate change agenda among its other developmental priorities. This balancing act is not without its challenges. Municipal officials closely guarded the city’s project progress including those within the Wildlands CEBA Assemblage, placing pressure on Wildlands for reports and large volumes of data at any given time.

- **Donors/ Funding agencies:** Donor agencies have long been known to dictate the expenditure of funding based on their own agenda and fulfilling of mandates. The heterogeneous elements of CEBA provided multiple funding opportunities for donors to achieve various sustainability outputs. However, donor agencies supporting CEBA project activities began applying M&E frameworks and additional reporting to their requested donor reports, “*placing pressure on Wildlands*” (Dr Kloppers, Wildlands CEO, Interview, February 2020, Hilton).
- **Wildlands:** Considering CEBA as an overarching organisational philosophy, Wildlands staff adopted ‘CEBA-thinking and language’ into their daily work activities by constantly referring to CEBA communities, CEBA reviews, CEBA documents and creating CEBA names to denote every project site on record. Part of this exercise included Human Resource activities allocating information relative to a role using the word ‘CEBA’. Executive and Senior management became champions of CEBA and advocated for its rooting in various locations around Durban. This led to the addition of other project sites and more local community involvement. However, additional projects added a layer of complexity as monitoring and evaluation practices began taking the foreground on global platforms but was not included as part of the Wildlands CEBA Assemblage at the outset. Still, the Wildlands CEBA Assemblage grew in scale covering more geographical and political boundaries increasing local community participation.
- **Industry Experts:** Climate change, Data and GIS researchers and specialists, social scientists and the conservation/ academic communities were interested in the technical elements of project implementation, climate governance, data integrity, biodiversity concerns and evidence-based information. These role players focused on the impact of CEBA project activities on people, the landscape, and the rapid upscaling of projects across South Africa, by following movements on projects, through publications, presentations, scientific studies, mega events, and media. Though the level of involvement was low, Wildlands consulted with industry experts regarding a specific aspect of the Wildlands CEBA Assemblage, such as an Ecologist. CEBA as a new concept, became lucrative for various scientists, specialists, and the academic community at large due to its novelty.
- **Corporates:** Corporate Social Responsibility (CSR) and Corporate Social Investment (CSI) initiatives became part of corporate identity as a value-add in South Africa increasing a company’s reputation. Initiatives were aimed at social well-being, addressing sustainable development goals and more recently climate change. Wildlands created relationships with corporates (Unilever) and absorbed CSR and CSI donations into CEBA project activities as

part of their suite of programmes<sup>33</sup>. These donations took the form of sponsored food or household products, bicycles, and hampers in exchange for ‘impactful information’ (quantitative and qualitative). This information was reported back to companies focusing on direct and indirect community impacts, increasing reputational value of corporates.

- CEBA Community participants: Community participants are reliant on grassroots initiatives for survival in some instances, and livelihoods diversification in others. The local poorer communities in the eThekweni municipality depend on donor-funded and NGO initiatives for their daily support and survival as many are entangled in poverty-stricken circumstances. CEBA showed promise as a livelihood generating initiative through already established Wildlands programmes. It was not unusual for poverty-stricken communities to find the value in CEBA project activities.

Through the practice of forging alignments (Li, 2007), the ‘party of actors’ listed above give an indication of who is involved in the Wildlands CEBA Assemblage, what positions they hold within it, and their reasons for aligning with CEBA project activities. Each actor in the assemblage holds power over another through their own vested interest. National government and political leaders are accountable to the global community through multilateral commitments, thereby forging alignments with local government and implementing agents (Wildlands) to execute initiatives to satisfy these global agreements. In addition, eThekweni Municipality and Wildlands forged their relationship based on the need to prove CEBA as an adaptation intervention. Both actors were the key conversation participants in the room when the idea of CEBA was coined and presented to the global community at both COP16/CMP6 and COP17/CMP7. On the other hand, the shift in donor reporting requirements and the ability to revoke or withhold funding to Wildlands threatens the Wildlands CEBA Assemblage, but also enables it to progress and change direction as needed. The oversight to develop an M&E component of the Wildlands CEBA Assemblage in parallel to upscaling project implementation meant a *“possible withholding of funds based on a lack of tracked and verified data”* (Dr Kloppers, Wildlands CEO, Interview, February 2020, Hilton). Finally, the relationship between participant communities and Wildlands exercises power over all the other

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<sup>33</sup> These programmes include: A tree nursery and entrepreneur/‘trepreneur’ project (entitled Trees for Life); restoration by planting seedlings (Greening your Future); a collections and trade facility for community ‘wastepreneur’ collected recycling material (Recycling for Life); a training and environmental education component (Ubuntu-earth); a micro-enterprise development (Khutanza business) and the expansion of conservation areas (Conservation SPACE) and a clothing initiative (Clothes for Life).

actors involved by simply being custodians of the CEBA concept and philosophy, for without it, the integrated community and ecosystems-based approach would cease to exist.

Forging alignments (Li, 2007) proved to be a dominant practice in the initial phases of the Wildlands CEBA assemblage. However, co-produced knowledge by implementing agents and civil society, as well as the consideration of strategic partnerships for decision-making outside the realms of the state are also necessary in addressing complex climate issues (Hölscher *et al.*, 2019; Church, 2019). In Larner's (2011) interpretation of a globalised world, knowledge generation has always taken place in multiple interdisciplinary environments institutionally and geographically. To this end, the next section briefly describes the knowledge bases engaged with in the initial phases of developing CEBA as a concept.

#### **4.4.2 Authorising knowledge**

Apart from the involvement of numerous actors, the Wildlands CEBA Assemblage also intentionally drew from specific knowledge bases regarding the implementation of CEBA, known as authorising knowledge (Li, 2007). Wildlands and eThekweni engaged with specific knowledge on CBA, EBA, ecology, adaptation, sustainability, biodiversity, political and social issues as the first port of call for implementing CEBA in the eThekweni municipality (Douwes, 2018; Roberts *et al.*, 2012). On a local level, "*vacuums around the lack of knowledge regarding adaptation were beginning to surface*" at different levels of government structures, where national government departments were more aware of climate change issues and district and local level municipalities were largely unaware (Prof. D. Roberts, Interview, December 2016, Durban), where national government departments were more aware of climate change issues and district and local level municipalities were largely unaware. At the same time, Roberts (2016:75) called for "new city science" as the next step in understanding the "untidy complexity" that is, the city landscape. Wildlands also documented project information periodically where the possibility arose, amidst tight deadlines and recorded large volumes of numerical and spatial data. While lessons learned were not always formally recorded by Wildlands staff, these were verbally discussed at wider management meetings.

Language was carefully used to engage political leadership and other stakeholders in socio-ecological issues. *Chapter Five* details how global environmental discourses also played a role in upscaling and expanding CEBA. The adoption of familiar environmental terms that support governments environmental imperatives, such as the words *green economy*, was used at least 37 times in Wildlands annual publications from 2011-2020 (WCT, 2012-2016; Wildlands,



2017; Wildtrust 2018, 2019, 2020). Participating communities adopted ‘CEBA thinking’ by expressing enthusiasm to adopt other ways of developing knowledge and supplementing livelihoods by changing daily activities. This can be seen through community participant responses such as, *“I want to know more about the environment”* (P.69, Interview, September 2017, Swapo) and *“Helping me, in December get vouchers, I became a different person”* (P.25, Interview, September 2016, Buffelsdraai). Political and community leaders on the other hand were slow to react to CEBA or adopt any form of ‘CEBA thinking’ apart from the urgency to be involved in CEBA during the COP17/CMP7 meetings. Political leadership at the time was also heavily invested in the climate change and sustainability agenda due to the up-and-coming COP17/CMP7 global meeting, *“The COP was a pressure-pot time for everyone”* (Prof. D. Roberts, Interview, December 2016, Durban). In a separate account, a Wildlands Board member response stated, *“The ‘For Life’ programmes are also cleverly named, and this invites people to discover more about them”* (Anon.18, Wildlands Board, Personal Communication, June 2017, Durban). The naming of the ‘For Life’ programmes used in the Wildlands suite of programmes also gave rise to reposing difficult government-community engagements regarding conservation and securing sustainable livelihoods for poor and vulnerable people. Poverty reduction and livelihood supplementation aspects were built into the Wildlands CEBA Assemblage as intended outcomes of CEBA project activities (*Chapter Seven*). Climate change evidence-based information became a powerful way adaptation was viewed at the time through authorising specific forms of knowledge. CEBA project site data and information were used to demonstrate the combined CBA and EBA response to poverty reduction and ecosystem preservation within the eThekweni Municipality.

Though the practice of anti-politics is not focused on in this chapter, it is recognised to a lesser extent through the research findings. Li (2007) refers to this reposing act as anti-politics and this study recognises the reposing act as propelling action through similarity in language used. CEBA facilitated a platform and common language of interaction between state, private sector (including Old Mutual, Unilever, and Nedbank) and civil society actors to facilitate enviropreneurship. This is evident in using language such as, *“collective action, shared value and collaboration”* (Anon.8, Corporate Sector, Interview, August 2016, Johannesburg). It was also noted that *“Jobs, green jobs, training, (esp. accredited), cleaning and greening communities”* (Anon.15, Corporate Sector, Personal Communication, June 2017, Durban) were the most often referred to words in stakeholder meetings, internal Wildlands CEBA reviews and social engagement with donor entities. The forging of relationships and engaging

specific types of literature and language, gave impetus to the CEBA concept. This movement engaged a quick progression into implementation and hence the surfacing of anticipated risks and actor dynamics. Additionally, findings indicated internal organisational contradictions. These are better addressed in the next section on managing risks and contradictions.

#### **4.4.3 Managing risks and contradictions**

This section addresses how challenges were managed in the Wildlands CEBA Assemblage. Both internal organisational challenges and macro-level issues are explored. A quantifiable monetary valuation of adaptation action is a key ‘business language’ to facilitate corporate participation in CEBA as two corporate sector key informants put it, climate impacts are “*too high level to measure on the ground results*” (Anon.9, Partner, Corporate Sector, Interview, August 2016, Johannesburg; Anon.10, Sustainability Consultant, Corporate Sector, Interview, August 2016, Johannesburg). State agencies are also incorporated, such as DANIDA who financed the establishment of the Buffelsdraai and Inanda mountain reforestation efforts (before the municipality took over its financial support), and the South Africa Department of Environmental Affairs (DEA), which has financed ongoing Wildlands activities such as wastepreneurship in Durban and beyond (Thakur, 2018; Thakur & Nel, 2021). As a Wildlands executive mentioned, financial inputs from the state are ‘linked’ to imperatives for managing risk and sustainable development, “*supplementing work that government doesn’t have the skills / capacity to do itself*”, and to a triple-win scenario - “*our ability to spend money efficiently and deliver on projects, our ability to create large scale employment and, on the other extreme is our environmental impact offer*” (Dr R. Kloppers, Wildlands CEO, Personal Communication, June 2017, Hilton).

From an implementation perspective, Wildlands acted in line with government imperatives using CEBA as a forward-thinking practice, to manage vulnerabilities against climate change risks. Although Wildlands steered clear of bureaucratically driven discussions, assuming implementation responsibilities through CEBA, increased various risks for Wildlands, in the absence of an M&E system (discussed in more detail in *Chapter Seven*). In part this was “*deemed not needed at the time with limited resources at hand*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, March 2017, Hilton). In addition, unreliable, or non-dependable revenue streams (as a feature of NGOs) could be problematic when used to keep project processes flowing. This is demonstrated by responses stating, “*global donors now require tracking and proof of expenditure, without this robust evidence, we could lose the*

*funding for the project*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). In this regard, Li’s (2007) assemblage practice of managing failures and contradictions can be seen in line with the practice ‘Managing risk’.

Regarding internal contradictions, a mismatch within Wildlands was noted, where organisational growth and scaling up project activities became evident through various sources and platforms (*Chapter Five*). Contractions between data gaps, and organisational dynamics were beginning to surface. The noted non-provision of data, data discrepancies and no formal M&E tracking of data revealed the presence of gaps and uncertainty in the CEBA project implementation process. While Wildlands carried forward their own recorded data into discussion platforms (donor meetings, donor reports and COP17/CMP7) through the publicly available annual *Reflections* publication, eThekweni municipality data was also being recorded at project sites for own use purposes. This finding revealed a difference in numbers from both sources and was later supported by supplementary interview material stating, “*we also had asked for information on two other sites: iNanda Mountain and Paradise Valley to compare with our historical (but somewhat incomplete) data on record but to date have not received any response*” (Anon.14, Senior Manager, eThekweni Municipality, Interview, June 2018, Durban). This voluntary act by eThekweni refers to what is termed the ad-hoc nature of decisions and actions by municipal intervention, that led to the evolution and expansion of the Wildlands CEBA Assemblage. On the other hand, the snowball effect of carrying forward data discrepancies and gaps in the CEBA process created the inability to accurately quantify the impact of CEBA projects. Additionally, leading to a greater issue at hand, a distinct difference in what was believed to be occurring and what happened during the initial stages of the CEBA project implementation process between 2011 and 2018, that is, a lack of communication, data sharing, monitoring and evaluation of project activities.

In terms of the macro-developmental context the question of the ongoing importance of the relationship with local government, where in the Restoration Ecology team within EPCPD team “*plugged the gaps Wildlands left in the Durban projects by hiring staff with a specific oversight and monitoring function and required Wildlands to improve their systems to meet the expectations of the Municipality in terms of reporting*” (Prof. D. Roberts, Interview, January 2018, Durban). This feature of ongoing intervention in governance is an acknowledged feature of governance-beyond-the-state, where many new regimes are both set up by, and directly or indirectly, controlled or overseen by, the state and, regardless of their origins, they are not merely independent or external to it (Swyngedouw, 2005). Also, the fact that eThekweni’s

Restoration Ecology team was able to intervene and ‘plug the gaps’ in CEBA project activities without collapsing the Wildlands CEBA Assemblage is characteristic of rhizomatic assemblages, where multiple connections can be established at any point in the assemblage.

Though Wildlands put CEBA forward as a holistic solution attempting to reduce poverty and preserve ecosystems, certain failures in the assemblage could not be adequately managed. One of the ‘Think Tank’ members of the inception meeting, Prof. D. Roberts, attests that the Wildlands CEBA intervention moved forward before “*adequate macro-level change occurred in the governance of the city*” (Prof. D. Roberts, Interview, January 2018, Durban). The first issue being an initial lack of political will in mainstreaming climate change considerations in local government decision making, though more recently this has improved through evidence-based successes stemming from the Wildlands CEBA Assemblage (*Chapter Seven*). A second issue was the difficulty of getting the CEBA concept acknowledged as one of the early indicators of the potential for a greener economy, given the prevailing strength and commitment to the municipality’s approach to the Neoliberal climate change discourse. As Li (2007:117) puts it, “Neoliberalism does not mean less intervention: it means intervention thought about and constructed along different, more subtle lines”. Although ‘CEBA thinking’ was not readily adopted by local government leaders, evidence of ‘CEBA thinking’ was found in the championing aspects of the CEBA process. The pace of adopting adaptation as a serious discussion item sped up significantly through the anchor outcome, the DAC, which was then advocated for on other global platforms, further facilitating discussion around adaptation issues globally. The champions campaigning for climate change adaptation found themselves in position to boost this thinking by “*controlling the local government session*” agenda of the COP17/CMP7, “*we nagged money out of national government to run the local government session during COP17/CMP7, and we were told to run the session during the COP. We now had the power to set the agenda and shifted it to a more adaptation focused discussion*” (Prof. D. Roberts, Interview, December 2016, Durban). Leaders were forced to look for every opportunity related to climate change to either seek funding for or showcase climate change work, “*this was our first and last chance as Africa to raise adaptation as an important issue*” (Prof. D. Roberts, Interview, December 2016, Durban).

Despite the stated aim of participation and consultation with community members from inception, Wildlands management interviews and interviews with participating communities in 2016 revealed these processes fell short due to a combination of factors. Some of these identified factors include, overwhelming work volumes, commitments and lack of system

infrastructure, project level communication with communities was ad-hoc, decisions were often made and relayed by project field managers, creating anger, frustration, and resentment both internally amongst colleagues and from communities to Wildlands (*Chapter Six*). Capacity issues were exacerbated by a large-scale retrenchment on the part of Wildlands in the project specific workforce, and a “*rationalisation exercise*” to consolidate project roles in Durban (Dr A. Venter, Personal Communication, March 2017, Hilton). A lack of organisational contingency and succession planning created risks in project longevity when funding windows complete their cycles. In instances where funding disappears, lack of capacity is evident, and lack of formal regulation over activities, some implementation aspects may fall short of desired outcomes. According to Thakur (2018) this was the case of Wildlands Wastepreneur projects across KwaZulu-Natal. The uncertainty in CEBA project data records arose early on where tree planting data records from two independent actors for the eThekweni CEBA cluster were not aligned. Although data discrepancies were noted at the outset, project implementation and scaling up of CEBA initiatives forged ahead. On one hand alignments between influential actors were forged and on the other hand, underlying the successful opportunistic interactions was an accumulation of untracked, unverifiable data leaving gaps as pointed out by Roberts (Prof. D. Roberts, Personal Communication, January 2018, Durban). Concluding statements follow in the next section. From an assemblage thinking point of view, different parts of the system forge ahead at their own pace resulting in both positive and negative outcomes (Delanda, 2006). While the participation of communities, involvement of donors and government scaled-up in pace, the ‘system’ was not able to cope with the increased pace at which the organisation undertook its work.

#### **4.5 Conclusion**

This chapter highlighted the complex range of factors that influenced the mainstreaming of the Wildlands CEBA intervention and a marginalised adaptation agenda. The Wildlands CEBA intervention could be considered as an assemblage as it has influenced development planning in eThekweni through its integrative CBA-EBA formulation (Dujardin, 2019; Briassoulis, 2019). Li’s (2007) practices<sup>34</sup> aided in characterising and defining CEBA as an assemblage and mainstreaming the adaptation agenda in the eThekweni Metropolitan Municipality by proving useful to both the city of Durban’s Climate change mandate and natural resource dependent

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<sup>34</sup> Rendering Technical, Forging Alignments, Authorising knowledge and Managing failures and contradictions

communities. This chapter also revealed that various local factors accumulate and contribute to larger practices which work at an assemblage level. These local factors can be seen as incremental changes that contribute to larger transformational change.

Transformation in governance structures were noted through attempts at polycentric governance in the Wildlands CEBA Assemblage. Positive and negative accounts explaining the emergence of CEBA and mainstreaming of the adaptation agenda in Durban were presented, through Li's (2007) practices of assemblage. For example, local government sessions at COP17/CMP7 facilitated shifts in local decision making in Durban, enabling new polycentric arrangements of governing beyond-the-state's boundaries. The assertion that the inception of new governance structures can be of an 'ad-hoc' nature plays a significant role in the inception of the Wildlands CEBA Assemblage (Swyngedouw, 2005; Dryzek, 2000). As seen in the Wildlands CEBA Assemblage, forging alignments in a multi-actor network breeds new forms of autonomous decision-making (Gillard *et al.*, 2017; Jagers and Strippel, 2003).

Political will, will always be required for systemic changes to occur, as ethical choice is one of the guiding forces by which decision-making takes place under post-structural regimes. The findings presented in this chapter revealed a level of certainty was reached and enough political will (fostered through climate champions) existed for the Wildlands CEBA Assemblage to take root in Durban and begin expanding into other geographical territories, culminating in 'CEBA Clusters'. Dr Andrew Venter and Professor Debra Roberts progressively moved thoughts about CBA and EBA from an ad-hoc conversational basis towards mainstreaming adaptation discussions, influencing other actors and actor networks. Without champions deliberately propelling forward the adaptation agenda, the uptake of adaptation by socio-political leaders is slow to progress and be mainstreamed into development imperatives. Catalytic actors play a significant role in encouraging system-wide participation and realising adaptation as an equally important climate change agenda item (Barrott, 2020).

Through its successful outcomes and significant rhizomatic expansion (*Chapter Six*) CEBA moved beyond an idea, and framework to what is now termed the Wildlands CEBA Assemblage. The hooks and drivers at local CEBA project level scales operationalised practices of assemblage at the larger scale in the assemblage. Enviropreneurship and neo-liberal responses to adaptation through CEBA inadvertently changed the way individuals behaved and expressed responsibility towards the natural environment. The key influencing factor was CEBA itself, exerting influence over various actors through climate change knowledge,

influencing state actors to adopt ‘CEBA thinking’ for development planning and further seducing community participants into practising ‘CEBA thinking’ at grassroots level. On the other hand, findings in the forthcoming chapter proved little to no attention was given to internal organisational and monitoring processes, enhancing data discrepancies, ambiguities, and uncertainties in CEBA project implementation processes.

## 5. SCALING-UP ADAPTATION: INTENDED ACTS AND UNINTENTIONAL CONSEQUENCES IN CEBA

### 5.1 Introduction

The current footprint of Wildlands work across South Africa is proof of the ability of an Organisation to scale up one intervention to a formidable size. Wildlands extended its footprint significantly with 12 clusters of 29 project sites (60 communities) across eastern South Africa (Wildlands, 2019). CEBA was born out of a desire to move beyond traditional ecosystem-based adaptation practices, coincidental relationships, and opportunities (*Chapter Four*), and subsequently scaled-up through a series of procedures implemented by Wildlands throughout most parts of South Africa. In this chapter I argue that linkages between the discursive and material axes of CEBA aided in the upscaling of the Wildlands CEBA Assemblage. The chapter also highlights how intended acts to scale up CEBA had unintended consequences on organisational dynamics. The previous chapter focused on eThekweni and CEBA's origins, and this chapter focuses on CEBA and its place within Wildlands.

This chapter focuses on implementation processes specifically related to management roles, 'CEBA discourse' and internal organisational changes that made this lateral upscaling of CEBA possible. Implementation procedures demonstrated the presence and confusing effects of ambiguity in the Wildlands CEBA Assemblage in part, due to the servicing of various stakeholders needs and poor management and leadership functions. The ever-expanding Wildlands CEBA Assemblage began taking shape from 2011 embedding progressive global environmental imperatives into its organisational DNA.<sup>35</sup> The changes in the assemblage have been characterised through Li's (2007) practices of managing failures and contradictions to describe processes involved in the scaling up of the assemblage. Explanations have been supplemented by Delanda's (2006) relationships of exteriority and interiority. The discursive dimension, referred to as the virtual axis (*Chapter Two*) of the assemblage, shows changes in climate discourses over time through international conferences, treaties, and texts. These changes heavily influenced the evolution of the CEBA Philosophy and Wildlands CEBA intervention by introducing varying definitions and interpretations of the concept, adaptation

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<sup>35</sup> DNA is used in the figurative sense to describe the organizational blueprint underpinning operational activities at Wildlands.



(Perreault *et al.*, 2015). A change of pace was noted from the significant growth of the Wildlands CEBA assemblage in 2012/2013 to a slowing in 2018/2019 as projects sites reduced from 60 to 46. Wastepreneur activities discontinued, and Wildlands management revived old discussions towards more robust reporting. However, an increased pace was noted from an organisational identity perspective with the addition of a new ocean-focused workstream under the banner, WILDOCEANS.

Although the Wildlands CEBA Assemblage was scaled up across parts of the South African landscape, results revealed gaps and ambiguities in project implementation, misunderstandings between project and office staff, and a problem with organisational communication structures. Analysing changing discourses revealed both alignment and misalignment in the Wildlands CEBA Assemblage. Alignment with global environmental regimes and climate change discourses was noted through relationships of exteriority and, Wildlands textual and visual publications. The misalignment in the assemblage was viewed through aspects of confusion on the ground, disgruntled communities, and an overworked organisational workforce. Results also show a bias towards short-term project delivery at the expense of realising systemic medium-long term impact. The CEBA Analysis Framework in the context of this chapter, is briefly discussed in the context of this chapter. This is followed by the sections that reflect the activities of scaling up CEBA, understanding CEBA from various actor perspectives, the reposing of issues and managing failures and contradictions in the upscaling processes.

## **5.2 The CEBA Analysis Framework**

In this chapter the CEBA Analysis Framework was used to explore the scaling up of the Wildlands CEBA Assemblage through Li's (2007) practices of managing failures and contradictions, anti-politics and Delanda's (2006) relationships of exteriority and interiority. The greyed-out areas of the CEBA Analysis Framework show the parts of this heuristic framework not in use in this chapter (Figure 5.1).

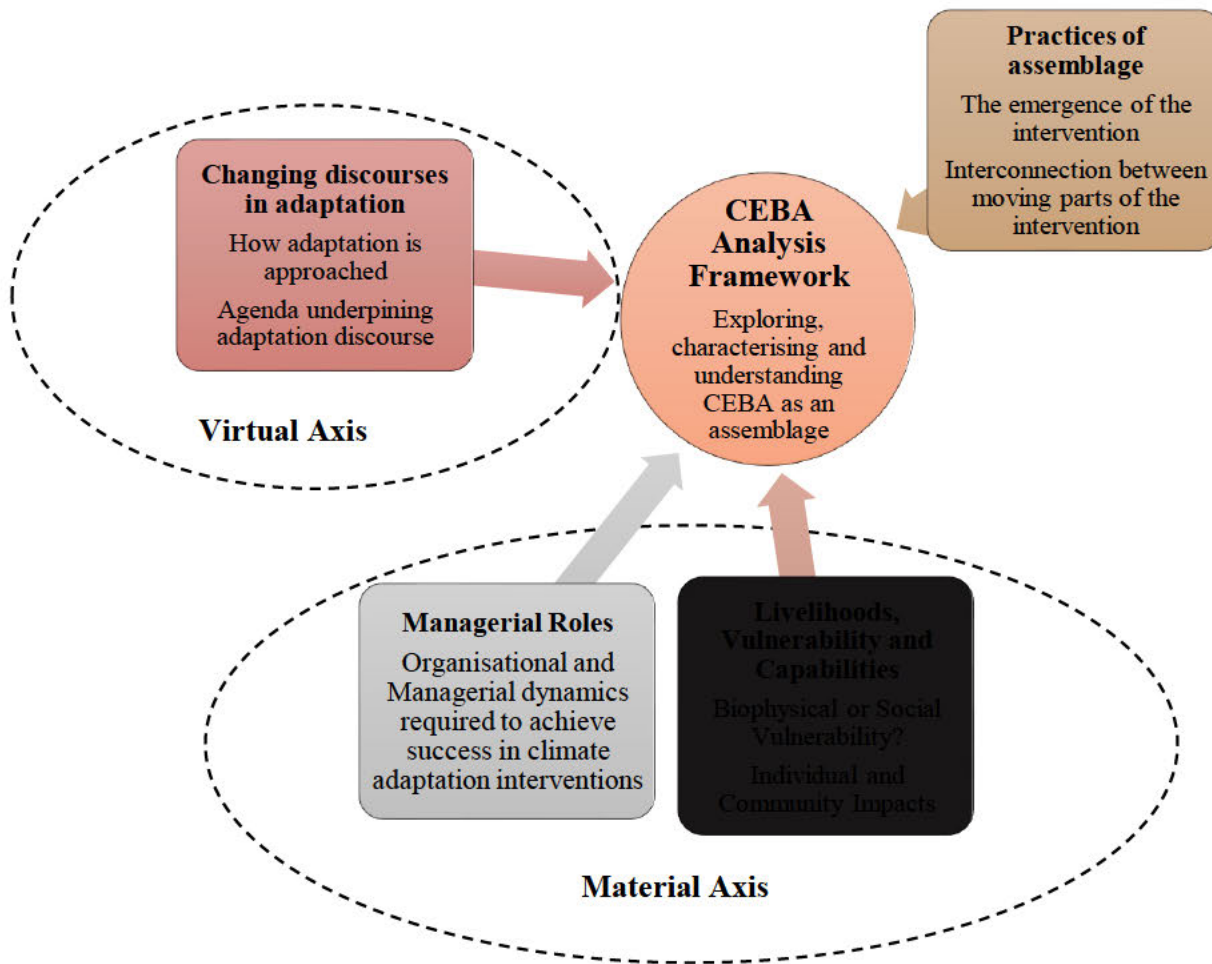


Figure 5.1 CEBA Analysis Framework: Scaling up Adaptation

As previously mentioned, (*Chapter Two*) relationships of interiority refer to parts of a system that have no independent existence outside their relation to one another (they cannot operate separately from one another). Contrastingly, relationships on exteriority pertain to the autonomous nature of the parts of a system despite their relation to one another (they can operate separately from each other). Virtual and material axes of the Wildlands CEBA Assemblage were used to relate how discursive shifts influenced material aspects of the assemblage over time (Delanda, 2006). To this end, the CEBA Analysis framework aided in exploring the relationships and processes that work in collaboration with one another to form the assemblage (Section 5.3). Relationships between Wildlands and exterior actors and processes informed the scaling up and expansion of the assemblage (described in greater detail in *Chapter Six*), for example, the eThekweni Municipality.

The organisational, managerial and CEBA discourse aspects of the Wildlands CEBA Assemblage were explored using supplementary aspects of discourse analysis and managerial roles (Fairclough, 1989, 1992; Mintzberg, 1973). Varying interpretations of the Wildlands CEBA Assemblage in relation to the ‘CEBA discourse’ and organisational leadership and management regarding the implementation of the Wildlands CEBA Assemblage were explored and analysed. Analysis was employed using linguistic information presented in textual/documentary material related to the adaptation discourse and emergent ‘CEBA discourse’ and a closer look at roles within the Wildlands CEBA Assemblage. A table using Fairclough’s three-dimensional approach has been created by the researcher, to reveal the numerous ways in which CEBA has been described (Section 5.3.3). The focus of this exercise was to ascertain the existence of linkages between the object (Textual material) and the socio-political conditions under which the object was produced, highlighting any influence climate or socio-political discourses had on the Wildlands CEBA Assemblage implementation and evolution.

From the transcribed data and non-verbal textual sources, similar data were grouped together to form themes for mapping the role CEBA played in the adaptation discourse and implementation procedures used by an NGO to scale up the Wildlands CEBA Assemblage. This was undertaken to ascertain whether there were any uncertainties and/ or ambiguities present through the assemblage’s evolution and implementation, and the impact of organisational changes or the lack thereof including managerial and leadership roles. Positive and negative outcomes of various themes of data from an organisational perspective included: Operational Activities, Rules of the Organisation, stakeholder expectations, Culture of the Organisation and Organisational Impacts (Figure 5.2). The five categories of derived themes

focus on CEBA project implementation, CEBA reviews and potential impacts. These themes have been used to augment explanations in this chapter and is supplementary to the CEBA Analysis framework.



Figure 5.2 Derived themes: scaling up the Wildlands CEBA Assemblage

Direct responses gained through interviews relating to the up-scaling of the Wildlands CEBA Assemblage was augmented by the themes ‘Rules of the organization and Organisational Impacts’. Culture of the Organisation was not discussed in detail and the theme Stakeholder expectations was shared between this chapter and *Chapter Six* as information presented is relevant to both chapters. The culture of an organisation is seen as an intensive and extensive investigation into organisations and behaviours, this could not be catered for in this study due to time constraints and funding challenges, hence acquired results relating to organisational culture was noted and briefly explained. Furthermore, the third objective of this study was not to explore organisations in their entirety but instead uncover the on-the-ground implementation aspects within Wildlands that led to the up-scaling of the Wildlands CEBA Assemblage. Therefore, investigation into the ‘Culture of the Organisation’ theme can be considered for future research and noted as a limitation (*Chapter Nine*).

Results revealed different understandings of the Wildlands CEBA Assemblage, derived organisational dynamic themes, a brief account of stakeholder engagements, and advantages and disadvantages related to the scaling-up of the Wildlands CEBA Assemblage. The findings presented follow in the order of a CEBA timeline, discursive shifts in global regimes and organisational growth, understanding what processes were followed to manage failures in the

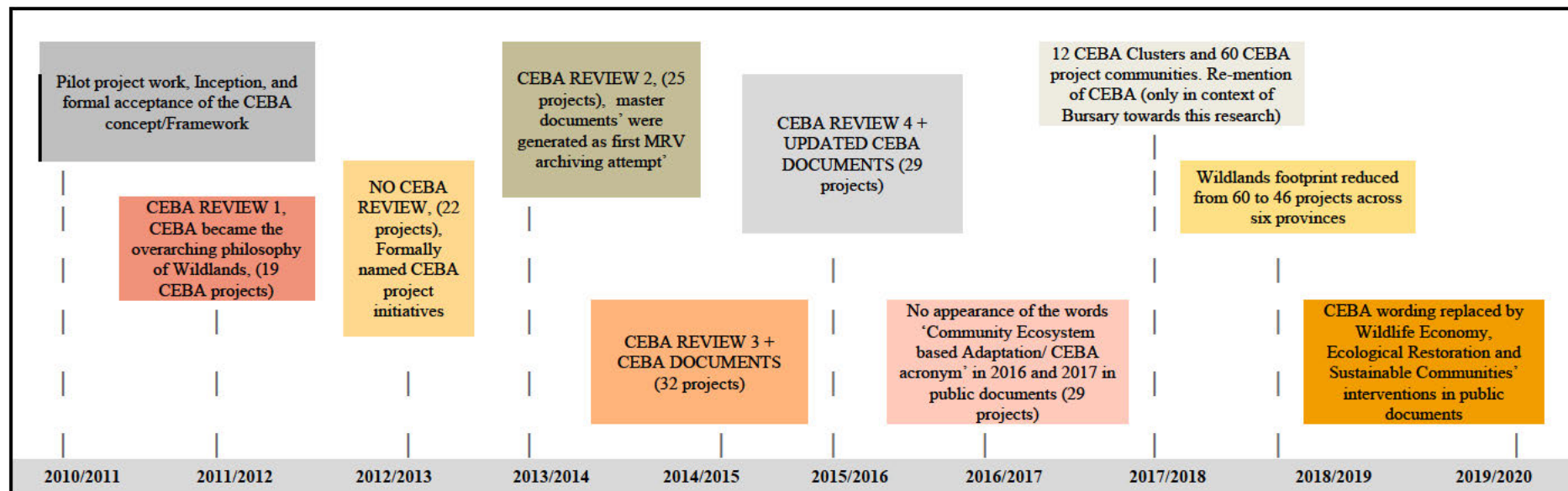
system including managerial dynamics, and finally, exploring how socio-political issues were reframed.

### **5.3 Scaling-up the Wildlands CEBA Assemblage**

The Wildlands CEBA Assemblage was influenced, upscaled and managed through relationships of interiority and exteriority (Delanda, 2006) and two assemblage practices, managing failures and contradictions and anti-politics (Li, 2007). This section, separated into three sub-sections, presents the results achieved and provides supporting explanations using the CEBA Analysis Framework. To better understand the scaling up of CEBA project interventions, the discussion follows a chronological timeline of CEBA processes and developments.

#### **5.3.1 Wildlands CEBA Assemblage timeline**

The presentation of the findings begins with a closer look at the CEBA timeline and discursive shifts in CEBA based on multilateral developments and material developments in Wildlands CEBA Assemblage. It is important to create a contextual picture of CEBA processes to gain a sense of historical reference regarding CEBA project progression. Beginning with CEBA's formal acceptance in 2011 up to the point of the latest available data in 2020 (Figure 5.3). With the progression of projects, CEBA reviews were undertaken as a project review exercise with minimal links to M&E from 2011 – 2014. The CEBA review process was used as an informal M&E mechanism with a focus on daily project operations. As shown in the historical timeline below, formal links to M&E were only established in the 2014/2015 financial year. It was only after this point that project impacts, trends and implementation patterns were being formally evaluated. More information on this aspect is found in section 5.4.1 below.



(Produced by Ramanand, 2020)

Figure 5.3 Wildlands CEBA Assemblage expansion timeline

The inception of the CEBA process then began with a select group of stakeholders involved in the pilot project implementation, resulting in CEBA's informal acceptance among project managers and stakeholders and thereafter formal acceptance at COP 17/ CMP7 in 2011. Pilot project work between eThekweni Metropolitan Municipality and Wildlands was undertaken as a first step in the CEBA journey as described in detail in *Chapter Four*. Hence formal acceptance was achieved through using "*CEBA jargon throughout the COP17 process*" (Dr A. Venter, Personal Communication, February 2015, Hilton) and establishing initial thoughts around a new discourse, CEBA. Subsequently, the '*CEBA Framework*' became the overarching philosophy of Wildlands during the 2011/2012 financial year with 19 CEBA project sites.

In the next financial year, the project sites expanded by three new sites. At this point in time, all the project sites were formally named CEBA project initiatives. Further expansion took place increasing the number of CEBA project initiatives to 25 in 2013/2014. Community project sites increased from six to approximately 60 in the span of eight years. With the rapid expansion of the CEBA project initiatives from 2010-2014, data collection procedures, documentation and review exercises became increasingly difficult to keep up with and therefore "*on-the-ground project activities were prioritised*" (Dr A. Venter, Personal Communication, February 2015, Hilton). CEBA Documents already existed in the form of PowerPoint presentations and "*2013/2014 CEBA review master documents*" (Venter, pers. Comm., 2015). However, the 2014/2015 financial period marked the first-time the Wildlands CEBA project reviews gained traction with dedicated resources aligned to the achievement of the CEBA philosophy. Due to the consistent expansion of CEBA project sites (32 project sites), the naming of the project sites was changed from 'CEBA Framework project initiatives' to 'CEBA Clusters' during the 2014/2015 CEBA review period. Each 'cluster' was based on geographical distribution of sites and decided by the CEO and Executive Director of Wildlands at the time. Hence conglomerate figures were calculated and presented for a '*CEBA Cluster*' during reviews.

The 2014/2015 review period was carried out and hosted by the researcher with the view to establish formal links to M&E practices. The 2015/2016 and 2016/2017 financial periods saw a steady carryover of 29 project sites from 2016 to 2017. The CEBA review process was also under new management; hence the documentation and review process were once again changed, "*no documents as such, just updated presentations*" (Anon.5, Wildlands Senior Management, Personal Communication, August 2017, Hilton) For the first time since the



CEBA inception there was no appearance of the words ‘Community Ecosystem based Adaptation/ CEBA acronym’ in 2016 and 2017 in Wildlands public documents, however one mention of ‘CEBA’ in relation to the bursary provided for this research in the 2018 *Reflections* document. Wording such as “Wildlife Economy, Ecological Restoration and Sustainable Communities’ interventions” entered the scene at the same time ocean health became a global concern (Wildtrust, 2018:3). This is partly attributed to an organisational shift and the repositioning of Wildlands to include ocean health (*WILDOCEANS*) and enterprise development (*Wildenterprise*) as part of its portfolio. The interest in ocean health found a way onto the ‘table’ and into the CEBA discourse through the employment of senior management involved in ocean health work, coupled with the potential to “*tap into new funding streams*” (Dr Kloppers, Wildlands CEO, Interview, January 2018, Hilton).

Though CEBA language disappeared from the public domain between 2015-2020 the Wildlands CEBA assemblage remained intact across the South African landscape (Wildlands, 2017; Wildtrust, 2018). It was discovered that the CEBA acronym is still in use for description purposes in management conversations, “*We do still refer to the word CEBA, specifically when talking about high level strategic interventions, when collating learnings from our various projects we look at these through the lens of how challenges and achievements contribute or detract from CEBA. However, the term CEBA is used less when discussing specific project tasks*” (Anon.14, Senior Manager, eThekwin Municipality, Personal Communication, July 2021, Durban). Though wording changed for Wildlands, the word CEBA is still used in this study to reflect the integrated nature of a CBA-EBA intervention (*Chapter Four*). Wildlands approach to integrating community and ecosystems-based adaptation opened the doors to otherwise hard to reach opportunities for funding. This is noted by a response stating, “*I think there were several relationships and other opportunities developed from the framework*” (Dr Kloppers, Wildlands CEO, Interview, January 2018, Hilton). The scaled-up Wildlands CEBA Assemblage project clusters can be seen in the map below (Figure 5.4), noting the expansion of CEBA.

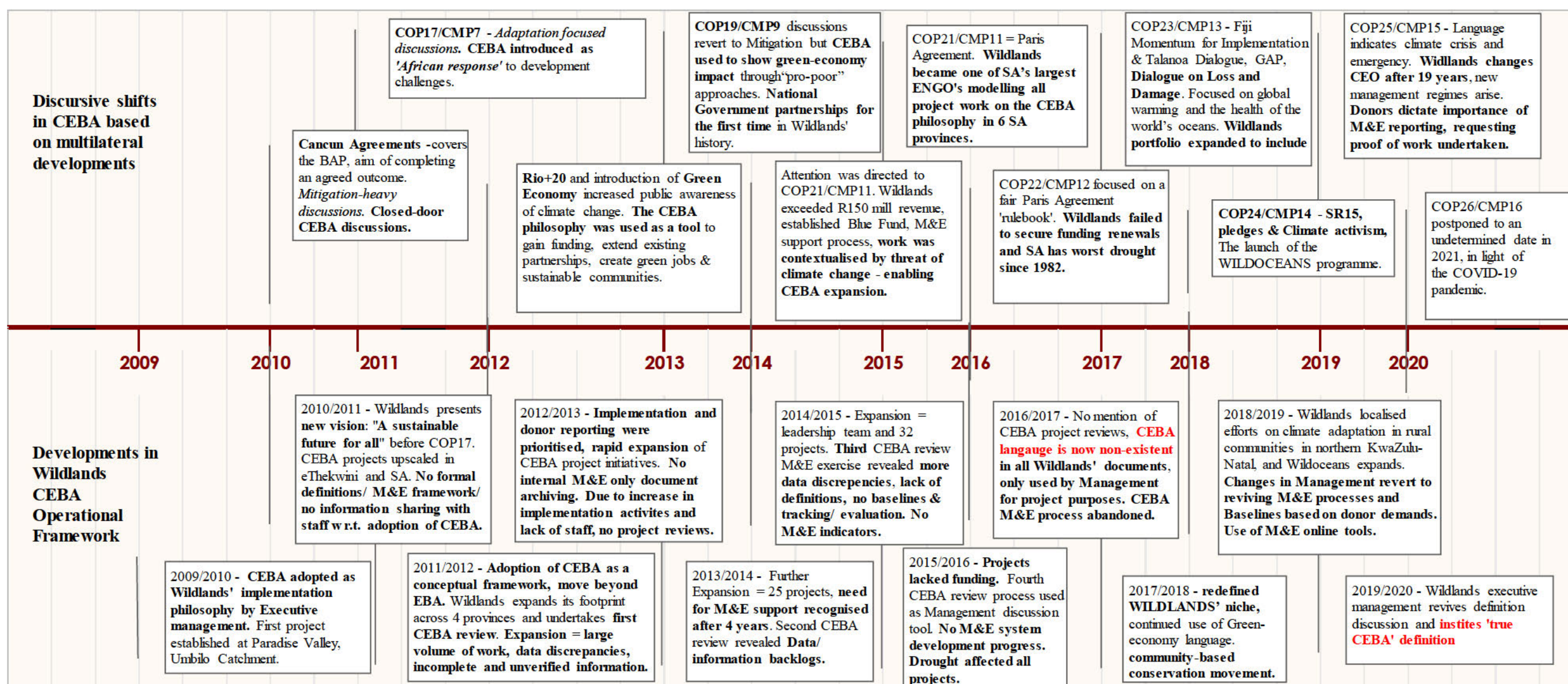


Figure 5.4 The Wildlands CEBA Assemblage project clusters (Wildtrust, 2020).

In the quest to upscale CEBA, maintaining the fluidity and flexibility of the assemblage was key. Linking specific wording into aspects of Wildlands organisational DNA and CEBA's implementation, enabled the Wildlands CEBA Assemblage elicit funding and buy-in from various stakeholders. The 2016 Annual *Reflections* publication noted, "Wildlands continual move towards sustainable, transformative development projects, rather than piecemeal interventions dependent on donor funding, is bearing fruit in exceptionally trying times" (WCT, 2016). Old lines of conversation regarding a CEBA definition and M&E were also revisited, reassembling the Wildlands CEBA Assemblage to suit the changes occurring in global climate discourses. The entry of the WILDOCEANS component into the organisational portfolio of Wildlands also serves as an example of how discursive shifts in global discourses influenced material organisational decisions. Wildlands executive leadership noted, "both programmes speak directly to the Sustainable Development Goals (RIO+20) of the Blue Economy advanced by the United Nations: improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (Wildtrust, 2018:25). Redefining the meaning of CEBA, can also be viewed as what Li (2007:3) terms "transposing meanings of new terms and deploying existing discourses to new ends". The act of redefining CEBA and instating forms of M&E practices transformed the way in which CEBA was being viewed at Wildlands. However, this transformation relied on relationships of exteriority for the continuation of funding based on movements in global discourses and donor expectations. This is discussed in detail in the next section.

### **5.3.2 Relationships of exteriority: influences of global environmental regimes**

This section covers the scaling up of project activities within the assemblage as well as organisational shifts at Wildlands. The focus is on the influence of external global policies and discourses on material shifts regarding scaling-up of the assemblage. This discussion is centred around the links between the discursive and operational dimensions of the Wildlands CEBA intervention (Figure 5.5).



(Produced by Ramarand, 2020)

Figure 5.5 Discursive and material shifts in CEBA



Delanda (2006) and Ball (2018) emphasise that understanding the linkages to both the virtual and material axes that give rise to an assemblage, is key to understanding relationships of exteriority.

Relationships of exteriority exist as part of the Wildlands CEBA Assemblage as global climate agendas/decisions were engaged by senior management, shaping CEBA project activities accordingly. Multilateral engagements (COP/CMP meetings) and the movement of the green economy agenda directly correlated with the upscaling of CEBA project activities and expansion of the Wildlands CEBA Assemblage across the South African landscape. A fluid and flexible Wildlands CEBA Assemblage was swayed towards the most relevant multilateral discussions at the time. CEBA was viewed as a forward-thinking attempt at creating sustainable communities and maintaining ecosystem preservation, by combining the EBA and CBA discourses (*Chapter Four*). CEBA's expansion mirrored the changes in international trends at each step identified in the virtual axis of the Wildlands CEBA assemblage (Figure 5.5). For example, CEBA project work was contextualised around climate change discussions in 2015, resulting in new government partnerships and the upscaling of project activities. Wildlands Management exploited opportunities to use climate change discourses in developing CEBA further, as articulated by one key informant (Anon.19, Wildlands Senior Management, Personal Communication, March 2018, Hilton), *"Across the world there has been a great deal of interest, innovation and documentation around this approach since 2011, so adopting it helps us remain globally relevant"*. Climate change, the Green Economy and sustainable development discourses influenced the vision, CEBA project review processes and CEBA language at Wildlands. As mentioned by Dr A. Venter Wildlands ex-CEO *"...we were trying to describe what we were doing in a language that would be relevant with the COP17 language"* (Personal Communication, August 2016, Howick). In this way the Wildlands CEBA Assemblage itself was used as a tool to remain relevant to prospective funding entities as well as global environmental regimes.

Although these global agendas influenced CEBA they were not fused into 'CEBA's DNA', as various actors involved in the operationalisation and strategic influence of the Wildlands CEBA Assemblage remained autonomous. One of these being the government-Wildlands interface within the CEBA Assemblage. Both entities interacted with one another and local communities on various levels, as well as influenced a level of change in raising the adaptation agenda on government's discussion platforms yet remained autonomous in their decision-making. In other words, none of the Wildlands processes and governments functions were

fused together at any point in time although both entities were active in the Wildlands CEBA Assemblage. From a process-relational perspective the Wildlands CEBA Assemblage can be seen as “integrative and ever-evolving”, the focus is placed on the relations between the actor and the natural ecosystem in question (Garcia *et al.*, 2020:1).

Social investment intermediaries such as, Greater Good SA<sup>36</sup>, also influenced the upscaling of CEBA activities by advocating for socio-ecological approaches such as CEBA and directly aligning investors and donors (Unilever, Old Mutual) with Wildlands. Evidence provided by Greater Good SA (2018) and WCT (2012) mentioned, poverty reduction, social issues, promoting social inclusiveness and sustainable development before addressing environmental issues, with further “*emphasis on community-based approaches to dealing with contemporary and evolving environmental challenges*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton). By reversing the order of the age-old ‘*conservation versus development*’ debate, the Wildlands CEBA Assemblage physically places *solutions to development challenges* before *ensuring environmental/ conservation benefits* throughout its public content whether internal/ annual reports, media related documents and donor reports.

Regarding Wildlands organisational growth and developments in CEBA project implementation, also known as the material axis in Figure 5.5 above, the 2004 financial year saw the merger of the Natal Conservation Trust and Wildlands Trust which converged into the Wildlands Conservation Trust, now Wildtrust. The forging of alignments between the two organisations led to a financially stronger NGO as well as the expansion of CEBA (discussed in more detail in *Chapter Six*). With this merger came the growth of the organisation boasting, “a turnover of less than R1 million to a formidable environmental organisation that currently employs over 1000 people and raises an annual income of R80 million” (Greater Good SA, 2018: par 2). In 2018 the Wildtrust raised a total of “R 109.7m; R 102.6m through fundraising and an additional R 7.1m through investment and other activities” (Wildtrust, 2018:2) and scaled up project activates increasing its footprint from three pilot projects in 2011 to 46 project sites over six provinces of South Africa.<sup>37</sup> “From humble beginnings, Wildlands has grown into one of SA’s largest Environmental Organisations” (WCT, 2015). This exponential growth was in part a result of the new funding opportunities in the Green Economy (Venter, pers. comm., Feb. 2015). To solidify Wildlands positioning in the Green Economy market, The Greater

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<sup>36</sup> A social enterprise advising institutions and individuals on social investments.

<sup>37</sup> KwaZulu-Natal, Mpumalanga, Gauteng, Northern Cape, Western Cape and Eastern Cape.

Good SA network (2018), also identified Wildlands as a high impact organisation for community upliftment and environmental conversation going on to support the organisation as ideal for investment and funding, again mentioning the *social* before the *environmental*.

Relations of exteriority within the Wildlands CEBA assemblage have shown how changes in global discourse influenced material aspects of the assemblage. Attention was placed on financial growth and realising opportunity, as is the nature of NGO's where visions, missions and goals are on project delivery for greater causes (Islam, 2016). While material aspects of the CEBA intervention were changed, resulting in welcomed partnerships and funding opportunities, other parts of the assemblage were negatively affected. The Wildlands CEBA Assemblage became more meandering, flexible, and fluid, layered with more ambiguity and complexity each time it was changed (Section 5.5). The continual upscaling of CEBA activities resulted in organisational changes causing unwanted confusion amongst the office and field staff at Wildlands. Inherently relationships of interiority became embedded in the 'DNA' of the Wildlands CEBA Assemblage influencing organisational and implementation decisions, discussed further below.

### **5.3.3 Relationships of interiority: organisational growth, leadership and management**

This section focuses on how relationships interiority led to the upscaling as well as potentially confusing effects within Wildlands and the Wildlands CEBA assemblage. Relations of interiority refers to components of a 'system' that are not able to exist or operate in the absence of one another (Delanda, 2006). Scaling up the Wildlands CEBA Assemblage involved internal organisational changes including changes to project implementation in some instances. Two aspects are covered in this section, organisational growth and leadership and management.

#### *Organisational Growth*

Regarding relationships of interiority, wording borrowed from global environmental regimes and discourses such as sustainable communities, pro-poor development and ecosystem restoration were fused into daily CEBA planning and operations. The Wildlands CEBA Assemblage was positioned as a climate change adaptation-based solution in 2013 when the climate change adaptation discourse saw the entry of the Green Economy. Fusing Green Economy discourse with CEBA fuelled the CEBA philosophy and placed it as a point of entry into national climate change adaptation discussions and imperatives (*Chapter Four*). For

eThekwini, “the CEBA concept comfortably described what they were doing around their environmental work anyway” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2016, Howick). The rapid expansion of Wildlands occurred in 2015 when the CEBA philosophy changed the operations of the organization and subsequently led to an exponential growth of projects under the Wildlands CEBA Assemblage country wide. Wildlands work was structured through “7 programmes (*TFL, GYF, RFL, CFL, Ubuntu Earth, Khutaza Business and Cons. Space*) carried out across 12 CEBA clusters in 6 provinces in 2015” (WCT, 2015:8) and since included a WILDOCEANS component (Wildlands, 2017).

The Executive Management Team and Executive Board at Wildlands welcomed CEBA, in part, because it was championed by renowned South African leaders in the field of Climate change and local governance issues. These champions were determined to mainstream climate change adaptation into government and international thinking practices (*Chapter Four*). Though the fusion of wording aided in upscaling CEBA activities through investor and donor interest, it was discovered that the workforce engaging in daily office-bound and field operational decisions experienced confusion regarding both the interpretation of CEBA and how to implement it. Interestingly, the decision to render CEBA the overarching working Philosophy was taken by a select few members at Senior Management level in 2011/2012, “...distributed amongst our senior Wildlands staff and gradually the framework became the organising principle for what Wildlands does (Dr R. Kloppers, Wildlands CEO, Personal Communication, January 2018, Hilton). When one Team member was asked “Why was the decision taken for CEBA to become the overarching philosophy of Wildlands work ever since its formal appearance at COP17/CMP7, in 2011?”, the response received revealed a lack of organisational communication at Wildlands. This can be seen in the following response, “*I am not sure who made this decision, I think the team that worked on the CEBA related projects obviously understood it better than us the office-based people. I honestly do not think the people in my team would understand the terminology correctly*” (Anon.20, Wildlands Senior Management, Personal Communication, June 2018, Hilton).

The joining together of the CEBA philosophy and organisational operations created a relational linkage that adversely affected the Wildlands working force to a large degree. While most employees expressed confusion, only the select few involved in closed-door discussions attested to understanding how CEBA benefited Wildlands as an overarching philosophy. One response received noted, “*probably related to its simplicity in understanding and the fact that it focusses on the community and the ecosystems that underpin the community’s well-being. So,*



*in short, it's easy to grab and easy for a donor to understand the importance* (Dr R. Kloppers, Wildlands CEO, Personal Communication, January 2018, Hilton). Despite the underlying confusions, Wildlands was still able to secure and maintain 29 project sites in 2017, 60 in 2018 and 46 in 2019, bearing testament to upscaled projects and growth of the assemblage (Wildlands, 2017; Wildtrust, 2018).

Donors sought out the assistance of Wildlands to expand CEBA implementation in different geographic locations across South Africa, after the relationships were formed with the appropriate municipality. Relatedly, Wildlands has seen another major organisational shift by expanding their service offerings to include a formal ocean programme in 2018 (WILDOCEANS) as part of the Wildlands legacy. Growth and expansion for this organisation continued. The Wildlands CEBA Framework was also flexibly designed mirroring 'adhocracy' (*Chapter Four*) in its implementation arrangement to respond to the changing climate change discourses in the elicitation of funding (Clayton, 2018; Hage, 1999). These findings show that the exponential organisational growth of Wildlands in terms of funding, pushed the organisation into 'delivery-overdrive' at the expense of building the capacity of the larger workforce to interpret and understand management decisions that were linked to virtual aspects of the assemblage.

### *Leadership and Management*

This section describes the various pressures faced by Wildlands due to relations of interiority between the implementation aspects of CEBA and organisational shifts. Constantly shifting CEBA's meaning in alignment with global climate discourse created gaps in management and leadership roles. Simply put, leadership styles and managerial expectations became as fluid as the assemblage every time CEBA was interpreted differently.

The Wildlands CEBA Assemblage was only as effective as the workforce implementing adaptation efforts at grassroots level, and the processes and procedures put in place at the broader organisational level. When Wildlands employed an approximate workforce of 100 people, *"Interpersonal relationships based on trust evolved, as time was not necessarily a constraint"* (Anon.4, Wildlands Executive Management, Personal Communication, June 2018, Hilton). However, with the accelerated growth, less time was available for personal interaction and the focus shifted. *"Completion of tasks was prioritized to meet project deliverables with less time for building on the interpersonal relationships"* (Anon.4, Wildlands Executive Management, Personal Communication, June 2018, Hilton). With respect to managerial roles,

this excerpt shows that for the Manager's role to be fully realised both personal interaction and authority would have been ideal but was not the case (Mintzberg, 1973). The lack of balance between personal interaction and authority was primarily due to the link Wildlands created between the discursive and operational elements of CEBA, reflected in the virtual and material axes of the assemblage (Figure 5.5). The fusing of wording reflecting global discourse into the daily workings of the organisation increased the drive for donor funding and consequently placed pressure on the workforce.

The exponential growth of the organisation strained some interpersonal relationships and managerial roles, as every available moment was spent on delegation for project delivery rather than development of interpersonal relations in the organisation. This is seen by a Wildlands employee response, "*The accelerated growth did not allow for time to stop and reflect on the projects or the deliverables achieved*" (Anon.4, Wildlands Executive Management, Personal Communication, June 2018, Hilton). One Board member stated, "*Working at Wildlands was like hanging onto the back of a runaway train*" (Anon.7, Wildlands Board, Personal Communication, July 2016, Hilton). While managerial roles were not given enough attention, a fusion of Green Economy imperatives into the DNA of Wildlands through the CEBA Philosophy was occurring at every step of the organisation's growth revealed by annual *Reflections* publications (WCT 2012-2016; Wildlands, 2017; Wildtrust 2018, 2019). Referring to the theme Organisational Rules, some leaders indicated their leadership styles changed from building teams focused on realizing opportunities to building 'delivery teams' catalysing higher project performance instead. Management was driven by the *Liaison* role more than the other two roles (*Figurehead* and *Leader*) (Mintzberg, 1973). Management was focused on creating relationships outside the organisation in search for funding opportunities, indirectly ignoring internal responsibilities of the role. The informational *Disseminator* role for sharing information of 'value' emphasises the importance in information-sharing and was also missing from the organisation's structural components. It can also be said that the skewed importance towards the *Liaison* role came at a price of a confused workforce when the importance of the Informational function *Disseminator* role of the Manager was forgotten about, lost, or side-lined. A strong correlation between time spent in the *Liaison* role and communication outside the organisation was evident, thereby side-lining the importance of in-house organisational communication. Using the CEBA Philosophy and pilot projects as evidence-based knowledge, to assist the climate adaptation discourse move forward during COP17/CMP7, it was also noted that "*applying the same framework across multiple projects may have the adverse effects of*

*trying to mould different situations into the same solution instead of from the approach of what is needed for that specific area/situation”* (Anon.19, Wildlands Senior Management, Personal Communication, March 2018, Hilton).

It is evident that implementing organisations such as Wildlands required more institutional and structural growth and time to plan and implement project activities that included for example a functional M&E system even in its basic form to begin with. Material shifts like changing reporting structures driven by donor demands to suit changing global environmental regimes created ambiguous understandings of CEBA between the office and field staff. An over-pressured workforce decided on their own interpretations of what it meant to function under the Wildlands CEBA Assemblage (discussed further in Section 5.5). Relationships of interiority worked against the stability of the Wildlands CEBA Assemblage by inciting some confusion around the meaning of CEBA. Some of the workforce also played a role in the CEBA philosophy’s ‘watering down’ seen in this response, *“CEBA doesn’t seem like a process, to me it is more like a name given to projects on the ground”* (Anon.19, Wildlands Senior Management, Personal Communication, March 2018, Hilton). An assumed collective understanding of CEBA revealed, in most cases uncertainty and ambiguity were carried through the management and implementation process annually. On the other hand, Wildlands gained access to communities of South Africa that both the corporate sector and government could not easily gain access to. Considering this as a ‘trump-card’ for Wildlands, the fusion of global environmental terms into the DNA and branding exercises of Wildlands aided in the upscaling of CEBA activities and expansion of the Wildlands CEBA Assemblage into those communities. *Decisional* function leadership (related to use of information) in the *entrepreneurial* form was also highlighted by the CEO emphasising, *“a focus on motivating others to do more than they originally intended and often even more than they thought possible”* with an emphasis on a ‘leading from the front’ mentality (Dr A. Venter, Wildlands ex-CEO, Personal Communication, July 2018, Hilton).

Recapping the scaling up of the assemblage through relations of interiority and exteriority, findings have shown that though relations of exteriority worked to grow the assemblage, relations of interiority worked against aspects of the implementing organisation, Wildlands. Empirical evidence has shown that relationships in the assemblage, especially organisational workforce and donor-organisation relationships were fragile and hence prioritised. Acquiring on-going funding meant more implementation of project activities as per the funding entities conditions, and the leadership and management elements of the organisation remain a work-

in-progress. The merging of climate discourse into the operational blueprint of Wildlands was realised to some extent and managed through document archiving and annual project reviews (discussed in the next section).

## **5.4 Managing Failures and Contradictions**

The varied understandings and confusion around integrating the CEBA Philosophy as part of Wildlands organisational identity threatens the stability of the assemblage. To counteract this potential threat, Wildlands employed two practices, the first was to archive project information in what was known as ‘CEBA documents’ and the second culminated in ‘CEBA Reviews. Both practices served to manage failures and contradictions within the system (Li, 2007) by approaching failures in a solvable manner, inciting more structured data management and information sharing in the organisation. In terms of managing failures and contradictions, ambiguities and uncertainties if not managed well, have the potential to create unwanted complexities and collapse the assemblage under its own weight (Li, 2007). The next two subsections briefly describe how CEBA document archiving and reviews aided in enhancing the understanding of CEBA in the organisation.

### **5.4.1 CEBA documents**

CEBA documents have historically been used as archiving instruments detailing project activities at each CEBA project site. At first these were “*used during stakeholder meetings if necessary*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton). The first attempt made to store and review project data and information in a structured format began in the 2013/2014 financial period, 3 years after inception. According to Venter (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton) *this was initiated with the intention of holistically reviewing what work was being undertaken on the field and how to improve on project implementation through ‘CEBA review’ project team workshops. We did not have an M&E process*”. Each CEBA document was named according to the evolution of the Wildlands CEBA Assemblage. For example, in 2011 each CEBA undertaking was called an *initiative*, as CEBA became more established, naming progressed to the word *project*, and with the upscaling and rhizomatic expansion of the assemblage, projects were grouped and called *clusters* (WCT, 2012, 2014; Wildlands, 2017).

Due to the needs of various audiences, a new ‘CEBA template’ was proposed for development by the researcher. A question posed to the broader Team was, “who are these documents for?”,

various answers from the Wildlands Management team revealed, the documents were meant to service as many internal departments, donors, and stakeholders as possible at the time. As stated by a Wildlands management team member (Anon.4, Wildlands Executive Management, Personal Communication, September 2016, Hilton), “*Identifying the end-users of the documents remains something that is not understood by all staff*”. It was during the 2014/ 2015 CEBA Review period the format of the document changed, giving it more structure (main headings, coherency, linkages between textual input and numerical data, research into the robustness of the socio-economic statistics used and trend analysis placeholders).<sup>38</sup> The documentation activity was described as “*laborious*” (Anon.2, Wildlands Executive Management, Personal Communication, September 2015, Hilton) however, was acknowledged as a ‘body of knowledge’ for historical reference. Moreover, the CEBA document process was used to manage the lack of an M&E process. However, the contradictions in publicly available information (*Reflections* publications) were not managed unless noticed, serving as potentially underlying factors for disassembling the Wildlands CEBA Assemblage (Li, 2007). The documentation aspect was abandoned in favour of PowerPoint presentations from the 2016 CEBA review process onwards to streamline processes. The CEBA review process is described in more detail below.

#### **5.4.2 CEBA reviews**

The adage ‘sometimes the devil is in the detail’ is apt in this section. While CEBA reviews were seen to strengthen the interpretation and understanding of CEBA, some details were lost in the process. Through the upscaling of the Wildlands CEBA Assemblage, CEBA reviews were progressively reduced to a PowerPoint Presentation followed by a reduction in participation of important team roles involved in on-the-ground implementation. A key argument in this chapter, relates to the fact that ‘simplification’ or ‘simpler’ can also mean overlooking important areas of the assemblage that could be plagued with carry-over uncertainty or ambiguity as discussed in Section 5.5.

The CEBA review exercise was used to understand and assess the implementation procedures and progress of each project under the CEBA domain. The review exercise assisted in enhancing the learning-by-doing approach as noted in *Chapter Four*. The CEBA review

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<sup>38</sup> Despite attempts requesting additional information Wildlands have not shared their 2015/2016, 2016/2017, 2017/2018 and 2019/2020 CEBA documents to analyse any further changes.

process saw three separate designs and execution by three separate employees, where the researcher was one such employee. The results presented in this chapter are from the researcher's review process and interview material regarding the 2014/2015 project period, including all previously documented CEBA review material, elicited through CEBA review data collection materials. According to Wildlands Management the CEBA review process was also viewed as a *"less threatening environment with more open discussion where a better sense for the project visions and implementation activities was attained"* (Anon.2, Wildlands Executive Management, Personal Communication, September 2015, Hilton)

The purpose of the review process was linked to comparative project site learning focused on how to better manage implementation and getting a 'snapshot' view of where the organization is at a point in time. It aided in understanding the relevance and the impact of projects with a spin-off on embracing the growth in interpersonal relationships and meeting project deliverables. According to Wildlands management, these review processes allowed the organisation to be more effective, *"The CEBA reviews are a starting block for a much-needed M&E process"* (Anon.5, Wildlands Senior Management, Personal Communication, September 2016, Hilton). It involved the attendance of the CEO, Programme Managers, Office-based and Field Project Managers, some administrative and technical staff. CEBA review tasks were given to team members over-and-above the work already present in the Team member's portfolio. Each project area was then presented and assessed accordingly with follow-up discussions.

In 2011/2012 all 19 projects were assessed one-by-one over several days as required and concluded with *"exhausted, frustrated and angry participants by the end of the reviews"* (Anon.2, Wildlands Executive Management, Personal Communication, September 2015, Hilton). This was due to data discrepancies, incomplete information flows, and unverified information. An approximate 18-month gap existed between CEBA reviews, one held in 2011/2012 and another in 2014/2015. The reasons shown in an excerpt from a conversation provides a brief explanation as to why this occurred, *"the review process was not feasible due to time, resource and logistical constraints, therefore the CEBA review process has progressed into a temporary archiving information process until such time it is able to resume with reasonable structured processes in place"* (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton).

The researcher then hosted the 2014/ 2015 CEBA Reviews as part of her employment at Wildlands (*Chapter Three*). This technical *monitoring* role (Mintzberg, 1973) was introduced to develop the then ‘*CEBA Framework*’ into an M&E Tool. To set the scene for discussions at the 2014/2015 CEBA reviews, the management team chose a timeframe of 10 years for a ‘future vision’ discussion of each project in the CEBA review process as it continued. Timelines became a part of the discussion to meet the needs for trend analysis in the future. All then 32 projects were “*clustered according to their geographical locations*” to reduce the time taken to review each project and assess any linkages and trends with surrounding projects (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2017, Hilton). Some form of satisfaction and uniformity was noted, “*the process is improving with every review*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, September 2016, Hilton), however the process was still in need of more systematic development.

The numerous changes in roles and conducting the CEBA review process can be attributed to a form of what Li (2007) terms managing failures and contradictions. Though Wildlands Management was not deliberately setting out to address the failures of the assemblage as a ‘whole’, it was being performed through addressing project failures and challenges in these reviews. However, participation at CEBA reviews changed three times over its evolution. The review process was changed again in 2016, “*The review structure is slightly different to how it was run last year and essentially the entire Strategic Management team is the main group sitting around the table for each review and discussing the achievements over the last year and listing priorities/objectives for the coming year, together with one or two of the key project managers who have the operational knowledge relevant to the area being reviewed*” (Anon.5, Wildlands Senior Management, Personal Communication, July 2018, Hilton). As a result, *who* attended CEBA reviews became subjective, depending on the Manager in charge of the process at any given time. Upon requesting information regarding the changes to the review processes for a third time, it was noted that decisions were undertaken by Senior management staff that the review process will be “*simpler*” with “*No formal written document*” to be produced (Anon.5, Wildlands Senior Management, Personal Communication, July 2018, Hilton). Instead, main talking points of the discussion were captured and incorporated into a review presentation together with any other suggested changes made during the review. Changes were made as it was seen by new Management that “*the need for detail is not always required*” (Anon.5, Wildlands Senior Management, Personal Communication, July 2018, Hilton).

The Wildlands CEBA Assemblage was fluid in both the virtual and material aspects. The review was seen to provide opportunities to facilitate discussions regarding what Wildlands aimed to achieve in their various programmes. A brief review of the data of each programme was favoured as it allowed Wildlands strategic management team “*to define clear/concise objectives for each year and what opportunities exist for programmes to expand or phase out accordingly*” (Anon.6, Wildlands Senior Management, Personal Communication, October 2016, Hilton). A major problem in the CEBA process was identified by (Anon.6, Wildlands Senior Management, Personal Communication, October 2016, Hilton) hosting the 2015/2016 reviews, “*The main challenge probably lies with data discrepancies*”. The layout of the review process was in constant motion along with the *who* could attend and *why*. As a result, reliable assessments of project visions, targets, resource use, return on investments and impacts on livelihoods were always questioned. The failure to manage the criteria by which each project aspect could be measured rendered the process factually unreliable. The lack of baseline indicators from historical records, no standardisation in processes, and subjective participation criteria based on the management of the review process at a given time created further inconsistencies.

Regarding the theme Organisational Culture (Section 5.2), observational analysis revealed two overall positive insights, the CEBA review process encourages team input and secondly, promotes working towards a common vision. The promotion of teamwork, more structured approaches to data management, roles and responsibilities in each project were improving as CEBA reviews progressed.

This analysis proved that although some positive impacts were made through managing CEBA project data and review processes, disadvantages persisted such as, links to project targets and overall organizational strategy. The CEBA reviews incited discussions focused on the structure of the CEBA documentation template as opposed to discussions regarding project implementation and the lack of M&E processes. The lack of discussion around divergence from project goals/ change of project plans and undertaking work outside the scope of each CEBA project created more room for more confusion. The numerous perceptions, and interpretations of CEBA and its associated evolution through socio-historical conditions are highlighted in the next section under the practice, anti-politics (Li, 2007).



## **5.5 Anti-politics**

This section describes the various interpretations of CEBA and stakeholder expectations under the themes Organisational Culture, Organisational Impacts and Stakeholder Expectations (Section 5.2). Briefly explained anti-politics refers to the reframing of political questions towards technical conversations (Li, 2007). This section is a brief discussion of how CEBA was framed and interpreted by Wildlands and various actors. I will argue that reposing socio-political and development issues into technically related workable issues made it possible to expand CEBA's reach over more geographical locations. A constant shifting of how CEBA was interpreted in accordance with socio-political movements created room for upscaling CEBA activities, but also increased ambiguities in CEBA interpretation already present. The discussion begins with an overview of the various interpretations of CEBA and includes associated expectations explored through the eyes of external stakeholders and Wildlands staff.

### **5.5.1 Interpretations of CEBA**

The upscaling of CEBA projects across geographical boundaries was driven by global movements in various environmental and climate change agenda. "What is CEBA?" A question asked by numerous role players including Wildlands Executive Management. For the purposes of this research, CEBA is characterised and defined as an adaptation assemblage (*Chapter Four*). This section examines the interpretations of CEBA as it evolved, from the perspective of stakeholders and Wildlands.

The shifts in global discourses created fluidity in the interpretation of CEBA. The packaging of CEBA as an 'Africanised' response and reposing of socio-political concerns regarding development issues led to increased buy-in from new stakeholders, expanding the Wildlands CEBA Assemblage. However, absorbing wording from global climate discourses into the organisational DNA of Wildlands created confusion and frustration surrounding varying interpretations of CEBA and served to potentially disassemble the Wildlands CEBA Assemblage. Shifting the description of CEBA required simultaneously evolving the auditing or compliance processes, however Wildlands did not include an M&E system in the planning phases of CEBA in 2011/2012, revealing a major gap in the assemblage.

Whilst variations in understanding have been noted by external parties, internal Wildlands Team members and public textual documentation, some senior level Management are under the impression that there is uniformity. Some of the platforms used to present the textual and

visual aids were Wildlands annual public publications (*Reflections*) and financial documents, websites, donor reports and conference material. Results have indicated a false sense of comfort around understanding CEBA. For example, “*it was very easy for the team to understand as it was just a way of capturing or organising what we were already doing – working with communities to improve their ecosystems to improve adaptation and mitigation*” (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). An example of ambiguity is shown in the fact that Wildlands workforce is implementing the Wildlands CEBA intervention mostly using their own understandings and definitions. Additionally, the annual *Reflections* documents of 2015, 2016, 2017 and 2018 do not mention CEBA, it was last explicitly seen or textually mentioned in this series of documents in 2014. From an assemblage thinking point of view, the appearance and disappearance of ‘CEBA wording’ and varying interpretations of CEBA threatens the validity of CEBA. It does so by introducing a level of frustration and confusion in Wildlands staff as shown in the sections above.

Historically, the evolution of CEBA took shape each year under specific socio-political circumstances. These being local government election periods where the assemblage was steered towards drought response, the RIO +20 conference ushering in stronger links to the Green Economy and the climate justice discourse and internal organisational changes. The interpretation of these materials and visuals in relation to external socio-political and environmental regimes are detailed below (Table 5.1).

Table 5.1 Interpretations of CEBA

<b>THE OBJECT</b> <b>(Dimension 1: The 'what')</b>	<b>THE PROCESS</b> <b>(Dimension 2: The 'how')</b>	<b>SOCIO-HISTORICAL CONDITIONS</b> <b>(Dimension 3: The 'relation')</b>
For the first time in 2011 CEBA is formally presented as an ‘adopted’ Conceptual framework in Wildlands <i>Reflections</i> publication (WCT, 2012:4).	Internal Wildlands decision: CEBA Philosophy was based the on RIO+20 outcomes.	Environmental Justice discourse dominated global discussions influencing the RIO+20 Conference (United Nations, 2012).
CEBA was presented as a model in a written article pre-2014 CEBA project intervention.	CSI investment: Airports Company South Africa and Wildlands relationship dictated CEBA wording.	Global platforms (Rio+20 sustainable development conference) began addressing environmental issues.
CEBA was described in the following year’s annual written publication ( <i>Reflections</i> ) as a framework and organising principle.	Donor reporting: CEBA wording changed in line with partnerships with Ezemvelo KZN Wildlife and Provincial Government.	Transition from predominantly conservation driven NGO towards climate change and socio-ecological priorities.
CEBA was still described as a framework and a monitoring and evaluation framework.	Upscaling CEBA: Project site expansion and growth extended the CEBA philosophy.	NGO’s were acknowledged at the National climate change response dialogue in November 2014.
CEBA was still viewed as a model in 2015 (Greater Good SA, 2018).	CSI investment: CEBA attracted attention from investment advisory intermediaries.	Global environmental discussions involved evaluation, SROI and the Green economy.
No mention of CEBA language in the 2017 <i>Reflections</i> publication including the Wildlands website.	Internal Wildlands decision: an organisational shift towards ocean stewardship and well-being dominated public interest.	Global climate discussions were fixed on the Paris Agreement and the rulebook for implementation.
CEBA was not mentioned in any project related contexts, only in relation to this research in the form of a bursary provision.	Internal Wildlands decision: organisational changes diverted interest away from CEBA language.	With the global rise in climate activism and interest in marine issues, Wildlands was already well positioned to attract more funding and investment.

The table above explains the way CEBA was named, the process that influenced the naming exercise and socio-political circumstances surrounding the process. The words used to describe the Wildlands CEBA Assemblage, when extracted from the table above, are as follows: *Model, Conceptual Framework, Philosophical Construct, Organising principle, Adaptation Tool, Framework and Monitoring and Evaluation framework*. These seven different descriptions and interpretations of the CEBA intervention have been uncovered, escalating to eight with the addition of this research (*Adaptation Assemblage*). Findings show that the assemblage was plagued by variation, confusion, uncertainty, and ambiguity from the inception phases through to review processes, enabling potential fractures in the assemblage. Definition and interpretation issues remain unresolved, yet the operational element of the assemblage (material axis) was subsequently scaled up and project activities under the CEBA Philosophy were introduced to other geographical locations as shown above in Section 5.3.

Constantly shifting the organisational understanding and meaning of CEBA, culminated in numerous understandings of how CEBA was implemented. This was useful for Wildlands because reframing CEBA allowed Wildlands to constantly shift CEBA implementation practices to suit the needs of donors. At the same time donor expectations regarding reporting allowed Wildlands to avoid conversations regarding the lack of an M&E system. Instead, donor reports were used to fill this gap.

In 2020 under new leadership - donor agencies made a global call for feedback reports to include evidence-based information through verified M&E practices. An organisational introspection exercise at Wildlands and a change in leadership allowed the reinstating of a CEBA definition and M&E system discussion without causing any immediate disruptions to project implementation. The new CEO of Wildlands (2020) stated, “*M&E changes the way we report, we started using the Poverty Stoplight tool and defined what a ‘True CEBA’ means*”. The CEO also stated that “*Funders also want to see the ‘sexy words’ and CEBA was not ‘sexy’ anymore*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). CEBA was reframed to encompass and articulate the work being undertaken in all Wildlands workstreams. In the words of the new CEO, “*A true CEBA is one that considers ecological restoration, the biodiversity economy and sustainable communities*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). While project activities remained the same under the CEBA domain, donor demands and movements in global climate discourses shifted Wildlands wording to reflect words that appealed more to donors such as restoration and sustainable. The

renaming of CEBA also “*gave some direction to the staff*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton)

In the 2011/2012 CEBA project period, the proposed Policy directives for African countries driven by the RIO +20 Conference specifically urged African nations to place emphasis on Institutional growth. This type of growth was viewed in the form of developing frameworks to reduce poverty and increase the achievement of environmental goals. CEBA was introduced at a time where Wildlands began the search for a more theoretical ideology to fit the work implemented on-the-ground, as the Rio+20 conference placed adaptation in the spotlight. Additionally, Wildlands was seen as a powerful and stable organisation to invest in, since it boasted a ‘*CEBA model*’ where innovative solutions can be found to deal with complex socio-ecological problems. At this time Wildlands also became an NGO with the largest geographical footprint in South Africa modelling all project work on the CEBA philosophy (WCT, 2012; 2013). Wildlands opportunistically placed CEBA as an “*Africanised*” approach to development (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton).

The reposing of developmental concerns to specifically be dealt with under the banner of an *Africanised* socio-ecological approach (CEBA) propelled the upscaling of CEBA. In 2012, Airports Company South Africa (2018: par. 1) positioned themselves as taking responsibility for their environmental footprint and emphasising their compliance to global and local standards “beyond operational considerations” through supporting CEBA project activities. In this example CEBA was used by Airports Company South Africa to break down a globally contentious issue, that is, ecological and carbon footprints into a technical and solvable issue. Referring to Kaufman (2021), carbon footprints borne out of ecological footprints was strategically used by fossil-fuel driven companies to shift responsibility of pollution from the company to the consumer. In 2012, Airports Company South Africa used CEBA as the platform to shift focus from the company’s daily tasks and instead placed it on how the company was assisting in solving the poverty crisis in South Africa and lessening the socio-ecological burden we collectively bear.

Wildlands equally gained from the partnership by using the outcomes of CEBA project activities in conjunction with green economy imperatives, to fuel the expansion of the Wildlands CEBA Assemblage.

As the footprint of the Wildlands CEBA Assemblage began expanding, the description of CEBA as a model was presented as a ‘holistic solution’ to environmental and social issues through financial and investment discussions at a time where Social Return on Investments (SROI) and sustainability reporting were becoming a real part of funding equations globally (UNEP (2011)). From a relational perspective, the linguistic and textual messaging of CEBA as a model by a known and trusted independent evaluation organisation, created comfort around the CEBA model, able to incite impactful ‘green economy’ outcomes (Greater Good SA, 2020). Wildlands also reflected their 2015/2016 financial year was spent specifically aligning with green economy imperatives at least three times in their 2016 *Reflections* document (WCT, 2016).

The 2017/2018 discussions temporarily diverted attention from the CBA-EBA and green economy imperatives and introduced new discussion items such as the ‘Blue Economy’ – a ‘deep-dive’ into ocean and marine health. During this period, South Africa also experienced one of its worst drought-related periods subsequently affecting project activities under the Wildlands CEBA Assemblage. Additionally, a downsizing of the wastepreneur project activities occurred and consequently also required attention (Thakur, 2018). The following year involved a reduction in the Wildlands footprint from 60 to 46 community projects across six provinces due to the non-renewal of funding streams, nevertheless still a steady expansion of the Wildlands CEBA Assemblage (WILDTRUST, 2019). Material shifts in the Wildlands CEBA Assemblage such as changes in Executive management took place after 19 years, followed by a pragmatic introspection exercise at Wildlands. As discussed above these changes incited new CEBA definition (True CEBA) and M&E discussions. CEBA expanded further across South Africa contributing to the expansion of 20 new Marine Protected Areas declared by South Africa’s Cabinet in April 2019 through its Wildlands Oceans Programme (Wildtrust, 2019:7).

Noting the interest in the expanding Wildlands CEBA Assemblage and varied interpretations of CEBA, stakeholder expectations became a point of consideration. The upscaling of CEBA activities were also influenced by stakeholder engagements, discussed in the next section.

### 5.5.2 Stakeholders and organisational culture

Stakeholder expectations are briefly explored in this section detailing both realistic and unrealistic expectations. This discussion is related to the Organisational Culture theme listed in section 5.2. exploring shared and individual insights related to the culture of the organisation.

Referring to Li's (2007) practice forging alignments in *Chapter Four*, Wildlands long community-conservation history placed the organisation in an advantageous space as noted by Wildlands CEO (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton), "*Wildlands did not follow any stakeholder process or convince municipalities to adopt the CEBA Operational Framework as the implementation occurred in already established community project sites*". However, with the rhizomatic expansion of CEBA, "*Wildlands was forced to rethink their approach*" to gaining buy-in from new communities and municipalities following 'word-of-mouth' conversations between neighbouring communities (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). In that regard, Wildlands reposed and packaged socio-ecological and developmental challenges to set the stage for the presentation of CEBA as a holistic solution to poverty related issues with an attached conservation element. An eThekweni Municipal Manager (Anon.14, Senior Manager, eThekweni Municipality, December 2016, Durban) reiterated that buying into CEBA from a political and donor standpoint meant "*buying into addressing socio-economic development, poverty alleviation and addressing Green Economy principles*" which was a lucrative 'packaged' approach to deal with climate change issues at varying levels. Additionally, another response indicated that politicians and communities did not 'buy into' CEBA but instead stated that, "*Donors bought into the concept of getting funds directly to communities and could see the impact of their donations. CEBA just made it clear and joined the dots*" (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton).

Long-standing partnerships with donors established trust and hence further working opportunities. However, the Wildlands CEBA Assemblage was beholden to outside funding shown by this response, "*Matching funding opportunities will dictate where we work at this time...*" (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton). Furthermore, a Wildlands senior management member (Anon.19, Wildlands Senior Management, Personal Communication, March 2018, Hilton) noted, "*the requirements of the funding institution may not adhere to the activities related directly to the CEBA framework which either translates into losing the interest of the funder or losing the essence of the project. It often becomes a juggle of trying to meet the conditions of one or the other instead of the*

*requirements of the specific project*". Linking back to managing failures and contradictions, While the pouring in of funds aided in the upscaling of the Wildlands CEBA Assemblage findings suggested the culture of the organisation became subservient to donor requirements and global environmental changes, for the survival of the organisation and ultimately the upscaling of the Wildlands CEBA Assemblage.

Widespread interest regarding CEBA began taking centre stage with the success of Durban's project sites and so too did the pouring in of funding. Wildlands obliged with rapid implementation and upscaling of CEBA activities with the increase in project sites from 19 to 32 (Figure 5.3). Just as is the nature of the rhizome to expand laterally with no end or beginning, new CEBA project sites 'sprouted' without previous connection to one another (Deleuze & Guattari, 1987), and ultimately absorbed into the Wildlands CEBA Assemblage. On one hand, responses show the fluidity of the Wildlands CEBA Assemblage as a flexible mechanism with expectation to deliver. On the other hand, *"Teams were working in silos and were missing the cohesions that were possible"* according to a Wildlands executive management member (Anon.4, Wildlands Executive Management, Personal Communication, June 2018, Hilton), and little was done to remedy the situation due to heavy workloads.

While the assemblage remained intact, community participants began losing interest in CEBA project activities whilst others expressed frustration and anger towards the organisation as expressed by participants, *"Things came to a standstill, no good communication ever"* (P.49, Interview, September 2016, Edendale) and *"Now discouraged, trees eventually die when not collected on time, Facilitators who stopped working and never replaced, prefer vouchers, not happy with hampers"* (P.40, Interview, October 2016, Sweetwaters). Furthermore, findings indicated the long-standing 'go-with-the-flow' organisational culture threatened the disassembling of the Wildlands CEBA Assemblage. One team member stated, *"as is Wildlands culture I do not think there was an obvious strategy in place for implementation. Instructions are given to 'do' and the field and other departments do everything possible to implement. I think CEBA was done in the same manner"* (Anon.4, Wildlands Executive Management, Personal Communication, June 2018, Hilton).

From the five thematic themes presented, this research inquiry focused on Organisational Rules, Culture of the Organisation and Stakeholder expectations. These themes presented significant amounts of ambiguity and uncertainty to the operational elements of implementing the Wildlands CEBA Assemblage through the upscaling of CEBA. Linking this with the need



to access funding, Wildlands pursued the ever-changing climate discourse landscape to acquire on-going funding. The fluid nature of the assemblage suited the funding needs of Wildlands but did not positively affect the workforce with the same impetus. In this regard, relations of exteriority and interiority were used to explain the complex relational dynamics between the discursive and material elements of CEBA. Operational Activities and Organisational Impacts were considered throughout this chapter as overarching elements in the discussion. A conclusion to this chapter is presented below.

## **5.6 Conclusion**

This chapter analysed the data collected with the aim to explore the upscaling of the Wildlands CEBA Assemblage. From its inception in 2011 to 2020, the Wildlands CEBA Assemblage upscaled in part due to relationships of interiority and exteriority, and practices of anti-politics and managing failures and contradictions (Li, 2007; Delanda, 2006).

The previous chapter focused on the evolution of the Wildlands CEBA Assemblage based on ad-hoc and coincidental relationships mainstreaming the adaptation agenda and demonstrating the combined CBA and EBA response to poverty reduction and ecosystem preservation within the eThekweni Municipality. In this chapter, I argued that linkages between the virtual and material axes of the Wildlands CEBA Assemblage aided in the upscaling of CEBA. Findings in this chapter revealed both positive and negative accounts. Positive findings indicated that relations of exteriority worked to expand the assemblage through a fluid CEBA interpretation. It was also shown that though CEBA was fluid in its interpretation, the assemblage remained intact. For relations of exteriority, the upscaling of the Wildlands CEBA Assemblage was closely aligned to discursive shifts in global environmental regimes and discourses (Green Economy).

In this chapter, managing aspects of failures in scaling up CEBA were achieved through CEBA review and documentation processes, however they remain a work-in-progress alongside managerial roles. Funding challenges and donor pressures pushed the Wildlands CEBA Assemblage into a net of communication shortcomings between different levels of management, confusion, ambiguity and 'definition overload'. The lack of definitions and concepts in earlier years in the Wildlands CEBA Assemblage coupled with partially functional managerial roles in the project cycle rendered the assemblage weak in some areas of functionality. Challenges were noted regarding varying interpretations of CEBA, stakeholder expectations and a lack of organisational development alongside the upscaling of CEBA

project implementation activities. Overall, ambiguity in definitions and confusion around decision-making were noted in the responses of the organisation's management echelon.

The results provided throughout this chapter have further aligned this research with the complexity climate change discourse as complex realities, presence of uncertainty and ambiguity were emphasised throughout the scaling-up of the Wildlands CEBA Assemblage. The findings also revealed that people involved in the management of integrated CBA-EBA adaptation interventions are not always in control of how the consequences that arise from an upscaled intervention ridden with multiple layers of complexity. The exponential rhizomatic expansion of the Wildlands CEBA Assemblage did not include the same level of focus on the workplace culture, to the detriment of a frustrated workforce as noted. Moreover, the Wildlands CEBA Assemblage was tabled at a time when the UNFCCC COP 17 demanded tangible actions from South Africa, indicating rapid movement for evidence-based knowledge in the adaptation discourse (*Chapter Four*). However, despite these challenges, the Wildlands CEBA Assemblage was indeed upscaled. Reliance on global environmental movements rendered the Wildlands CEBA Assemblage fluid in nature, allowing the elicitation of funding from various sources. In turn this allowed different CEBA activities to come online as per available funding and donations, increasing Wildlands footprint and ultimately the Wildlands CEBA Assemblage. The reliance on donor funding to maintain such scaled-up activities is still a driving force behind what gets implemented, by whom, how and at what pace.

Developing partnerships, securing funding, and ensuring project delivery was favoured over effective communication, knowledge dissemination through the management and sub-ordinate chain. This was partly due to financial growth that forced Wildlands as an organisation into operating as a corporate instead of retaining the functionality of an NGO. Islam (2006) draws attention to the dependence of NGOs on donor funding. This places more emphasises on 'doing' and less emphasis on organisational planning, increasing ambiguity and uncertainty in the process. This meant that the organisation failed to explore and define managerial roles in context of achieving long-term results and extended successes for achieving the CEBA philosophy under this new organisational functionality.

Frameworks with practical guidance from on-the-ground project implementation, are considered winning combinations in the search for implementable adaptation interventions with poverty reduction and environmental conservation imperatives (Thiam, 2012). The African Adaptation Initiative launched at COP 21, pointed out that replicating and scaling up

adaptation interventions has proven to be a difficult undertaking (AAI, 2016; Dada, 2018). Despite the challenges noted in this chapter, Wildlands embarked on a bold undertaking of piloting an integrated CBA-EBA adaptation intervention, going on to scale up the intervention to a formidable size. The rhizomatic expansion of the Wildlands CEBA Assemblage also accomplished in part, reducing poverty, and achieving environmental conservation. Chapters six and seven provide new evidence-based information towards the multiple lines of interconnections, fluidity, and exchangeability existent in the Wildlands CEBA Assemblage alongside impactful socio-ecological outcomes. The next chapter advances the arguments of this chapter detailing the rhizomatic expansion of the Wildlands CEBA Assemblage through processes of territorialisation and deterritorialization.

## **6. RHIZOMATIC ASSEMBLAGE: IMPLEMENTING AND TERRITORIALISING ADAPTATION IN THREE CEBA CLUSTERS**

### **6.1 Introduction**

The scaling up and expansion of the Wildlands CEBA Assemblage was achieved across the South African landscape in a rhizomatic fashion. As seen in the previous chapter, the macro-issues (global climate discourses, politics, and funding institutions) on the virtual axis of the assemblage influenced Wildlands leadership and decision-making at the executive levels. On the other hand, the material axis is where operationalising the CEBA philosophy and upscaling the Wildlands CEBA Assemblage took shape through relationships of interiority and exteriority (*Chapter Five*). This chapter progresses this argument and explains the rhizomatic expansion of the Wildlands CEBA Assemblage through Delanda's (2016) interpretation of territorialisation and deterritorialization, coding and decoding (Ball, 2018). Coded aspects referred to parts of the assemblage that worked towards keeping the assemblage intact, while the decoded aspects began creating fractures in the assemblage, like the confusing interpretations of CEBA. Aspects of coding and decoding, and territorialisation and deterritorialization are explained further in this chapter.

New CEBA project sites across South Africa were territorialised as CEBA project activities were introduced as part and parcel of local efforts to 'green' communities. The territorialisation of new CEBA project sites occurred through both direct Wildlands intervention and word-of-mouth conversations between neighbouring communities. Direct intervention included Wildlands physically visiting potential project sites. The findings in this chapter afford the opportunity to draw local level insights from an integrated climate change adaptation intervention, the Wildlands CEBA Assemblage.

The chapter also expands on project implementation insights, shocks, stresses, and social vulnerabilities experienced by community participants. Exploring the implementation of CEBA projects aids in understanding the complex realities faced by participating communities and the territorialisation of the assemblage. The importance of inter-relationships between communities, their ecosystems, and Green Economy objectives (job creation, poverty reduction and ecosystem well-being) were noted (UNEP, 2011). UNEP (2011:2) defined green economy as "an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities", remaining the most cited

definition to date and used in this study. At the same time, Adger and Kelly's (1999) definition of social vulnerability is also used for interpretation of the results in the research.

The chapter consists of two parts, the first detailing the description of the Territorialisation and Deterritorialization of the Wildlands CEBA Assemblage, and the second, highlighting the shared shocks, stresses and the social vulnerabilities faced by each case study community (Ball, 2018; Delanda, 2016; Li, 2007). Throughout the chapter the discussion moves back and forth between the virtual and material axes of the assemblage to facilitate an understanding of the coded and decoded processes responsible for the rhizomatic expansion of the Wildlands CEBA Assemblage. In the following section, the CEBA Analysis Framework is briefly explained in the context of this chapter, and (de) territorialisation and (de) coding.

## **6.2 The CEBA Analysis Framework**

In this chapter the CEBA Analysis Framework is used to describe the processes of territorialisation and deterritorialization of the Wildlands CEBA Assemblage, as well as the application of aspects of coding and decoding. Delanda (2016:22) refers to coding as a “fixing of the whole”, in other words, the factors and influences that give the Wildlands CEBA Assemblage impetus and identity. The visible pieces of the heuristic framework are being applied in the context of this chapter (Figure 6.1).

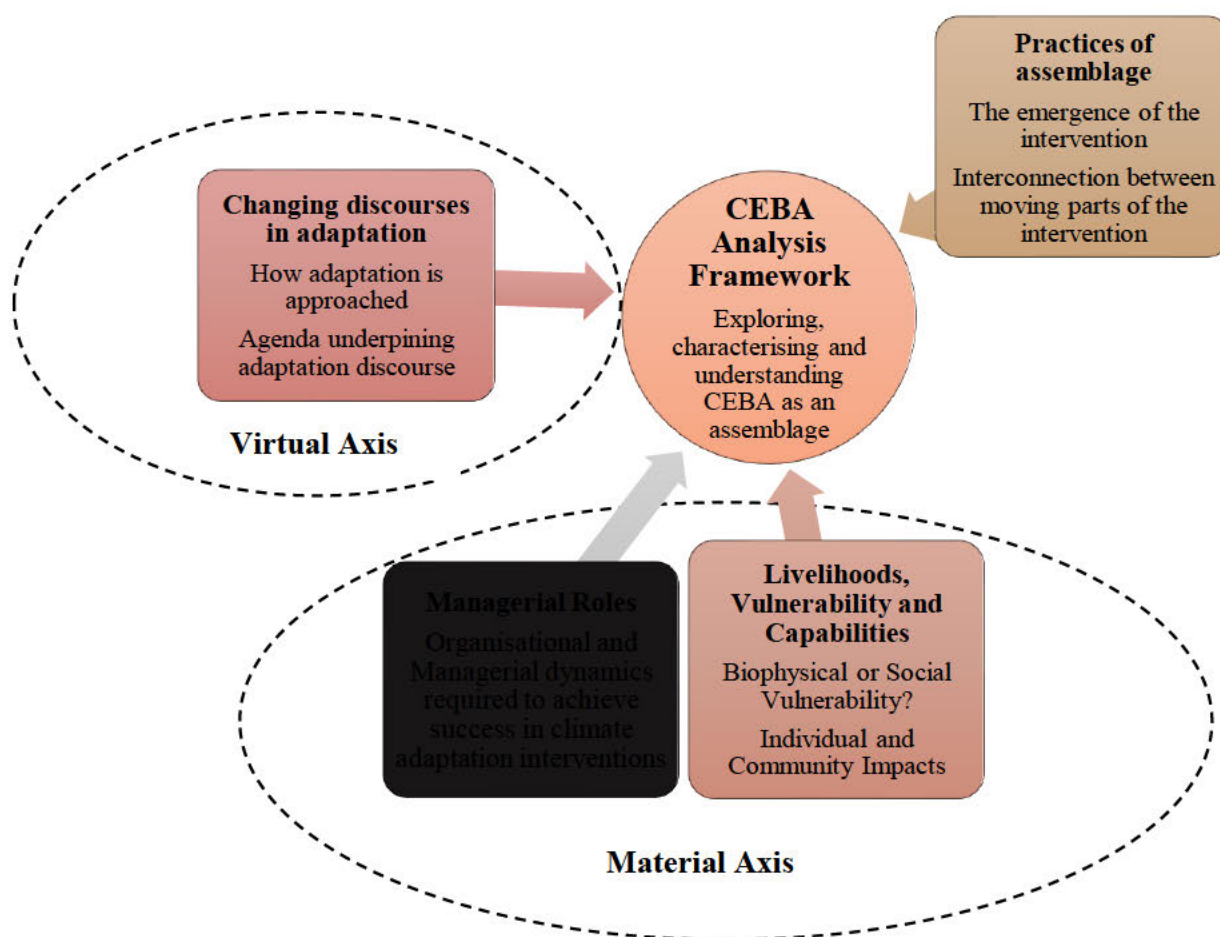


Figure 6.1 CEBA Analysis Framework: Implementing and Territorialising adaptation

Decoding, on the other hand, influences the process of deterritorialization where ‘parts of the whole’ tend to become weak and fractured resulting in the collapsing of parts of the assemblage, if not the collapse of the assemblage itself (Ball, 2018; Delanda, 2016; Li, 2007). Decoding and Deterritorialization are inherently different processes as is coding and territorialisation. Deterritorialization is specific to describing territories even in the absence of aspects related to decoding, the same applies to territorialisation and coding. In the context of this study, (de)coding is used to explain processes that act for or against the stability of the assemblage, potentially causing territories to engage or disengage from the assemblage resulting in (de)territorialization. Delanda (2016) includes recoding and reterritorialization as aspects of the territorialisation process, however this aspect was not observed in the rhizomatic expansion of the Wildlands CEBA Assemblage, and therefore does not apply to this study.

As argued the coding of the Wildlands CEBA Assemblage included the practices of assemblage described in *Chapter Four*, the participating community members who championed the existence and rhizomatic expansion of the Wildlands CEBA Assemblage, influential climate discourses and the numerous global environmental regimes described in *Chapter Five*. The aspects of the Wildlands CEBA Assemblage argued as destabilising or decoding the assemblage include the lack of an M&E system, ambiguity, and uncertainty in defining CEBA, a confused workforce, donor funded expectations and, disgruntled participating community members.

The first part of the chapter describes the processes regarding the rhizomatic territorialisation of the study sites and the aspects that contributed to it. The discussion begins with a historical graphical view of the territorialisation process in chronological order. This part also includes a closer look into each study community reflecting on community resources and site observations. The case study site analysis is presented through in-depth descriptions of each study site including maps, observational analysis, CEBA project activities and community resources analysis.

The second part of the chapter entails a brief explanation of the CEBA Analysis Framework at work regarding the exploration of the shared community shocks and stresses as well as the social vulnerabilities experienced in the Wildlands CEBA Assemblage. Aspects of Scoones’ (1998) Sustainable Livelihoods Framework and Sen’s (1979) Capability Approach were applied to each CEBA case study community to explore any immediate shocks and stresses to a person’s livelihood because of climate change effects. Scoones (1998) definition of a stress and a shock was used in the analysis of the data (*Chapter Two*). Assessing the extent of the

social vulnerabilities experienced was reflected through lack of income and unemployment supported by the direct responses received from community project participants. Shared shocks and stresses and social vulnerabilities experienced per study site we also noted through participant responses.

Two sets of information were collected, the first included surrounding community resources and second, project related data. Information was thematically analysed, and data was captured and analysed in Microsoft Excel, accompanied by graphs and pivot tables (*Chapter Three*). Through the collective use of the graphs and the qualitative responses received, ‘Derived Themes’ tables were generated for both sets of the information presented in this chapter (see also Appendices 12 & 13). The discussion begins with the rhizomatic territorialisation of the Wildlands CEBA Assemblage.

### **6.3 Part one: Rhizomatic Territorialisation of the Wildlands CEBA Assemblage**

Territorialisation in the Wildlands CEBA Assemblage materialised through the drawing together of various heterogeneous elements. I will argue this was done in a rhizomatic fashion (Figure .6.2).



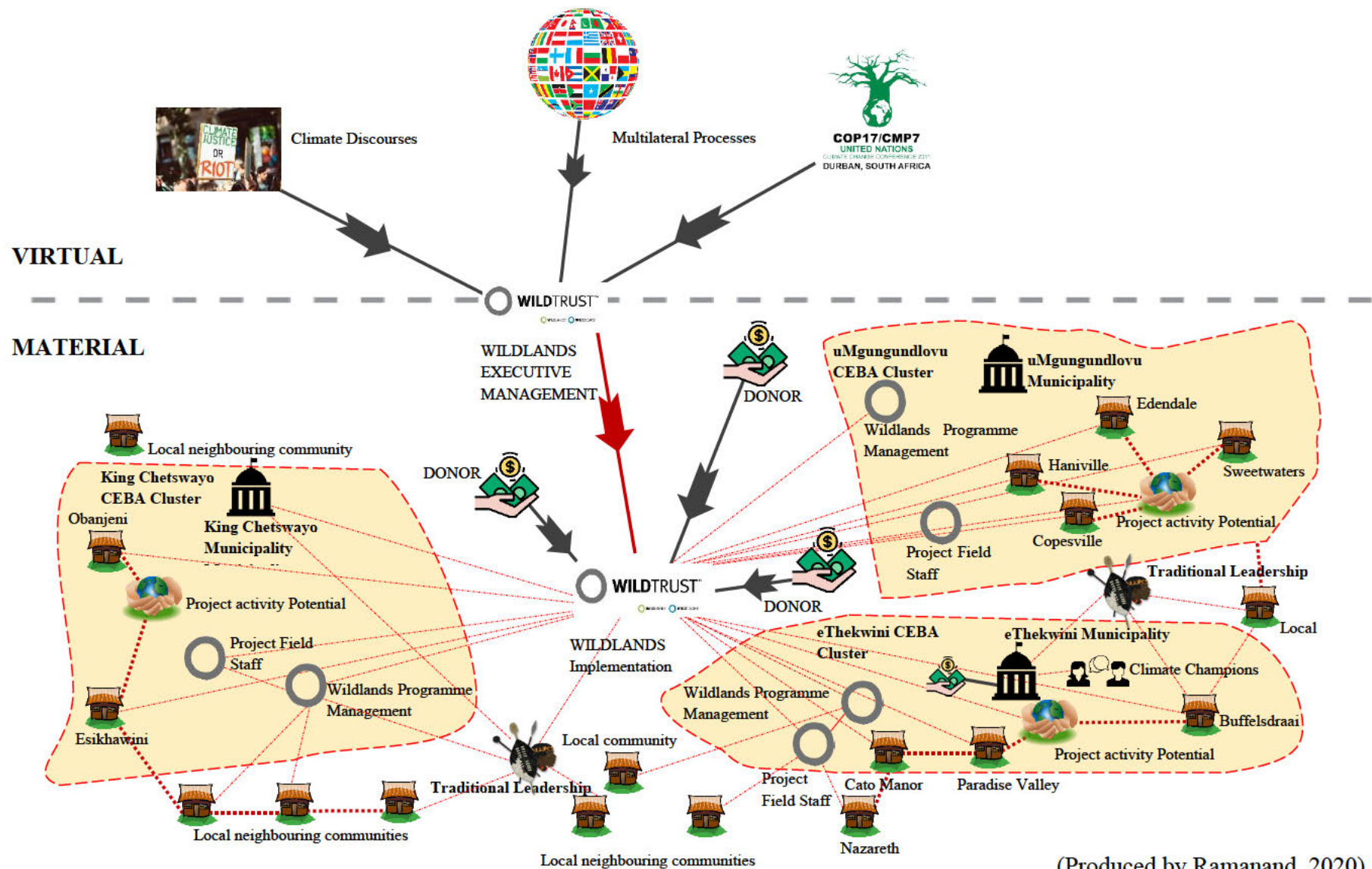


Figure 6.2 A Rhizomatic and Territorialised Wildlands CEBA Assemblage

I reveal and illustrate two interconnected axes of influence in the figure above, termed the virtual and material axes. Regarding the virtual axis, the macro-influences, in the form of climate change discourses, global environmental regimes, and executive organisational management is presented. The material axis describes the nature of the Wildlands CEBA Assemblage expansion through actor relationships, donor funding demands, CEBA ‘project activity potential’<sup>39</sup> and widespread non-linear interest by local communities and traditional authorities. It is between the virtual and material axes of the Assemblage where Wildlands Executive Management is placed illustrating the fusing of the heterogeneous human and non-human aspects within the assemblage. The diagram highlights how knowledge and resources were ‘authorised’ through the virtual axis and mobilised from Wildlands or donors to project communities in the material axis (Li, 2007).

Recalling Deleuze and Guattari (1987) the rhizome is an anti-stratified and continuous open system, without a beginning or end, unlike arboreal systems. The empirical evidence received from communities involved in the Wildland CEBA Assemblage, also supports the notion that project processes and implementation were not always initiated by Wildlands senior or project staff in a linear or hierarchical manner like arborescent structures. News of project activities and associated livelihood supplementary incentives (see *Chapter Seven*) travelled between local communities rhizomatically, resulting in the initiation of some CEBA projects through communities contacting Wildlands management and not vice versa. Some community responses revealed that already participating community members “*encourages others to join*” through word-of-mouth and “*Youth are willing to join now in order to make a living*” through observation of project benefits (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjeni). On the other hand, aspects of decoding also surfaced as part of the processes involved in the Wildlands CEBA Assemblage.

The Wildlands CEBA Assemblage territorialised numerous geographical and community boundaries around South Africa. Direct communication, word-of-mouth conversations, increased donor interest and the socio-ecological connectivity claim of CEBA facilitated the expansion of the assemblage. As stated in *Chapter Four*, CEBA was first piloted in the eThekweni municipality, followed by implementation in several others including King

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<sup>39</sup> An assessment of community’s appetites to get involved in CEBA, areas requiring greening and amount of waste available for recycling activities.

Chetswayo and uMgungundlovu. Wildlands initial steps involved contacting communities and scouting the landscape for project activity potential leveraging off already established relationships with local municipalities and communities. The initial expansion of the assemblage was attributed to two factors. The first was previous tree propagation, planting and recycling activities in various municipalities and second, through direct communication between Wildlands and project communities. These are described in numerous stakeholder accounts cited in Wildlands 2012 annual *Reflections* publication and detailed below.

Regarding the rhizomatic expansion and territorialisation of the Wildlands CEBA Assemblage, Wildlands tree propagation activities began in the King Chetswayo District, followed by eThekweni and thereafter uMgungundlovu (WCT, 2012; Wildlands Data Dashboards 2011-2017). The first aspect influencing the rhizomatic expansion of the Wildlands CEBA Assemblage involves previous tree propagation and planting activities in the King Chetswayo and uMgungundlovu municipalities, respectively. In the King Chetswayo district, tree propagation activities were introduced by Wildlands prior to the CEBA concept, but also spread through word-of-mouth conversations mostly amongst younger people, as many households were headed by teenagers. These conversations aligned with Wildlands CEBA philosophy of creating sustainable communities as they facilitated increased participation in CEBA projects. The expansion of these activities was also due to young participants requesting help from their siblings, thus inspiring the participation of more Trepreneurs in Esikhawini.

In neighbouring communities such as Khula village, outside the bounds of Esikhawini, women heard about tree propagation project activities through existing trepreneurs from Esikhawini.<sup>40</sup> These women explained that existing older female trepreneurs who described themselves as breadwinners inspired other female breadwinners from neighbouring communities to join these Wildlands projects. School going children also regurgitated to their parents what they were told in school regarding these project activities, inspired by donor visits to project areas, such as Unilever. Later, these activities were absorbed into the CEBA ambit. The Wildlands CEBA Assemblage also expanded because of activities occurring outside the bounds of the study areas, contributing to its rhizomatic expansion.

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<sup>40</sup> The distance between Khula village and Esikhawini is approximately 90 kilometres and 1 hour travel time, participants indicated they relate to the village as a 'neighbour' despite the distance.

In uMgungundlovu, Wildlands worked on priority conservation issues with Ezemvelo KZN Wildlife, and a local well-known family since 2009.<sup>41</sup> Recycling activities were only introduced to the greater Howick and Midlands area in 2011/2012 and later to the Pietermaritzburg and surrounding areas. Community participant accounts also revealed CEBA project activities (tree propagation and recycling collection) were a direct result of word-of-mouth conversation between community members (WCT, 2012). Some women learned about CEBA tree propagation project activities through their spouses in the uMsunduzi area of the district. The uMsunduzi CEBA project occupied the largest CEBA footprint regarding variety of project activities.<sup>42</sup>

The rhizomatic expansion of the Wildlands CEBA Assemblage in the eThekweni municipality can be attributed to Wildlands direct communication with the community. eThekweni took a lead role on championing the climate change agenda made it possible to pilot the CEBA concept in Durban. Wildlands subsequently introduced tree planting activities to the Osindisweni, Ndwedwe, Buffelsdraai and KwaMashu communities through stakeholder engagement processes prior to the formalisation of CEBA as Wildlands organisational philosophy. Thereafter other surrounding communities such as the Inanda Mountain and Umbilo communities were communicated with and involved through a contract between Wildlands and eThekweni.

New and existing partnerships<sup>43</sup> also played a role in furthering the Wildlands CEBA Assemblage across South Africa. One partnership involved Wildlands in the Regional Implementation Team of the Critical Ecosystems Partnership Fund for the Maputaland-Pondoland-Albany Hotspots. This ensured deliberate expansion of Wildlands project activities. Additionally, the exponential organisational growth of Wildlands in 2011/2012 as described in *Chapter Five*, revealed the presentation of the new Wildlands vision, “A sustainable future for all” followed by an increase in financial funding and staff complement (WCT, 2012:4). Around the same time, CEBA was formally adopted as Wildlands organisational *model* for all projects, claiming to highlight the interconnectivity between ecosystems and the communities that depend on them. This formalised adoption then led to a rapid expansion of 32 CEBA project

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<sup>41</sup> The family is unnamed and sole owners of a private conservation territory in uMgungundlovu District.

<sup>42</sup> Tree-preneurs, Waste-preneurs, Food-preneurs, Bike-preneurs and recycling activities spread across virtually every community in the uMsunduzi catchment.

<sup>43</sup> KwaZulu-Natal Provincial Government, including the Office of the Premier, Department of Public Works, Department of Agriculture and Environmental Affairs, Business South Africa and Donors.

sites. Like the growth of a literal rhizome, the expansion of the Wildlands CEBA Assemblage initially began through Wildlands intervention but slowly progressed. The assemblage is deemed rhizomatic due the self-replicating nature of expansion, facilitated through community conversations, stakeholder interest and partnerships in different communities at different time periods. In keeping with the rhizomatic expansion of the Wildlands CEBA Assemblage, a brief description of the coded and decoded aspects involved in territorialisation and deterritorialization are discussed further.

### *Coding and Territorialisation*

The scaling up of the assemblage was elevated through processes of coding and territorialisation, changing project communities into ‘places of adaptation’. In previous chapters Li’s (2007) practices of assemblage (*Chapter Four*) and influential climate discourses and numerous global environmental regimes (*Chapter Five*) were explored. Additionally, relationships of exteriority and interiority (*Chapter Five*) were highlighted as key components to scaling up and driving the Wildlands CEBA Assemblage forward. Progressing this argument, aspects of coding (explained further below) were involved in further territorialising new geographic locations and communities.

In one aspect of coding, the constant need for donor funding drove Wildlands to keep abreast of all global climate change discourses and decisions. This rendered the Wildlands CEBA Assemblage flexible and fluid, coding the necessary wording and language into its DNA at any given point in time, as necessary. Additionally, Li’s practices of assemblage, forging alignments, authorising knowledge, and managing risks and contradictions were at the forefront of launching the Wildlands CEBA Assemblage as a sizeable integrated adaptation intervention. In doing so, the coding of the assemblage became more entrenched among influential actors (local leaders, Wildlands, participating communities, and donor entities). One response from a Wildlands executive board member noted, “*Addressing the socio-economic divide between the affluent and the poverty-stricken, is an objective for many government departments, and by association, their leaders. The Wildlands brands are each built on innovation and synergy and that appeals to officials and leaders*” (Anon.18, Wildlands Board, Personal Communication, June 2017, Durban). These aspects ensured working outside channels of bureaucratic rules and considering dynamic interrelations among communities and environmental factors. Li’s (2007) practices of assemblage played a significant coding role in

knitting together meaningful socio-ecological solutions to local development challenges. Evidence related to increasing the attractiveness of CEBA can be seen in a response given by Wildlands CEO, *“On one extreme is our ability to create large scale employment. This is attractive for those in the Expanded Public Works Portfolios. On the other extreme is our environmental impact offer”* (Dr R. Kloppers, Wildlands CEO, Personal Communication, June 2017, Hilton). These lucrative coded aspects created a pathway for gaining the interest of stakeholders and establishing the Wildlands CEBA Assemblage in more than one geographical location.

Regarding participating community members, local communities already involved in CEBA project activities communicated with curious neighbours from surrounding communities on how they could participate in these project ventures, noted by responses received such as *“Helped family and neighbours make homes better”* (P.21, Interview, September 2016, Buffelsdraai). This served as an indication of how the CEBA project activities were eliciting attention and forging further alignments between participating community members and new potential participating community members by ‘word-of-mouth’ conversations. Conversations such as these (between neighbours) gave rise to interest by other community members resulting in the rhizomatic expansion of CEBA project activities. Again, acting as a coded aspect of the Wildlands CEBA Assemblage.

#### *Tensions between decoding and Deterritorialization and, recoding and Reterritorialization*

Though the Wildlands CEBA Assemblage never collapsed in totality (Li, 2007), it was faced with several challenging aspects threatening the ‘decoding’ of the assemblage. The lack of an M&E system, ambiguity, and uncertainty in defining CEBA, a confused workforce, donor funded expectations, a dwindling wastepreneur operation and, disgruntled participating community members were noted as potential deterritorialising threats to the assemblage. According to the CEO some failing CEBA projects were not due to the loss of community interest or lack of M&E as was the case in the three study districts, but rather an executive decision to halt projects as donor visions did not align with CEBA philosophy. As stated, *“It was rather a case that we found ourselves working in a specific community realising that the CEBA framework does not apply. The project was not about adaptation or restoring a local ecosystem. It was a greening project. This probably caused confusion for the community and*

*us and hence the decision to halt projects that did not uphold the idea of helping community adaptation”* (Dr R. Kloppers, Wildlands CEO, Personal Communication, July 2021, Hilton).

One of the most significant decoding oversights was not developing an M&E system for data archiving and project evaluation. As noted in *Chapter Five*, several separate working definitions of CEBA confused both the office and field-based staff in their daily operations. It also led to confusion and a false sense of uniformity in the implementing organisation. Additionally, the differences in definitions, CEBA review custodianship and associated changes decoded aspects of data management to the extent that external partners (eThekweni Municipality) were left without robust project datasets. Although the Wildlands CEBA Assemblage did not collapse under these decoded aspects, the challenges regarding the wastepreneur operations stripped off a part of the Wildlands CEBA Assemblage and left hundreds of impoverished community members without supplemental livelihood security. The stripping-off act led to the loss of donor entities and non-participation of thousands of community members in CEBA recycling activities, leaving large geographical areas of the assemblage non-functioning. It must be noted that the decoding effects such as the lack of an M&E system, uncertainty in defining CEBA and a dwindling wastepreneur operation, also extended beyond Wildlands to local municipal factors and weak waste markets (Thakur, 2018). However, this could be interpreted as a maladaptive result of the Wildlands CEBA Assemblage. Though the wastepreneur operations are not discussed in detail in this research, the effects of these operations played a decoding role towards deterritorialising communities from the Wildlands CEBA Assemblage.

In 2019, the ‘true CEBA’ definition and influence of M&E discussions were “*reopened*” signifying the opening of ‘old lines’ of conversation in the Wildlands CEBA Assemblage (Dr R. Kloppers, Wildlands CEO, Personal Communication, February 2020, Hilton). Pressure from international donors resulting from changes in global environmental regimes influenced the revival of old ‘parts’ within the Wildlands CEBA Assemblage, in the form of a definition and M&E discussion. As described in the previous chapter, donor reporting requirements pushed Wildlands to rethink their position on the lack of M&E in project processes, resulting in opening definition discussions. A pivotal response from the ex-CEO of Wildlands stated, “*resilience is also about flexibility and the need to reinvent*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2020, Hilton), two key components of assemblage thinking as proposed by Deleuze and Guattari (1987). Both aspects were directly influenced by donor expectations and proceeded to influence Wildlands towards the process of re-thinking

CEBA as “*global donors now require tracking and proof*” resulting in more “*systematic donor reporting*” and data archiving (Dr R. Kloppers, Wildlands CEO, Personal Communication, February 2020, Hilton). The changes in global decision-making regarding project monitoring and evaluation is seen as a form of ‘recoding’. While the re-thinking of CEBA posed as a reassembling of Wildlands thought processes it did not influence on-the-ground territory changes in the Wildlands CEBA Assemblage (Li, 2007).

The Wildlands CEBA Assemblage is rhizomatic in nature, territorialising new areas in its path and steadily holding onto others. To understand each case study community more closely the next section focuses on the descriptions, observations gathered and community resources of each site.

### **6.3.1 Territorialising CEBA: implementing CEBA in different clusters**

The Wildlands CEBA Assemblage is viewed as rhizomatic, territorialising geographical areas around South Africa as described above, and this section details community resource aspects, project activities and observations in the three study districts. Below, every CEBA cluster includes a study site description, a map of each study site, a brief account of CEBA project activities and observations. Data was organised, calculated per study site, subsequently combined, and analysed. Observations and analysis of community resources were used as a data triangulation verification method for comparison between lived reality and desktop described community conditions. The discussion begins with an overarching view of community resources across all seven study sites.

#### *6.3.1.1 Community Resources*

This section briefly describes access to resources such as water, energy and transport supplemented by participant responses.

Esikhawini and Obanjeni are the only areas out of the seven case study communities where water was collected from a river or a stream by 36% of the district’s people. However, water across all seven case study communities is mostly provided by the municipality, with three percent of the people in total making use of Jojo tanks as a means of backup water storage when water is scarce. The results show that people were experiencing a good standard of water provision which was supplemented by the provision of Jojo tanks through the CEBA intervention. This can be seen in the direct response, “*Makes a good change, I do not have to*



*go to the mountains for water*” (P.82, Interview, September 2016, Obanjeni). All the case study sites receive electrification from their local municipality as a result a response rate of zero was received to the question, “*If you do not have electricity, how would having electricity change your life?*”. Interestingly, renewable energy was not being used by any of the participants in these communities as none of the 157 participants mentioned any form of renewable energy resource as part of their daily lives.

Eighty percent of the communities have access to some form of transport. A smaller two percent make use of their own vehicles. In this instance, it is not the CEBA intervention projects that contributed directly to the ease of access to transport by provision of any vehicles as such as the public transport infrastructure already existed in and around these communities before CEBA intervention projects. That said, it must be noted that only three percent of the participants indicated the ownership and use of a bicycle received directly from CEBA projects. For those who felt the lack of access to transport, a variety of mixed responses were received with the majority not responding. Interesting to note is that 20% indicated that if there was access to their own transport, their own business activities would take priority as they placed great value on income generated from business activities as opposed to ‘handouts’. As a general response a further 14% indicated that having access to transport would “*make life easier*” (P.149, Interview, September 2016, Esikhawini). Analysis revealed the energy, water and transport needs of these cases study communities were sufficiently being met to a degree mainly by their local municipalities. The rhizomatic expansion of each study cluster site has already been described in the sections above. The next section highlights site descriptions, CEBA project activities and observations. Cluster site descriptions begin with eThekwini, followed by King Chetswayo and uMgungundlovu.

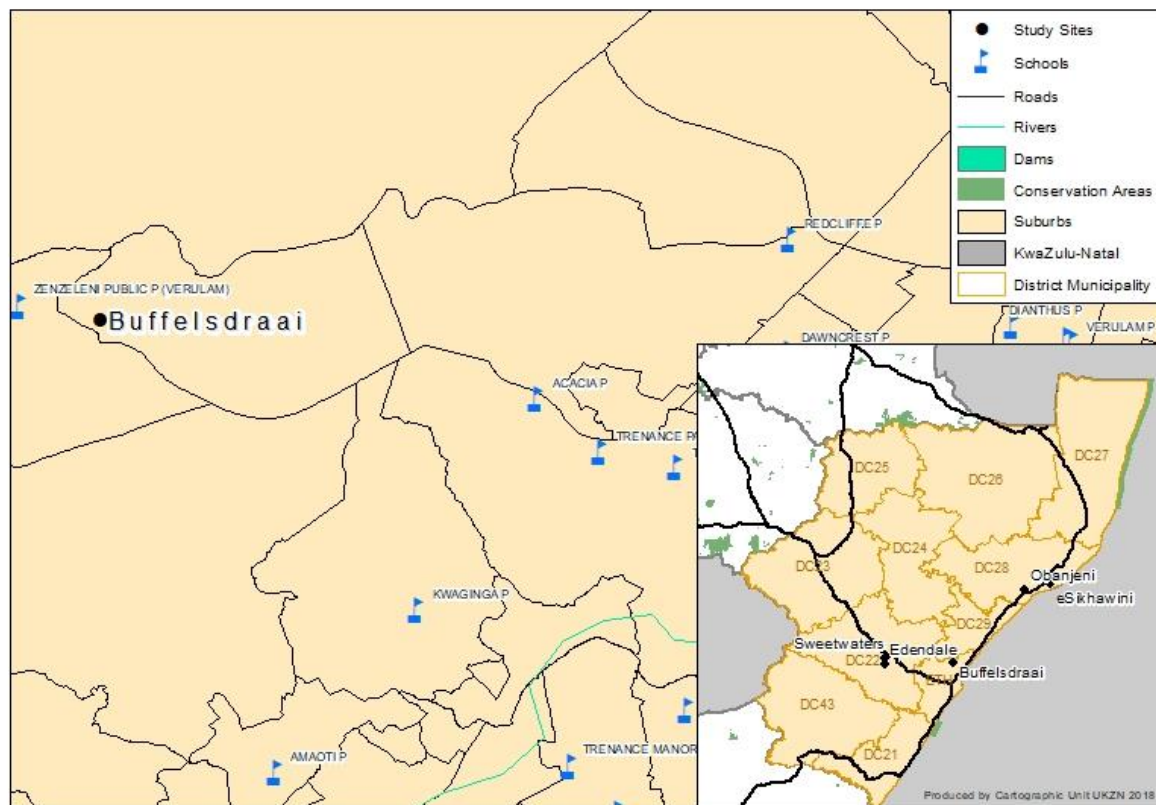
#### *6.3.1.2 eThekwini CEBA Cluster*

The eThekwini CEBA Cluster is a consolidation of Umbilo, Inanda Mountain, Buffelsdraai and Tongaat work. The case study associated with this research is Buffelsdraai.

##### **Buffelsdraai Community**

Description: The Buffelsdraai peri-urban township community (Figure 6.3) is located approximately 8 km west of the town of Verulam consisting of two sub-places and collectively have a population of 3237 people, covering an area of 4.04km<sup>2</sup> (Frith, 2011c). The Buffelsdraai Landfill Site is the largest regional landfill site in KwaZulu-Natal (Douwes *et al.*, 2016) located

north-west of Durban city. Buffelsdraai and the neighbouring communities of Osindisweni and KwaMashu suffer from extreme poverty and unemployment (Douwes *et al.*, 2016).



(UKZN, Cartography unit, 2018)

Figure 6.3 Buffelsdraai township community

CEBA project activities: Buffelsdraai project activities initiated in 2008 with a vision to restore 809-hectare buffer zone around the Buffelsdraai landfill, into forest, wetland, and grassland as well as fight poverty. Surrounding community individuals (greenpreneurs) partnered with the eThekweni Municipality and its implementing partner, Wildlands to propagate trees (known as treepreneurs), collect waste (wastepreneurs) and get involved in planting activities (WCT, 2012). Since inception, a total of 977 330 trees have been collected at a value of R 5 395 716, 5 and 3 515 265 kilograms of waste collected at R 1 570 795, 2. The Buffelsdraai landfill restoration site was planted with 740 000 trees thus far and the 477 greenpreneurs involved in the Buffelsdraai have also collected 584 605kg of waste (Wildlands, 2014-2017; Wildtrust, 2018; Wildtrust, 2019; Wildlands Data Dashboards, 2011-2017). The only form of M&E noted, were monthly and annual donor reports. Challenges noted in Ramanand *et al.* (2015a) were a

lack of rainfall especially in winter adversely affected tree planting and cattle threatened the establishment of the planted trees. However, from an ecological transformation standpoint, 521 hectares of the landfill has been returned to coastal forest (Wildtrust, 2019).

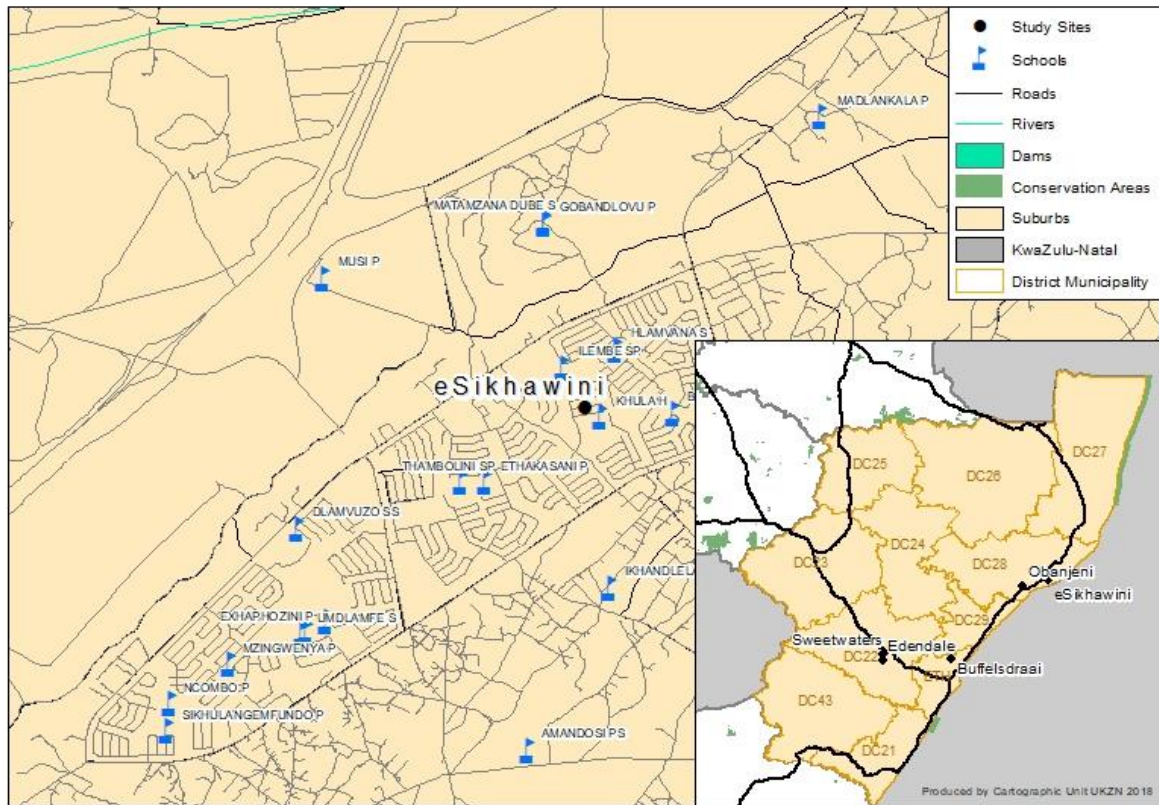
Observational analysis revealed, the Buffelsdraai community consists of different groups such as Zulus, Xhosa's, and Indians, living with limited water and transport resources in a township setting. The houses in Buffelsdraai were informal in nature, consisting of mud and brick structures built on undulating terrain, and as a result both buses and taxis cannot travel into the community. The people were welcoming at first but proceeded to reveal disinterest in the researcher and her team by walking away from the vicinity where an interview was taking place at any given time waving hand gestures towards the research team as walking away. There was also no traditional leadership noted. Socio-economic problems such as unemployment, alcoholism and poverty were noticeable by the surrounding environment, and very few practised any form of subsistence agriculture. A group of younger people in the area were also walking aimlessly in the community with groups of friends during school hours, some with school attire. A large presence of litter and bigger bags of dirt were lying around in a haphazard nature. A Wildlands field facilitator noted that, "*there was supposed to be more change but it is not happening fast enough*" (Anon.13, Wildlands ex-Community Facilitator, Interview, September 2016, Buffelsdraai). While ecological transformation took place at the landfill site, the same cannot be said for the community.

#### *6.3.1.3 King Chetswayo CEBA Cluster*

CEBA project activities in the King Chetswayo CEBA Cluster are a consolidation of Ongoye, uMhlatuze and Richards Bay Coastal Dune work. The Esikhawini and Obanjeni communities are related to the same aspects of CEBA project implementation, that is, micro-enterprises, followed by individual community involvement in greenpreneur activities. Hence the CEBA project activities for both case study communities are presented together.

##### *Esikhawini Community*

Description: The Esikhawini area (Figure 6.4) has a population of 18 835 people and an area of 3.48km<sup>2</sup> with 99.56% of the population being Black South African. Consequently 94% speak isiZulu as a first language and 5 133 households can be found in the area (Frith, 2011b).



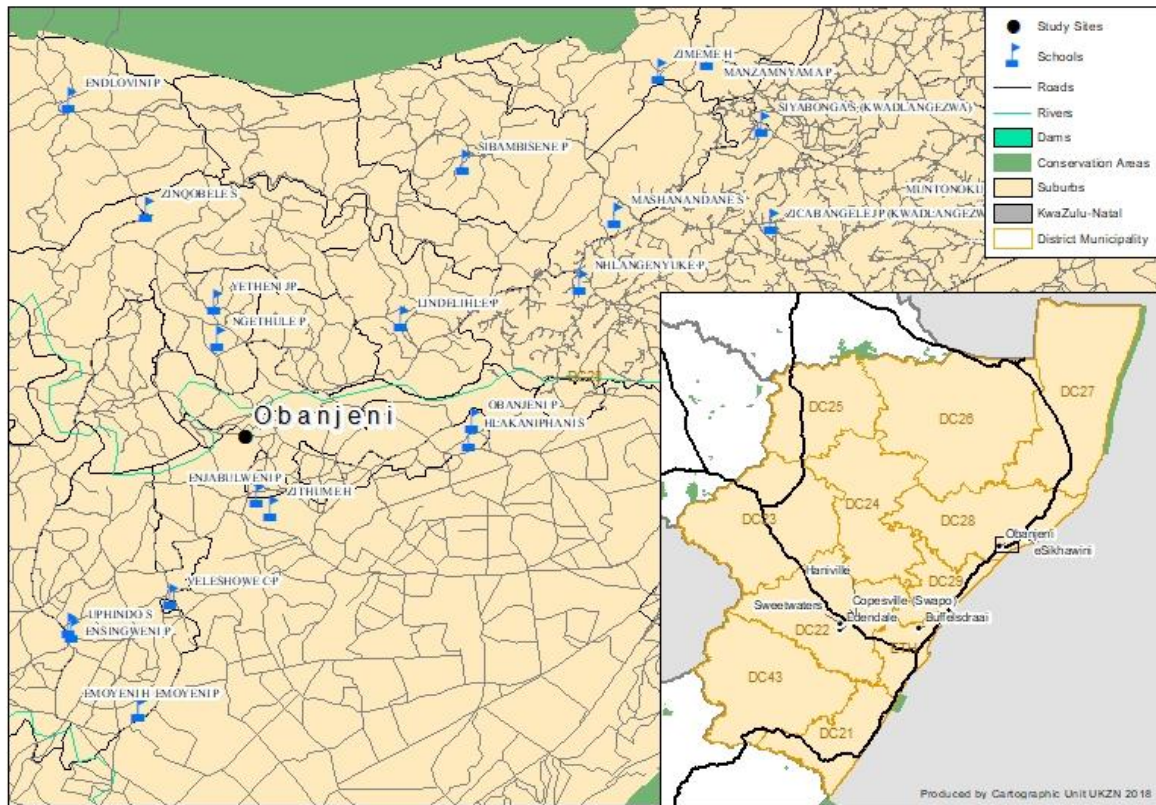
(UKZN, Cartography unit, 2018)

Figure 6.4 Esikhawini community

### *Obanjeni Community*

**Description:** The Obanjeni community (Figure 6.5) is small in both area and population respectively (0.66 km<sup>2</sup> and 1143 people). The number of households are in the range of 214 and 92% of the population speak isiZulu as a first language, also being the largest population group – Black South African (Frith, 2011a).





(UKZN, Cartography unit, 2018)

Figure 6.5 Obanjeni Community

CEBA project activities: One of the project focus areas is Small, Micro to Medium Enterprise (SMME) development involving ‘micro-entrepreneurs’. This CEBA project initiative is known as ‘Khuthaza Business’. Micro-entrepreneurs carried out poultry, pig, sugar cane, vegetable, and banana farming; dress making, sewing, beadwork, traditional attire, uniforms and clothing sales among others. According to WCT (2012:23), “Wildlands has worked in these communities since 2007 with a view to nurturing their transformation into cleaner, greener sustainable communities”. The Activation Team as part of the ‘Khuthaza Business’ unit, enabled a communication channel for donor organisations to take product, services and product training to over 100 communities across South Africa with Esikhwini and Obanjeni being two of these (Ramanand *et al.*, 2015b). The restoration activities in the Nsezi Pan and Ongoye Forest saw approximately 1, 024 716 trees planted by a network of 1500 greenpreneurs. Local Tree-preneurs propagated and bartered approximate values of 2 064 913 trees to a total value of R12 691 584 and 1 168 879 kg of recyclable waste, worth R504 471. The 474 greenpreneurs in Esikhwini and Obanjeni propagated 843 387 trees and collected 1 145 535 kg of waste

(Wildlands Data Dashboards, 2011-2017; Ramanand *et al.*, 2015b). In contrast to eThekwini, these case study communities show a larger community benefit through CEBA project implementation. According to Wildtrust (2018), the word Khuthaza means encourage. Khuthaza was used as the name of their enterprise development support initiative, to support entrepreneurial, passionate, and dedicated individuals grow their business ideas. Many recipients of this initiative come from these two communities. Furthermore, Wildlands used this initiative to create evidence-based cases to show how enterprise development support helps “provide them with an opportunity to enter the cash and Green Economy” (Wildtrust, 2018:13). In part this can be seen as transforming community participants state of being through livelihood diversification.

Traditional leadership was noted in the area, but none availed themselves for interview purposes. Access to electricity and water via taps at households were seen, no tarred or gravel roads, the area was completely covered by bare soil, the community site can be described as rural. People in the area are Zulu speaking and involve themselves in many forms of informal work around the community, people were attending to garden patches and cattle (Plate 6.1). The people were open to the idea of being interviewed and welcomed the research by waving or calling the research team to give a greeting or be interviewed. Brick structured housing existed in abundance in Esikhawini and almost every home had more than one type of tree, most seen were Avocado and Mango trees. The community is known to have traditional leadership councils although none were present during research activities. No loitering of people was noted, areas around houses were clean. Whilst both Esikhawini and Obanjani reveal similar physical characteristics, mud structure houses dominated in Obanjani, and many houses had large numbers of seedlings in a cordoned off area of the yard. The community and surrounding areas are largely rural in nature. The people were enthusiastic and welcoming however some form of bewilderment and confusion was noticed as to the main aim of Wildlands involvement in the communities. Numerous fruit trees were present in the landscape though the soil appeared to be parched and dry. From an adaptation perspective, it can be said that though the landscape provided little in terms of nutrient rich soils, people unknowingly adapted to this circumstance and responded by securing food sources though garden patches where possible (Observational analysis, Field visits, September 2016, Obanjani & Esikhawini).



Plate 6.1 Community food garden in Obanjeni

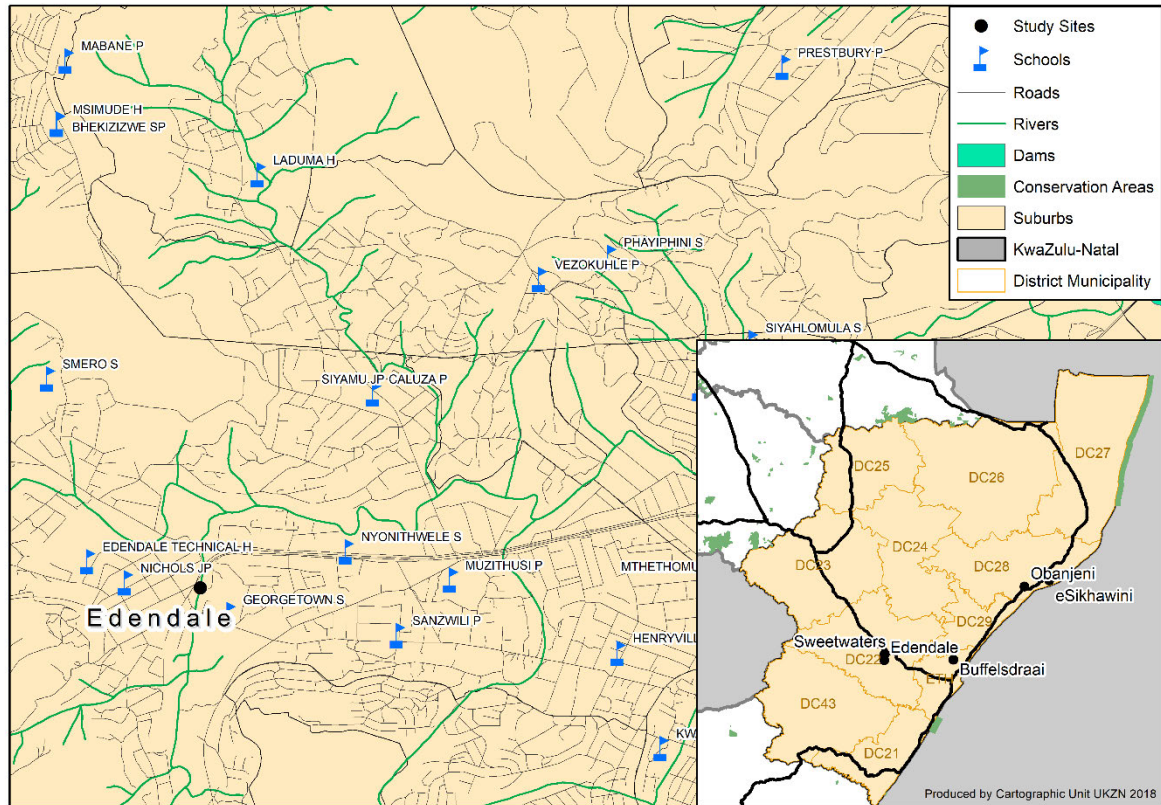
#### *6.3.1.4 uMgungundlovu CEBA Cluster*

Much of the population is concentrated around the economic hub of Pietermaritzburg. From the four CEBA projects (Richmond, Umsunduzi, Karkloof and uMgeni), the uMsunduzi CEBA project has two sites, Willofontein and Townbush with the Edendale, Sweetwaters, Haniville and Swapo communities contributing to the project activity imperatives related to the two main project sites.

#### *Edendale Community*

Description: The Edendale Township (Figure 6.6) consists of 13 sub-places within its borders, totalling a population of 140 891 people across 47, 97 km<sup>2</sup>. There are approximately 37 208 households and the dominant language spoken is isiZulu (Frith, 2011d). It was originally established in 1851 under private landownership conditions and later attracted an influx of people. This ultimately led to overpopulation, unsanitary conditions and poverty, still experienced in present times (Meintjes, 2020). The ethnicity of the population is predominantly black African followed by Coloured South African people.





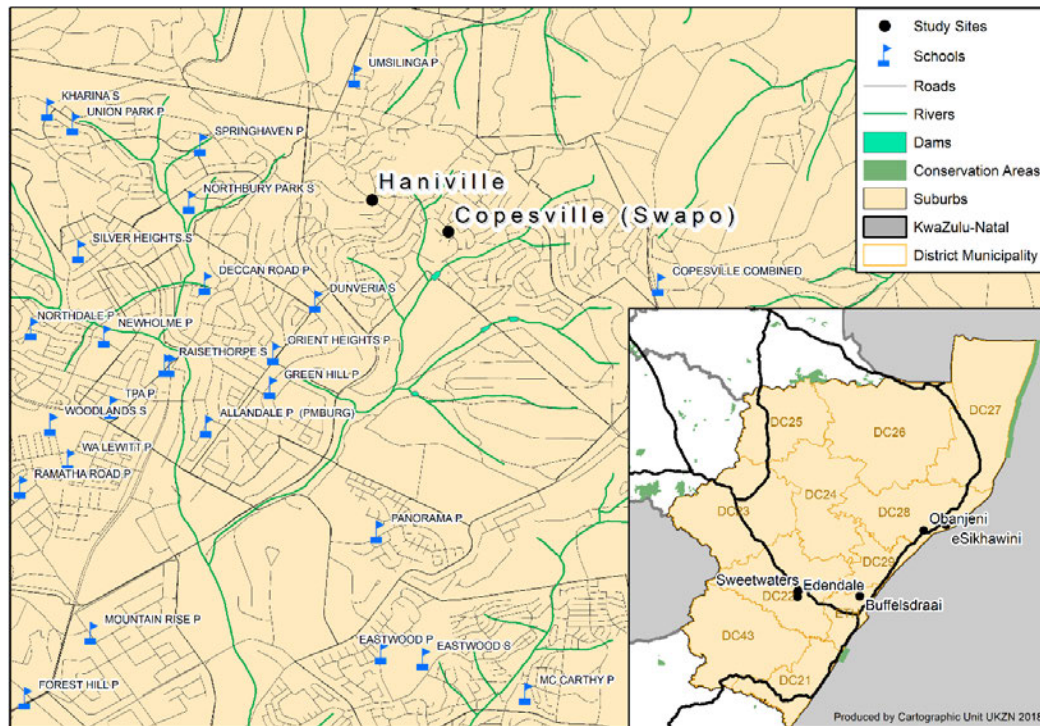
(UKZN, Cartography unit, 2018)

Figure 6.6 Edendale community

### *Copesville (Swapo) and Haniville Communities*

**Description:** Approximately 10 000 people live in the Swapo informal settlement with little to no employment, facing the challenges of poverty daily (Gift of the Givers Foundation, 2018). The Haniville community is also known as a low-income area and both are a part of the greater Copesville area (Smith & Green, 2005) (Figure 6.7). The total approximate population is 17 189 people covering an area of 4.61 km<sup>2</sup> with 4820 households in the area. Most of the population are black African followed by Indian or Asian South Africans (Frith, 2011e, f).



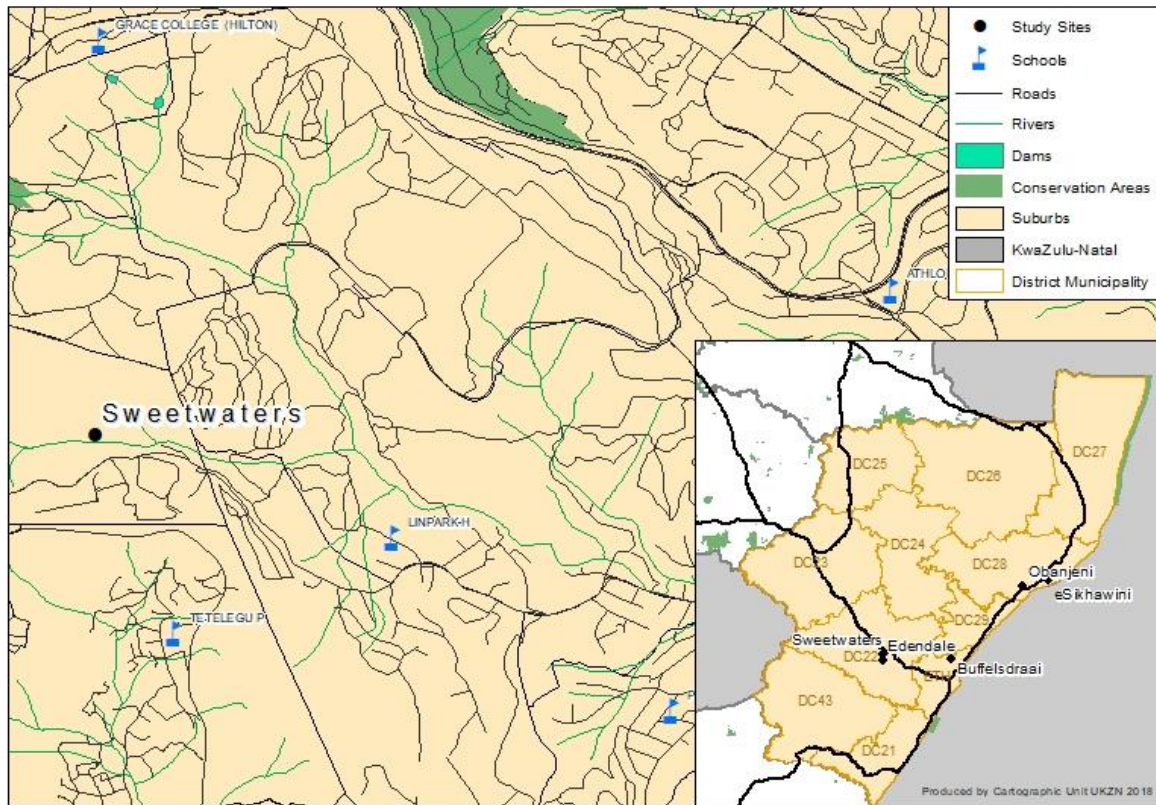


(UKZN, Cartography unit, 2018)

Figure 6.7 Copesville (Swapo) and Haniville informal settlements

### *The Sweetwaters Community*

**Description:** Sweetwaters is a small community located on the fringe of Pietermaritzburg, outside the Hilton area (Figure 6.8), with 584 people living in 157 households, covering an area of 2km<sup>2</sup> (Frith, 2011g). Most of the population includes both white and black South Africans. The dominant language spoken is English followed by Afrikaans and isiZulu.



(UKZN, Cartography unit, 2018)

Figure 6.8 Sweetwaters community

CEBA project activities: Greening activities included tree propagation and planting while recycling activities make up the remainder of the project activities in these case study communities. The lack of a significant anchor donor entity in the uMgungundlovu District was of concern to the Wildlands operational team, as this placed uncertainties on the longevity and sustainability of project activities and communities' livelihoods. Over time, the project activities contributing to the livelihoods of approximately 3559 greenpreneurs dwindled due to organisational and funding issues (Thakur, 2018). Approximately 165 000 trees were planted in total and 14 505 987, 6 kg of recyclable waste was collected. However, recycling activity decreased by 539 890 kilograms since 2013/2014 financial period (Wildlands Data Dashboards, 2011-2017; Ramanand *et al.*, 2015c). From the three CEBA Clusters, uMgungundlovu was the only one with the highest number of community participants involved in recycling activities. However, due to challenging circumstances the focus shifted in 2019 to collecting waste from schools, business, and mall-based recycling villages. Although Wildlands indicates they still collect waste from communities, the researcher is not in

possession of any statistics to verify whether any maladaptive outcomes resulted from a shift in their waste collection focus (Wildtrust, 2019).

Observational analysis revealed that Edendale appeared to be of a township/ peri-urban setting with one major shopping mall based there. The infrastructure appeared more built up in terms of housing structure and road networks. The majority race group and culture in the area was African and Zulu speaking. There was also evidence of municipality service delivery in terms of water, sanitation, and electricity. The people welcomed the interview for the study with most showing visible interest in why the project team was present as they asked questions around wastepreneur 'recyclable pick-ups' and assumed the research team were present to perform those waste collections. Upon finding out, the research team was only present in the community from a study perspective, people visibly began showing disinterest in the interview process by walking away and chatting to one another in a tone of voice that indicated unpleasant feelings.

Copesville and Haniville appeared to be peri-urban/ urban although houses varied in structure from mud to painted brick structures with numerous road networks consisting of gravel, mud, and tar. The Copesville and Haniville communities appeared to be mixed in race and culture housing Zulus, Indians, and Foreigners. Due to the more developed nature of these two communities, electricity and running water were mostly provided by the municipality via taps and formal electrification infrastructure. Numerous vegetable gardens and some cattle were noticed (Plate 6.2).





Plate 6.2 Home food garden in Haniville

Unlike the Obanjeni and Esikhawini communities, the people in these communities were not readily welcoming nor open to the research. When a reason was asked for, participating community members revealed their dismay and distrust towards Wildlands due to the challenges experienced in the wastepreneur component of the Wildlands CEBA Assemblage in line with Thakur's (2018) findings. Their physical behaviours included walking away, pretending to be busier as the research team approached and making 'clicking' sounds with their mouths whilst mumbling a few words in tones of annoyance. The Sweetwaters area appeared to be more rural and to a lesser extent peri-urban with small to medium mud/ brick structured houses and a tar/ mud road network. The study community area could also be described as a township. The people in the community were respectful and welcoming of the research team's visit. No clear or noticeable inferences or deductions could be made regarding the sense of community feelings or behaviours as these were not as visibly apparent as in the other six communities.

Overall, observational analysis has correlated to some extent with the desktop descriptions of each communities' structure and population demographics as part of the most recent South African census (Frith, 2011a-g). Observations also revealed differences in the tones and

mannerisms of community participants where more welcoming behaviour was noted in the rural communities as compared to the peri-urban and urban case study communities. Another interesting deduction was the cleanliness of the surrounding environment and respect for the natural environment in Obanjeni and Esikhawini as compared to the other five case study communities. Alcock *et al.* (2020:8) argue that those living in “high greenspace urban or rural neighbourhoods” displayed more environmentally friendly behaviours and respect for natural surroundings than those who do not. Each case study community described above was involved in CEBA project activities with sizeable collective outputs of recycled waste, reforestation, and others. The case study communities displayed low-income housing and impoverished socio-economic circumstances.

The coded aspects of the assemblage were strong until ‘word-of-mouth’ conversations between CEBA project participants, neighbouring communities and local traditional leadership who were not a part of CEBA occurred. Due to the shifts in recycling activities in uMgungundlovu and organisational changes (as expressed in *Chapter Five*) some frustration, mistrust, and confusion began to emerge amongst community participants. These frustrations were then expressed to non-participating community members. From a transformational adaptation perspective, the expansion of the Wildlands CEBA Assemblage over different territories was unconsciously bringing challenging discussions to the surface. Although participants expressed their contentment with their respective traditional authority leadership, participants also mentioned the need to expand the Wildlands CEBA Assemblage and expressed the need for the local municipality to be more involved and “*negotiated with*” (P.74, Interview, September 2016, Swapo) to include more sites and impact more people’s lives.

However, a noticeable and interesting deduction up to this point in the research is, the decoded aspects of the assemblage did not derail the progressive territorialisation of numerous other geographical locations around South Africa. Relationships also played a role in actioning CEBA project activities, further expanding the assemblage. Recalling the practice of forging alignments in *Chapter Four* (Li, 2007) the Wildlands CEBA assemblage facilitated connections between the moving parts of the assemblage in terms of stakeholders and resources to achieve various outcomes. Despite the differences in community and site descriptions in this part of the chapter, all seven case study communities collectively expressed climate, weather, and seasonal changes as daily life stressors over and above unemployment, inadequate income, and food shortages. The next section describes project implementation insights.

### 6.3.2 CEBA project implementation insights

In this sub-section insights on CEBA project implementation are noted in relation to the factors that played a role in CEBA's expansion and those that threatened the stabilisation of the assemblage. Impacts of CEBA project implementation are noted in the next chapter. CEBA Project implementation insights showed a sense of fulfilling supplementary livelihood support and a sense of participant frustration. Beginning with project sites, these have been loosely referred to as "*CEBA communities*" in which the CEBA Philosophy was implemented (Dr A. Venter, Wildlands ex-CEO, Personal Communication, August 2017, Hilton). Yet, 95% of the participants indicated that they have never heard of CEBA and CEBA has no actual relevance or real meaning in their daily lives. This insight serves as a decoding element of the assemblage as it reveals a communication oversight in the implementation process. Wildland's presence indicates a strong footprint in these communities with community members reasons for participation and enjoyment varying and appear to be largely positive with one response stating, "*Helping the unemployed make a living*" (P.40, Interview, October 2016, Sweetwaters). Whilst this is positive feedback, CEBA featuring as an unknown concept to participating communities indicates a gap in Wildland's communication and managerial processes as seen in *Chapter Five*.

Frustration from community members were noted for two reasons. The first being the unpredictability in climate and weather like the shift in rainy seasons which affected their CEBA project activities, and the second being organisational changes at Wildlands which they were not privy to until project operations changed at the community level. This is evidence by one response stating that Wildlands "*helped before, not the same, they don't say much*" (P.13, Interview, September 2016, Buffelsdraai). The lack of an M&E system monitoring project implementation increased emotional and psychological stresses, anger, frustrations, distrust and led to fears of livelihood instability. Community participants expressed there was a "*lack of communication, no collections have been done, the scale has reduced the kilogram*" (P.34, Interview, September 2016, Sweetwaters).

In terms of uncertainty regarding project operations, all the community participants expressed dismay regarding Wildlands retraction of the wastepreneur activities as this seemed to have a direct negative impact on their livelihoods (Thakur, 2018). Other negatively expressed concerns and comments indicated distrust and suspicion towards the organisation, confusion, uncertainty, and unhappiness towards project implementation noting "*there is no direction and*

*it has been empty promises*” (P.118, Interview, September 2016, Esikhawini). It was also mentioned that communities are “*not coping with all the changes*” and Wildlands management was not seen going into the communities to explain changes in project implementation. This left community participants angry and project staff scared, “*putting their lives in danger*” (Anon.12, Wildlands Field Project Management, Interview, September 2016, Empangeni) because community participants threatened to hurt them if they did not get what Wildlands promised.

CEBA project implementation changes occurred with immediate effect most of the time at Wildlands senior management levels, changing operations on the ground and leaving little room for communities to transition to those changes. Community participants functioning was compromised by organisational communication gaps and eventually slowed down the pace of earning sustainable livelihoods. These findings share similarity with Eriksen *et al.* (2021) where vulnerabilities may have been reinforced or redistributed due to the noted communication gap. Recent thoughts by the ex-CEO of Wildlands views resilience in the context of “*invention and ability to remain flexible*” (Dr A. Venter, Personal Communication, July 2018, Hilton). From the findings it can be deduced that the Wildlands CEBA intervention was strategically developed to remain a fluid concept with numerous clusters of operation that could close if necessary and be reopened should the circumstance suffice. Ultimately, resulting in a rhizomatic assemblage with aspects of social and ecological hybridity (Dujardin (2019; Anderson & McFarlane, 2011; Li, 2007; Deleuze & Guattari, 1987). The second half of the chapter seeks to explore daily life stressors in greater detail, with further analysis regarding the outcomes of the Wildlands CEBA Assemblage detailed in *Chapter Seven*. The next section presents a deeper look into how weather-related stresses affected CEBA community participants.

#### **6.4 Part two: Shared Stresses, Shocks and Vulnerabilities and how CEBA addresses them**

This section explores shared shocks, stresses, and social vulnerabilities resulting from the effects of climate change. Thoughts of communities towards weather-related stresses, on-the-ground project implementation and the implementing agent (Wildlands) are reflected. The relevance of this part of the chapter lies in noting the shared shocks, stresses and social vulnerabilities experienced across the seven case study communities involved in Wildlands CEBA Assemblage. The data serves as a glimpse into the types of stresses communities

experienced, spurring word-of-mouth conversations/ interest, and increasing the rhizomatic expansion of the assemblage. Project implementation data revealed positive and negative responses regarding CEBA (as a known concept) and Wildlands as the implementing agent. The CEBA intervention is viewed as an act responding to the needs of communities that is also aligned to unintended consequences. The outcomes and associated consequences of CEBA project activities are discussed in the next chapter. The discussion begins with a synthesis of weather and climate related stresses followed by social vulnerabilities and how participating communities view their relationship with the environment.

#### **6.4.1 Weather- and climate-related stresses**

Wildlands was not focused on addressing weather related stresses on communities but instead focused on helping participating communities cope with these stresses through CEBA project activities. Although the evidence does not reveal weather-related stresses as the sole reason for participation in CEBA projects, the little evidence gained through this research does reveal qualitative insights into how weather and climate related stresses played a role in adding further stress to a vulnerable poorer population. In the eThekweni CEBA Cluster study site 69% of the responses indicated weather-related stresses, specifically mentioning drought, high temperatures and heavy rainfall. These are indicated by responses such as, *“Now difficult, drought and storms, too hot weather”*, *“Weather is constantly changing”* and *“Heavy rainfalls, high temperatures”* (P.7, P.5 and P.11, Interviews, September 2016, Buffelsdraai). The King Chetswayo CEBA Cluster study site responses revealed a range of seasonal and disaster-like effects including high temperatures, seasonal changes, drought, heavy or no rainfall and increases in lightning strikes. Direct responses included, *“winter is bit warm”* (P.120, Interview, September 2016, Esikhawini) and *“Drought, lightning, homes get damaged, no longer producing quantities of food”* (P.154, Interview, September 2016, Esikhawini). Other responses received noted, *“Temperatures are high compared to before and no rain”* (P.87, Interview, September 2016, Obanjeni) and *“summer is longer, winter is one month or a few days”* (P.102, Interview, September 2016, Obanjeni).

Finally, the uMgungundlovu CEBA Cluster study sites revealed similar responses as the eThekweni and King Chetswayo study sites. Sixty-three percent, 57% and 43% of responses indicated changes in weather patterns revealing drought, high temperatures, flooding due to heavy rainfall and pollution as primary effects of the daily stresses experienced (Edendale, Copesville and Haniville, respectively). These weather-related stresses created stressful daily



situations in all three study districts. In Sweetwaters, responses revealed 52% of the community participants indicated changes to their realities by referring to the normalcy of life in the past as compared to present times when referring to seasonal shifts, rainy months and harvesting periods. Evidence of these stresses are noted in responses stating, *“In summer the rains are now heavier than before”* (P.61, Interview, September 2016 Edendale) and *“Changing of weather conditions”* (P.62, Interview, September 2016 Edendale); *“Over the years you hear weather patterns are changing because we're doing wrong things such as deforestation”* (P.70, Interview, September 2016, Swapo) and *“Drought and we don't get water and we suffer”* (P.73, Interview, September 2016, Swapo). Responses also emphasised references to lived past examples, *“Related to flooding events and we experience it in 1985”* (P.63, Interview, September 2016, Haniville) and *“Can't tell between winter and summer, don't know when to start farming or cultivating”* (P.64, Interview, September 2016, Haniville) and *“Dry conditions, also too hot days”* (P.52, Interview, September 2016, Haniville). Others included, *“It is not normal like before, seasons change, conditions change”* (P.39, Interview, September 2016, Sweetwaters) and *“Weather events are becoming more extreme now, temperatures are higher than before, when its cold temperatures drop”* (P.34, Interview, September 2016, Sweetwaters). Collectively, changes in weather, high temperatures, heavy and no rainfall, the presence of drought and seasonal changes were mentioned 177 times by community participants.

Overall, the responses received concur that a shift in weather is experienced by these participating communities creating varying degrees of stress and confusion. Most participants indicated confusion regarding the delay in rainfall, extended drought periods, prolonged seasonal periods and, unpredictable planting and harvesting periods threatening their survival and livelihoods. The weather and climate related stresses experienced by these communities exacerbated already difficult living circumstances, with an increase in lightening surges threatening physical structures and drought reducing food security to name a few. Wildlands did not intervene and respond to weather related stresses as they were not able to and not focused on this aspect under the CEBA domain. As mentioned in Section 6.3, word-of-mouth conversations between community members revolved around increasing livelihood diversification and reducing socio-economic stresses. Coupled with weather-related stresses, the Wildland CEBA intervention provided a lucrative response to livelihood stress and thus CEBA projects expanded in the said, rhizomatic fashion in all three districts, and other

provinces of South Africa. The next section gives a brief account of the many social vulnerabilities experienced by the case study communities.

#### **6.4.2 Social vulnerabilities**

Participating communities in the Wildlands CEBA Assemblage experience multiple socio-economic daily stressors affecting their ability to survive and earn a livelihood. The Gini coefficient for South Africa (STATSSA, 2017: par 3) was 0,65 in 2015, increasing from 0,64 in 2006, indicating black Africans having the highest income inequality. Moreover, the World Bank in South Africa (2018) indicated that high unemployment rates remain, especially amongst the youth, approximately levelled at 50%.

Regarding social vulnerabilities, high rates of unemployment, low levels of income and food shortages ranked amongst the highest vulnerabilities experienced. Forty-five percent of participants in the eThekweni CEBA Cluster indicated unemployment statuses, job scarcity and low levels of income, further adding that cash was more preferred than product hampers as part of the barter process in the Buffelsdraai CEBA project. One interviewee was also asked why such large amounts of litter could be found in the community to which the response was, *“it belongs to Wildlands, they didn’t come collect it, it’s not ours”* (Anon.13, Wildlands ex-Community Facilitator, Interview, September 2016, Buffelsdraai). Angry participants shifted waste responsibilities back to Wildlands as the custodian of the failed wastepreneur projects. In contrast, a lower 25% of community participants in Esikhawini (King Chetswayo CEBA Cluster) indicated unemployment as a problem, food shortages and low levels of income. An interesting response noted, *“Before seasons were ok but now its only summer, temperatures are destroying vegetation”* (P.129, Interview, September 2016, Esikhawini), inferring social vulnerability in the form of reduced crops and food shortages. Seventeen percent of the responses from Obanjeni mentioned unemployment as a concern, not able to earn an income, inability to send children to school and lack of materials to build homes. A few alluded to their CEBA project activities suffering as a direct result of weather-related changes thus also negatively affecting their ability to barter these trees back to Wildlands for livelihood support, *“Trees get burnt because of sunlight”* (P.114, Interview, September 2016, Esikhawini). Despite the above-mentioned stresses and livelihood vulnerabilities, all project participants in the King Chetswayo CEBA Cluster remained enthusiastic about continuing their project activities as they remained hopeful in the possibility of hearing good news from long awaited

Wildlands project staff visits. This served as an indication of positive attitudes towards project activity responsibilities and a sense of potential in the community at large.

Finally, despite the Edendale area's peri-urban to urban status, 25% of the community participants in the uMgungundlovu CEBA Cluster indicated high levels of unemployment and inadequate income. It was also noted that participants involved in wastepreneur project activities displayed disappointment towards late collections of recyclable material, increasing health hazards (Thakur, 2018). Like the situation in Esikhawini, effects of social vulnerability were closely aligned to the daily weather-related stressors indicated by community participants. In this case, 64% of the responses inferred social vulnerability through damaging effects on livelihood practices namely tree planting and bartering for livelihood support. This is noted in direct quotations expressing, "*we had rain before now watering our trees is becoming difficult*" (P.67, Interview, September 2016, Swapo) and "*Change in weather and drought recently which had an impact on us and our trees*" (P.71, Interview, September 2016, Swapo). Again, inferred social vulnerability appeared as a direct result of the daily climate and weather-related stresses experienced, including confusing effects for small-scale farmers in this community. One response noted, "*now we don't know because August was when we start but now it was very hot. By December we should be harvesting but that will not happen*" (P.64, Interview, September 2016, Haniville). Additionally, 52% of the Sweetwaters community participants also revealed lack of food and income and unemployment were serious problems in the community. The identified stresses together with weather-related stresses revealed added pressure and strain on livelihoods as well potentially exacerbating food insecurity in this small community, where some smallholder farmers indicated that they prefer cash payments instead of hampers as it does not make a difference to their lives. The indication of disinterest in continued project participation was high and noticeable in Copesville and Haniville.

According to Scoones (1998) stresses often indicate a direct line towards an overarching shock. Thus, the stresses experienced as expressed by participating communities led to further investigation and analysis to ascertain the 'shock' from which the stresses were experienced. Although the project activities in the Wildlands CEBA Assemblage aimed at creating social cohesion, creating sustainable communities, and contributing to the green economy, expressed in *Chapter Five*, the empirical evidence revealed a complicated web of weather, climate, and social vulnerability to navigate around. In doing so, it was deduced, a relationship between the shock experienced by community participants, associated feeling of vulnerability and the significance placed on the environment for sustenance was also forged in the Wildlands CEBA

Assemblage. For example, unpredictable weather (the shock) affected loss of crops due to heavy unexpected rainfall (created the feeling of vulnerability), decreasing the reliance and dependence on the natural environment to grow food, inadvertently placing significance and realising the dependence on the environment for survival. This discovery enhances the coded effects of the Wildlands CEBA Assemblage by reinforcing the dependency of community participants on CEBA project activities (tree-planting, tree propagation and recycling activities) for livelihood support. This can be seen in responses stating, “*Fight poverty and to sustain ourselves through gardens*” (P.66, Interview, September 2016, Edendale) and “*Opened our minds to what we can do with environment, benefiting through looking after environment*” (P.157, Interview, September 2016, Esikhawini). This dual dependency in turn fuels the rhizomatic expansion of the assemblage as word keeps spreading in and across the geographical boundaries of these project sites. This triad is better explained in the next section.

### **6.4.3 Shock, vulnerability and the significance of the environment**

This section explores the relationship between the shock experienced by community participants, associated feeling of vulnerability and the significance placed on the environment for sustenance. The findings in this chapter reveal varying degrees of socio-economic vulnerabilities in all three districts. In addition, all 157 participants experienced some form of weather-related shift that rendered their livelihoods vulnerable.

The Identified Shock experienced in all seven case study communities was, ‘*The Climate is Changing*’ (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjani). The shock rendered the various communities’ food production, livestock farming, tree propagation and stability of infrastructure vulnerable to deterioration and damage, seen from responses such as, “*vegetables suffer no rainwater*” (P.92, Interview, September 2016, Obanjani) and “*The timing of the seasons, too much rain or drought*” (P.55, Interview, September 2016, Swapo). The term “climatic shocks” refers to variations in rainfall and temperature over a long-time period (Mbaye, 2017:2). Extreme Weather and Temperature irregularities, changes in seasons, drought/rain/floods/devastation were identified as stress related elements of this identified shock. Overall, 87% of responses indicated some form of awareness or type of knowledge around the concept climate change, with noticeable extreme weather and temperature changes physically witnessed by 64% of participants. A collective 28% did not understand or opted not to respond. A small percentage (13%) indicated their idea of humans causing climate change,

while 2% made mention of strong feelings of sadness and empathy towards those that are suffering the negative effects of climate change, with 65 % of community participants having a cursory understanding of what climate change is.

Vulnerability in the context of this research was adapted from the SLF sustainability component to assess the extent to which any specific vulnerability appeared as a threat to participating communities. According to Scoones (1998:6), “The ability of a livelihood to be able to cope with and recover from stresses and shocks is central to the definition of sustainable livelihoods”. In the case of this research the social vulnerabilities highlighted by community participants were the focus. The identified shock and related stresses in each case study community also contributed to a lack of individual capacity and functioning to adequately make a living, noted by, “*Drought and climate change has an impact on our lives*” (P.105, Interview, September 2016, Obanjeni). The case study community participants have shown that their abilities to deal with the shock of climate change and associated weather-related stresses have been negatively affected. The lack of ‘individual functioning’ is also noted in participating community responses through unemployment, no opportunities for work, lack of finances for food, inability to pay school fees, lack of basic amenities, lack of a sense of purpose (Sen, 1979). Ability to function and ‘make a living’ responses aligned with changes in the climate and weather patterns negatively affected people and their livelihoods, “*People get sick, drought, no longer producing fruit and livestock is dying*” (P.126, Interview, September 2016, Esikhawini).

Findings listed in this section of this study correlate with the Let’s Respond initiative (Let’s Respond, 2018) as both independent sources of information highlight food insecurity, changes to weather activity, increase in lightning occurrences and changes in agricultural yields, as major stresses, and vulnerabilities. A cumulative dataset including all 157 community responses (Figure 6.9) revealed the significance regarding the natural environment as perceived by each community participant. A high dependability on the environment in all the case study communities was revealed by responses stating, “*without it we can’t live*” (P.145, Interview, September 2016, Esikhawini). Seventy-two percent of the participants related the significance of the environment with ‘*survival*’ and resource use. Additionally, 13% linked the significance of the environment to “*making a livelihood*” (Various community responses, Interviews, September 2016, Swapo, Sweetwaters & Esikhawini) A small collective of 14% related the significance of the environment to a spiritual and personal notion, sometimes also personifying nature.

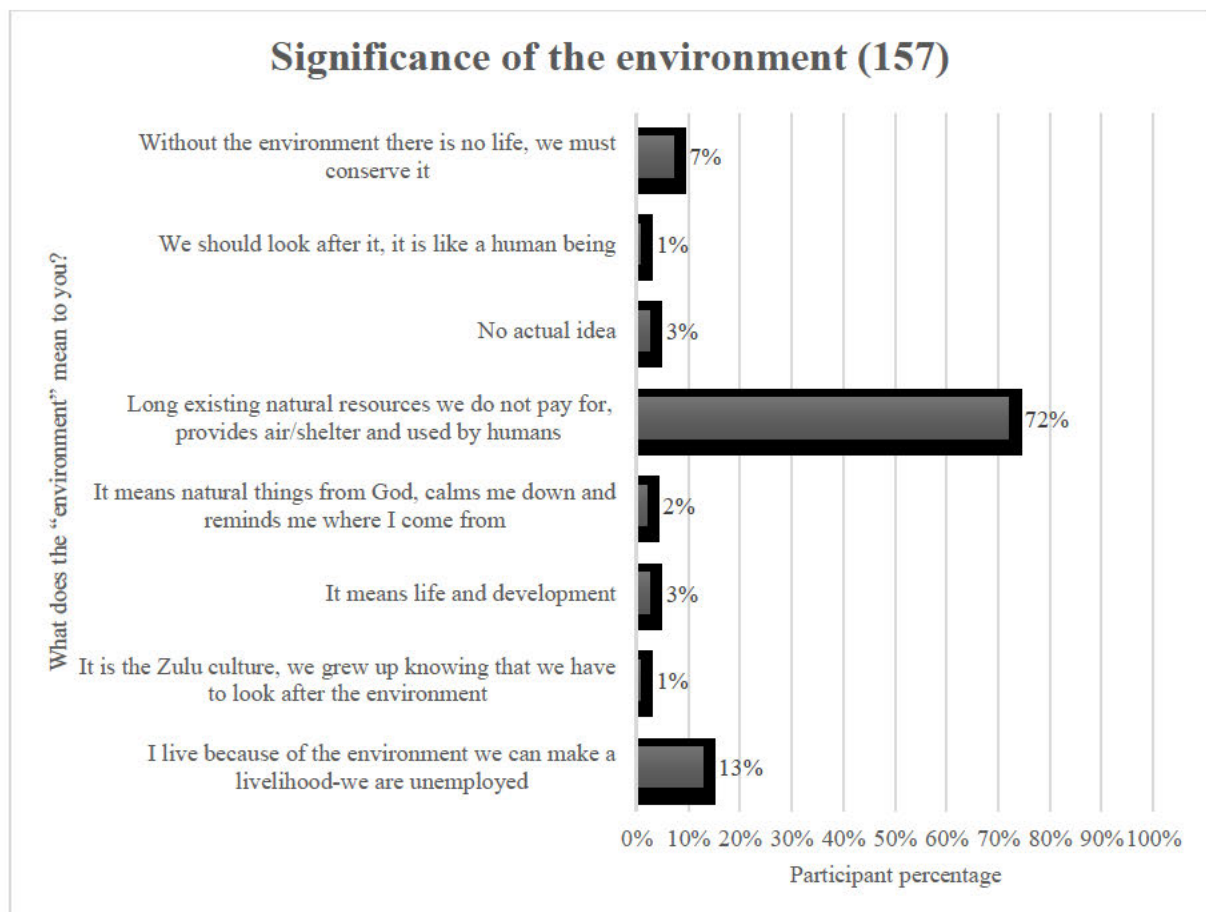


Figure 6.9 Significance of the environment to the individual

Community participants referred to the natural environment as a means of survival in response to unemployment, suggesting the environment helps *"change life for the better"* (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjani). revealing the natural environment holds both intrinsic and practical value for the case study communities. CEBA project activities aimed at reducing poverty in the hope of creating sustainable communities were reflected as helpful. The triad that is, climatic shock, social vulnerability and reliance on the natural environment is also seen as a coded aspect of the Wildlands CEBA Assemblage as previously mentioned. The continuous cyclical nature of these three elements provided impetus to keep the Wildlands CEBA Assemblage together in a way that can be described as *"a runaway train"* (Anon.7, Wildlands Board, Personal Communication, July 2016, Hilton) territorialising new areas in its path. Despite operational challenges, the Wildlands CEBA Assemblage has yielded positive outcomes regarding the provision of otherwise non-existent supplemental livelihood

opportunities. Further exploration into the pro-poor outcomes resulting from the Wildlands CEBA Assemblage is discussed in the next chapter (*Chapter Seven*).

Two factors influencing the expansion and territorialisation of the Wildland CEBA Assemblage included firstly the participating community members and secondly, a triad of influencing factors. These being the experienced climatic shock, social vulnerabilities, and reliance on the natural environment. It was discovered in previous chapters (*Chapters Four and Five*) the evolution and expansion of the assemblage was in part due to the forging of alignments between stakeholders, championing of the adaptation discourse by influential people and various other factors (DAC). The findings put forward in this chapter revealed a triad of aligning factors that also influenced the further growth and rhizomatic expansion of the Wildland CEBA Assemblage. Despite operational challenges, news of community participants reaping rewards from the CEBA project activities they were involved in spread through their communities and other neighbouring communities. The continuous cyclical dependency of community basic needs and the desire to support those needs in the wake of a changing climate, created a stronghold to further ‘code’ and anchor the Wildland CEBA Assemblage in various territories along its path. On the other hand, various other factors playing a ‘decoding’ role such as the absence of a formalised M&E system negatively influenced the assemblage through the manifestation of data gaps countrywide, and organisational communication challenges. While growth and expansion of the Wildlands CEBA Assemblage was deemed a positive step for the Wildlands, data gaps and disgruntled community members began to place negative pressure on the assemblage.

Regarding transformation and pace of change, the Wildlands CEBA Assemblage moved from a coincidental and ad-hoc beginning (*Chapter Four*) to rapid growth, scaling up and expansion (*Chapter Five*), eventually slowing down but not collapsing and ceasing to exist (Li, 2007). The findings of this chapter have reinterpreted the upscaling of the Wildlands CEBA Assemblage as a further rhizomatic expansion of the assemblage. The evidence presented highlighted that though the decoded aspects of the assemblage created fractures in operational and organisational processes, the coded aspects of the assemblage were undoubtedly stronger. Concluding thoughts are discussed in the next section.

## 6.5 Conclusion

Building on the arguments in the previous chapter, Wildlands set in motion the CEBA Philosophy at a time when the Green Economy began taking shape on a public platform through the Rio +20 Conference (UNEP, 2014b:5), initially responding to the ecological modernisation and neoliberal climate discourses, scaling up CEBA projects. The findings revealed that while Wildlands placed their sole focus on the responses to community needs and CEBA project achievements, CEBA began expanding in a rhizomatic fashion. This chapter emphasised the coded and decoded aspects of the Wildlands CEBA Assemblage, with a view to explain the rhizomatic expansion of the assemblage. The first half of this chapter sought to detail the final stages of reassembling through aspects of Territorialisation, Deterritorialization as well as coding and decoding (Ball, 2018; Delanda, 2016; Li, 2007). The second half described the shared shocks, stresses and the social vulnerabilities faced by each case study community. In this chapter I argued, that despite the presence of decoded aspects in the Wildlands CEBA Assemblage, the coded aspects strengthened the upscaling of the assemblage and aided in its rhizomatic expansion and territorialisation. The coded and decoded aspects of the assemblage was discussed in relation to territorialisation and deterritorialization where it was found that the coded aspects outweighed the decoded aspects, keeping the assemblage intact. One significant outcome was noting the cyclical dependency of a triad of elements (climatic shock, social vulnerability, and reliance on the natural environment) also providing impetus for the expansion of the assemblage.

A descriptive analysis for each study site indicated low-income settlement infrastructure, high dependence on the natural environment for livelihood support, municipal provision of community resources (water, electricity, and transport) and collective socio-ecological outcomes resulting from CEBA project activities. Climate change was identified as the shared shock experienced by community participants in all case study sites along with temperature differences, seasonal changes, and other weather-related stresses. High unemployment rates, job scarcity, low levels of income and food shortages dominated social vulnerabilities noted in the case study sites. In addition, CEBA project implementation responses revealed a positive impact on community participants social well-being, ability to function and diversify livelihood opportunities. However, aspects of the Wildlands CEBA Assemblage appeared to be destabilising, threatening the collapse of the assemblage, yet the rhizomatic expansion Wildlands CEBA Assemblage continued. A gap in Wildlands organisational and managerial communication processes (as was the case in the previous chapter). Findings also revealed the



vulnerabilities of these case study communities are increased in the presence of weather-related change, temperature and rainfall variability and seasonal change. Additionally, a 'changing climate', described as a shock, adds a level of complexity to the unemployment, poverty and food insecurity hardships already faced by the case study communities. Community participants also alluded to a sense of uncertainty related to project sustainability and fears of livelihood sustainability due to multiple project related concerns. It must also be stated, the significance of this finding points towards the notion that while adaptation assemblages may provide multiple benefits, due to a rhizomatic nature of expansion, they can also increase fragility of a system by expanding beyond the reach of the implementing agent's ability. In the same token, aspects of confusion and uncertainty must also be recognised as part of the rhizomatic nature of adaptation interventions and be given equal importance.

Findings revealing community frustrations have shown that Wildlands was not always capable of adapting to changing their course of action with sufficient speed and communication procedures. Thus, keeping community participants in a cycle of vulnerability or increasing their vulnerability as recognised by Eriksen *et al.* (2021). Though this was the case, it is still worth noting that 94% of community participants still enjoyed participating in CEBA project activities due to their ability to earn a livelihood, supplement their livelihoods and support their families. Observations also revealed the trend of apathy, unwillingness to participate in the research and anger towards Wildlands increased towards peri urban and urban CEBA communities (Buffelsdraai, Haniville and Copesville), correlating with Thakur (2018). While donor demands were met and various incremental shifts took place through CEBA project activities, the shift towards gaining systemic change remains pending due to the delicate power dynamics existing between NGOs and donors.

Drawing attention to livelihood vulnerabilities, shocks and stresses as expressed in this chapter is not enough to change the trajectory of development pathways for those that appear most exposed to these shocks and stresses. As a result, a sense of apathy was noted in peri-urban to urban communities which directly affected their enthusiasm and perceived responsibilities towards project activities. Revisiting Lang's (2019), Català's (2014); Kates *et al.*'s (2012) views of transformational adaptation, the Wildlands CEBA Assemblage displays complex-reality problems, power imbalances and long-term impact timelines that require a degree of synergy and balance for a systemic paradigm shift. The next chapter provides a detailed account of the tangible and intrinsic outcomes of the project activities in the Wildlands CEBA Assemblage.

## 7. IMPACT AND MEASUREMENT IN ADAPTATION: LIVELIHOODS AND ECOLOGICAL IMPACTS IN THREE DISTRICTS

### 7.1 Introduction

Transformational Adaptation responses to climate change are difficult to achieve in multi-level dynamic systems complimented by a diverse actor network. Additionally, a lack of planning and M&E practices contribute to challenges faced in adaptation interventions. The Wildlands CEBA Assemblage offered one of the first opportunities in South Africa, to gain first-hand insights of upscaled and integrated CBA-EBA adaptation project intervention. CEBA project activities within the Wildlands CEBA Assemblage have shown success in attempting to reduce poverty, diversify livelihoods, improve individual functioning, and increase awareness of climate change. Despite the presence of ambiguities, uncertainties and, inadequate M&E of CEBA project activities, findings predominantly revealed positive stakeholder reviews regarding CEBA project impact. *Chapter Six* provided context regarding the rhizomatic expansion of the Wildlands CEBA assemblage as well as highlighting the shared, shocks, stresses and social vulnerabilities experienced by each case study community. In *Chapter Six* project implementation insights were expanded on with respect to the rhizomatic expansion of the Wildlands CEBA Assemblage, coding, decoding and shocks and stresses. In this chapter project implementation insights are discussed in the context of M&E practices and adaptation planning where challenges of M&E are located within broader insights in a moving rhizomatic assemblage. The assemblage expanded, contributed to sizeable poverty reduction and ecological impacts, however, Wildlands' workforce (skilled and unskilled) reduced in size, and donor funding became problematic towards the latter years of the CEBA intervention (*Chapter Five*).

Through the exploration of the material and intangible effects in the seven case study projects, this chapter offers a glimpse into what has been achieved through the assemblage in terms of CEBA project implementation and highlights the implications of inadequate M&E measurement and adaptation planning. Intangible in this chapter refers to emotional, psychological, and spiritual effects that still hold value in a person's daily functioning (Sen, 1979). In this chapter I argue, for transformational adaptation to be realised at systemic level, transformation through the project intervention as well as the organisational level is required, linking back to sustainability innovation practices (Olsson et al., 2017). From an assemblage

thinking point of view the practices of rendering technical and managing failures and contradictions (Li, 2007) have been engaged with to explain the achievements in the assemblage as well as highlight the benefits of improved M&E for adaptation interventions. The rendering technical practice was used to describe how CEBA implementation contributed to poverty reduction, an increase in individual functioning, green economy, and ecological impacts. In addition, the practice of managing failures and contradictions was used to explore how workable solutions and compromises were devised to respond to inadequacies in M&E practices in the Wildlands CEBA intervention.

This chapter consists of two parts. Information provided in the first part of this chapter focuses primarily on livelihood impacts and individual functioning in the form of livelihood diversification and to a lesser extent on the ecological impacts. Part two delves into the status and impact of inadequate M&E in the assemblage bringing to light Wildlands attempts at M&E. It also describes the potential benefits of improved M&E for adaptation interventions by highlighting links concerning the vulnerability experienced by community participants and the likelihood of adaptation being achieved as a result of the Wildlands CEBA Intervention. The next section gives a brief account of the heuristic CEBA Analysis Framework in the context of this chapter.

## **7.2 The CEBA Analysis Framework**

Through the CEBA intervention positive and negative impacts on community participants were uncovered. In this chapter, the CEBA Analysis framework was used to describe those impacts of CEBA project implementation in the three study districts (eThekweni, King Chetswayo and uMgungundlovu). Figure 7.1 below highlights elements of the heuristic analysis framework relevant to this chapter.

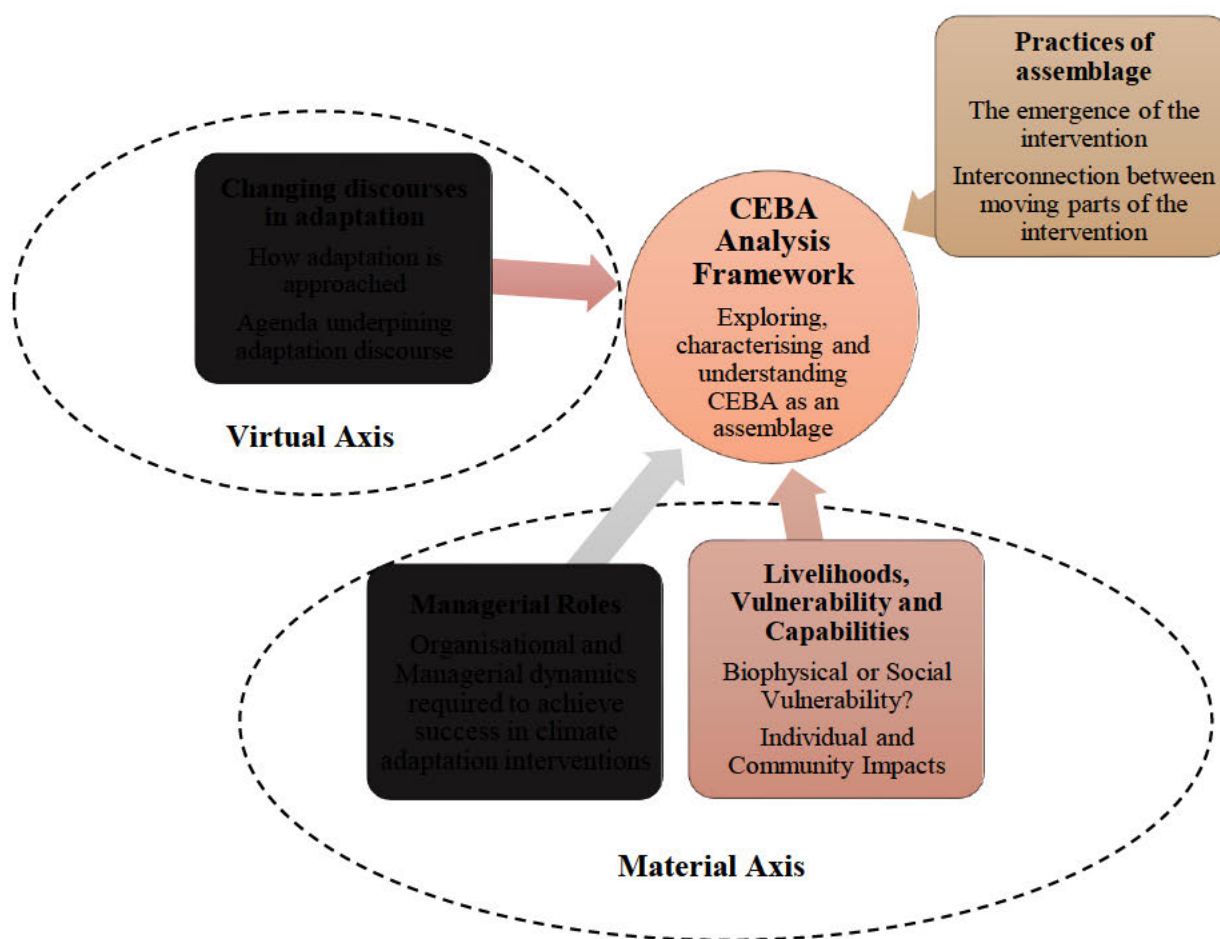


Figure 7.1 CEBA Analysis Framework: Impact and Measurement in adaptation

Material and intangible impacts regarding well-being, sense of purpose and livelihood impacts among others is presented throughout this chapter. Practices of assemblage, namely, rendering technical and managing failures and contradictions (Anderson & McFarlane, 2011; Li, 2007), aspects of livelihood analysis, capability, and functioning, and vulnerability (Scoones, 1998; Sen, 1979; Brooks, 2003) were used to analyse and describe the findings.

Wildlands integrated CBA-EBA adaptation intervention is employed through the standard set of components, described in *Chapter Four*, to produce a “set of relations” (Li, 2007) including, poverty reduction, an increase in individual functioning, green economy, and ecological impacts. This standard set of components are embedded in CEBA as a set of relational socio-ecological benefits resulting from the participation in CEBA activities. I term this set of relations, ‘collectively beneficial results’, in this study. This packaged ‘set of relations’ was ‘sold’ to municipal and donor stakeholders in introductory engagements as an ‘Africanised response’ to South Africa’s developmental challenges (*Chapter Four*). From an assemblage thinking point of view, Li (2007:3) describes the practice of rendering technical as “retracting from the messiness of the world” where complex issues can be broken down into workable tasks, when combined, produce a beneficial result. Also known as a “set of relations” (Li, 2007:3). In this chapter I show how this ‘set of relations’ impacted the lives of project participants and surrounding ecological environments. Part two of this chapter highlights ambiguities and uncertainties present in the current format of the Wildlands CEBA Assemblage, and the relationship between vulnerability and adaptation likelihood. Fractures and contradictions in the assemblage also became apparent in the form of negative word-of-mouth conversations between neighbouring communities and participating community participants. I use this heuristic analysis framework to discuss how these conversations impacted CEBA project implementation.

Vulnerability is a cross-cutting aspect throughout this chapter. The following livelihoods and capability components were engaged with, two livelihood components related to material impacts, that is, *Poverty Reduction* and *Vulnerability* and two capability components to describe intangible impacts, *Real opportunities to accomplish* and *Authentic Self-direction*. Real opportunities to accomplish refers to equal opportunity to achieve, while authentic self-direction refers to a sense of personal autonomy and achievement (Sen, 1979). The analysis also considered that the social, personal and environmental circumstances can limit possibilities of achieving functioning and utility (Sen 1979; Alkire, 2005).

Results are presented in two tables that were produced by the researcher. One describing poverty reduction and livelihood diversification impacts and one providing information on two Capability-set categories comprising of *Real Opportunities to Accomplish* and *Authentic Self Direction*. Direct quotations from participants are presented under each category as supporting evidence. These table are found in Sections 7.3.2 and 7.3.3. The discussion begins with project implementation insights.

### **7.3 Part One: CEBA Project Impacts**

This part of the chapter focuses primarily on livelihood impacts, individual functioning and to a lesser extent on the ecological impacts resulting from project activities. Community participant project implementation feedback is also noted. The results present a brief account of comparability amongst study sites followed by community participant perceptions and thoughts on project implementation, supported by direct quotations. Integrated development issues such as job creation, conservation, waste management and improvement of livelihoods were absorbed into the ‘CEBA philosophy’ and presented to decision makers as potential solutions to managing conservation and socio-economic issues through the process of rendering technical (Li, 2007). The absorption of critical socio-economic development issues was seen as contributing to livelihoods but also as contributions to local government agendas and trying to “*address green economy principles*” (Anon.14, Senior Manager, eThekweni municipality, Interview, December 2016, Durban). Often the packaging of the Wildlands CEBA Assemblage through a technical approach was used to gain buy-in from donors and political leadership, in line with Li’s (2007) practice of rendering technical. In line with this picture, the green economy discourse (green jobs, socio-ecological impacts) added impetus to the idea of local communities becoming ‘sustainable’ in the face of climate change. Several positive impacts were identified resulting from the Wildlands CEBA intervention. This part of the chapter describes both the positive results and negative findings. The positive results are displayed first followed by the negative results.

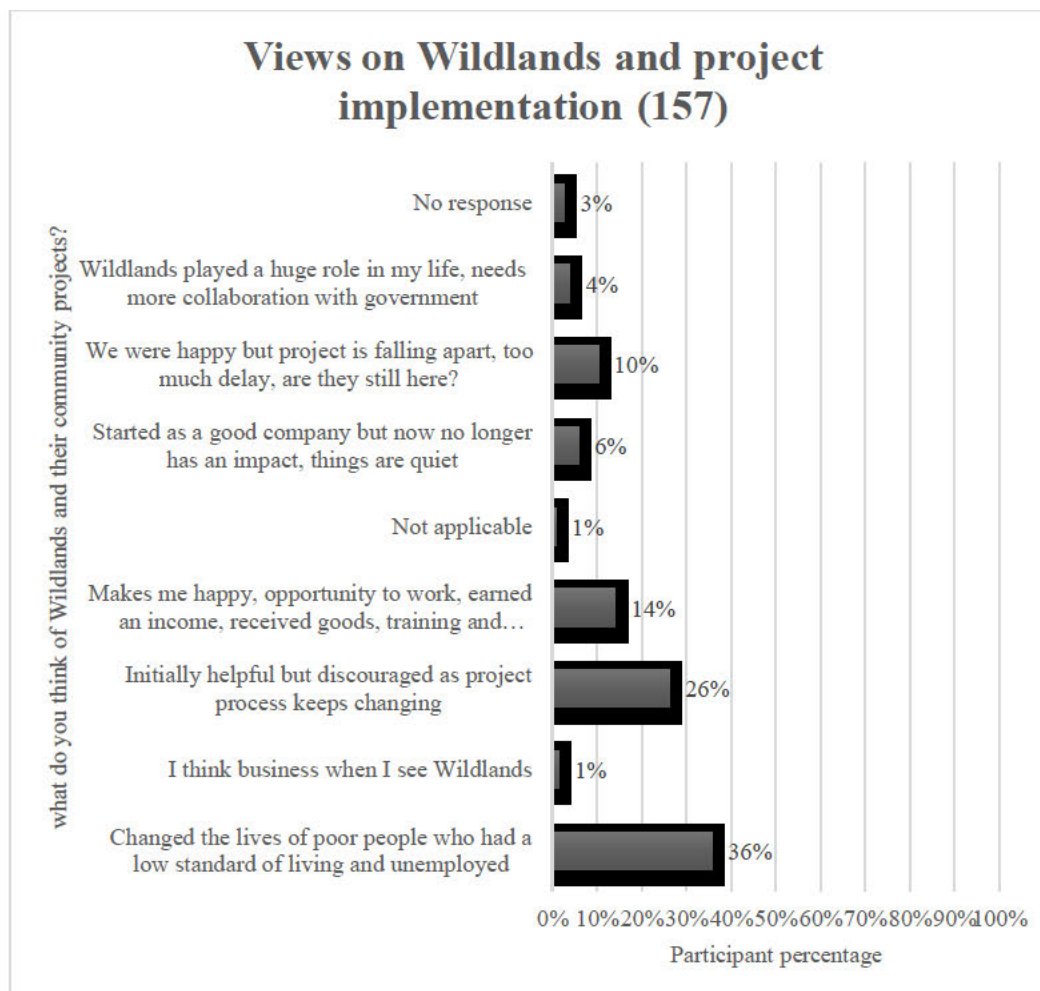
#### **7.3.1 Case study site impacts**

Wildlands was able to institutionalise the green economy concept through the CEBA Philosophy and operationalised it through the Wildlands CEBA Assemblage to aid in reducing poverty, providing collective beneficial results in all three municipal districts. Poverty reduction responses have revealed direct alignment with the first Millennium Development

Goal (MDG), focused on eradicating extreme poverty and hunger (UN News, 2015) by promoting pro-poor development and poverty reduction through the Wildlands CEBA Assemblage.

This sub-section details the positive impacts of CEBA project implementation. First a general overview of the findings is discussed and thereafter the findings are discussed under four sub-sections. These are, poverty reduction, sustainable livelihoods, capability and functioning, green economy and ecological impacts and negative CEBA project impacts. Within the Wildlands CEBA Assemblage, communities were identified and selected for project implementation based on a standard set of components described in *Chapter Four*. To reiterate these were: initial connections with the local government structures; possible donor agencies; ecological conditions that would support tree growth and planting; situation of participants in poor and vulnerable conditions; large quantities of recyclable waste present and the availability of project field staff. This information was then packaged and communicated to various municipalities around South Africa as complementary additions to already existing Integrated Development Plans (IDP) in each municipality. According to Wildlands CEO, Wildlands used this packaged information to “*present the idea of CEBA to potentially interested municipalities*” (Dr R. Kloppers, Wildlands CEO, Personal Communication, February 2020, Hilton). Project results were often framed and discussed through a doing-by-learning lens that combined and described South Africa’s developmental challenges in unison with the perceived solution, an ‘African response’ to the problem (*Chapter Four*). Findings also revealed the heterogeneity in the poverty experienced in the rural, peri-urban to urban township settings. Basic amenities, housing structures, road infrastructure and assets in the form of a vehicle or bicycle were more prevalent in peri-urban to urban township case study sites than rural case study sites.

The Wildlands CEBA intervention brought positive and welcomed impactful changes to people’s lives that did not exist prior to the intervention. Collectively results showed 34% (Figure 7.2) of the participants were happy as they managed to create their own businesses, through Enviropreneurship activities such as growing and bartering trees for livelihood support and re-selling bicycles (Wildlands, 2016).



**Figure 7.2 Views on Wildlands and their project implementation**

The theme of Entrepreneurship was most noted in Esikhawini, Obanjeni and by a few participants in Buffelsdraai. More positive insights were related to community member's abilities to find forms of employment in CEBA project activities, sending their children to school, and receiving training opportunities. Intangible findings indicated states of happiness, joy and a sense of purpose, with 28% of participant responses indicated that participating in CEBA made them happy. Only 26% of participant responses relayed disappointment and discouragement due to implementation shortcomings that discouraged their continued support of the project. Thirty-eight percent of participant responses also revealed they would like to see more of Wildlands in their communities. The further expansion of the CEBA intervention and upscaling of project activities were also supported by 43% of the participants. Finally, 36% of participant responses highlighted that the lives of poor people were changed through the



Wildlands CEBA intervention. Overall, 82% of participant responses indicated that the CEBA intervention changed the lives of poor people

The next section describes in more detail the poverty reduction impacts of the assemblage, followed by a brief explanation of the ecological impacts in the cases study sites. Thereafter, responses from community participants regarding project implementation, the lack of communication from the implementing agent and disadvantages of CEBA projects are discussed.

### **7.3.2 Poverty reduction and Livelihood Diversification**

The poverty reduction impacts from each case study community are detailed and discussed in this section. One of the most frequently referenced aspects of the Wildlands CEBA Assemblage was the linking of Wildlands work to poverty reduction. The connection between Wildlands CEBA Assemblage project activities and poverty reduction were mentioned by all 157 community participants responses, Key Informant interviews with industry professionals and Wildlands Staff.

Based on interviews conducted, 97% percent of the community participants referred to tangible benefits from the CEBA project interventions, through the provision of resources, skills development, educational and business support, leading to greater household livelihood contributions and improved living conditions. Some of which are, “*Unemployment, managed to make a living through trees*” (P.21, Interview, September 2016, Buffelsdraai), “*fight poverty and also uplift me*” (P.50, Interview, September 2016, Haniville), and “*Build my home and educate my children*” (P.115, Interview, September 2016, Esikhawini). Additionally, 21% of the community participants stated CEBA project activities aided in the upliftment of the community by providing much needed food and household item resources. Positive responses to poverty alleviation and job creation in these case study communities were expressed through varied direct responses (Table 7.1). The participants also indicated one of their main reasons for participating in CEBA project activities was due to the cascading positive effect on other members in the community, especially extended family members.

Table 7.1 Poverty reduction impacts: Community responses

SUB-THEMES	LIVELIHOOD COMPONENT: POVERTY REDUCTION
Educational Support	<ul style="list-style-type: none"> <li>• “Barter items, school fees and uniforms” (P.73, Interview, September 2016, Swapo)</li> <li>• “Buy school uniforms and children can go on field trips, can do things I could not otherwise do” (P.150, Interview, September 2016, Esikhawini)</li> <li>• “Wildlands helped me take my child to school” (P.152, Interview, September 2016, Esikhawini)</li> <li>• “Help my children at school and getting food, and we don't work” (P.13, Interview, September 2016, Buffelsdraai)</li> </ul>
Nutritional Support	<ul style="list-style-type: none"> <li>• “Received food to sustain family” (P.22, Interview, September 2016, Buffelsdraai)</li> <li>• “I am not working so project is beneficial especially getting groceries” (P.68, Interview, September 2016, Swapo)</li> <li>• “Helpful I won't get hungry” (P.27, Interview, September 2016, Buffelsdraai)</li> <li>• “Helpful and I get food” (P.79, Interview, September 2016, Sweetwaters)</li> </ul>
Transport Support	<ul style="list-style-type: none"> <li>• “Helped with food shortages, hampers, transport problems because we get bicycles, children got a driving licence” (P.83, Interview, September 2016, Obanjeni)</li> <li>• “Built my house, bought a car since 2003” (P.115, Interview, September 2016, Esikhawini)</li> <li>• “Vouchers and bicycles” (P.42, Interview, September 2016, Sweetwaters)</li> <li>• “Get food and bicycles” (P.37, Interview, September 2016, Esikhawini)</li> <li>• “Helps us a lot, get vouchers for food and do a licence” (P.28, Interview, September 2016, Buffelsdraai)</li> </ul>
Fight poverty	<ul style="list-style-type: none"> <li>• “Able to make a living through this project” (P.104, Interview, September 2016, Obanjeni)</li> <li>• “Changed the lives of poor people” (P.123, Interview, September 2016, Esikhawini)</li> <li>• “Fight poverty and also uplift me” (P.50, Interview, September 2016, Haniville)</li> <li>• “Fight poverty and to sustain ourselves through gardens” (P.66, Interview, September 2016, Edendale)</li> <li>• “Fight poverty and we have an income” (P.67, Interview, September 2016, Swapo)</li> </ul>
Job Creation	<ul style="list-style-type: none"> <li>• “Fight poverty, create employment opportunities” (P.16, Interview, September 2016, Buffelsdraai)</li> <li>• “Planting trees helped us to get jobs, learning how to plant” (P.52, Interview, September 2016, Haniville)</li> <li>• “Job opportunities for youth in the community” (P.76, Interview, September 2016, Sweetwaters)</li> <li>• “Problem of waste, helping the unemployed” (P.49, Interview, September 2016, Edendale)</li> <li>• “Clean our community by collecting waste, securing jobs” (P.53, Interview, September 2016, Swapo)</li> </ul>
Enviropreneurship	<ul style="list-style-type: none"> <li>• “Fight poverty, Financial support, business support” (P.123, Interview, September 2016, Esikhawini)</li> <li>• “Able to re-sell and make profit” (P.145, Interview, September 2016, Esikhawini)</li> <li>• “Start businesses, JoJo tanks, hampers and bicycles” (P.95, Interview, September 2016, Obanjeni)</li> <li>• “Training, making a business profit, educate my children through earning income” (P.94, Interview, September 2016, Obanjeni)</li> <li>• “Teach us about environment taught me business skills” (P.69, Interview, September 2016, Swapo)</li> <li>• “Vouchers for food which lasts six months, learning to run a business by growing trees” (P.29, Interview, September 2016, Buffelsdraai)</li> </ul>

Briefly, the categories above indicate the varying types of support received. Based on community interviews 84% of participants benefited from nutritional and educational support in the form of groceries, school fees and uniforms among others. A further 12% were able to start new businesses and explore enviropreneurship activities, and 62% describe Wildlands CEBA intervention as a means to reduce poverty. All 157 study participants are South African citizens with most indicating the Wildlands CEBA Assemblage has contributed to fighting poverty and unemployment, to the extent of providing people with jobs “*especially youth*” (P.24, Interview, September 2016, Buffelsdraai) as indicated by one participant. Compounding positive effects on extended family members were highlighted in 54% of community responses revealing an increased ability to “*to support myself and family*” (P.86, Interview, September 2016, Obanjeni). In similar accounts, Sardar *et al.* (2020) and Kariuki *et al.* (2011) also found that integrated approaches like Climate Smart Agriculture strengthens livelihood diversification by increasing the share of income for a person as opposed to a person not actively adopting the integrated approach; and encouraging farmers to grow variety of crops so as not to rely on one type of crop. However, Mwashia and Robinson (2021) caution that while livelihood diversification allows people access to varying income activities, if the activity is affected by climate change or variability (soil fertility, water resources), livelihood contributions can be at risk compromising the achievement of building adaptive capacity.

Further empirical evidence pointed towards the overall benefit of the Wildlands CEBA Assemblage, “*Wildlands is helpful, it’s a win-win situation*” (P.65, Interview, September 2016, Edendale) (linked to traction discourses of win-win scenarios, *Chapter Four*). By the same token, the theme of Enviropreneurship surfaced strongly as another avenue to make a living reducing the intensity of poverty experienced. However, the creation of sustainable communities is at risk owing to dependence on donor support that is not always received well by community participants, as indicated by 10% of the responses (Figure 7.2) revealing, “*do not like hampers, they do not help*” (P.58, Interview, September 2016, Haniville). Positive effects on diversifying livelihood options were also noted, by providing direct monetary gain and livelihood support through the barter mechanisms, business support and enviropreneurship activities in Wildlands suite of programmes (Plate 7.1).



Plate 7.1 ‘Future farmers’ interview, Enviropreneurship - CEBA project activity

Livelihood diversification is known to counteract more than one vulnerability (shock or stress) affecting an individual or community (Scoones, 1998; Pavageau *et al.*, 2016). Findings revealed projects under the Wildlands CEBA Assemblage acted as a buffer against extreme poverty experienced by all 157 community participants. The findings have indicated inequality with severe forms of poverty across all the case study sites as noted in *Chapter Six*. However, most participants acknowledged and highlighted that the CEBA project activities helped fight poverty, unemployment, the lack of education and resources, and improved capacity building through direct responses received. “Central to our work is a focus on unlocking the potential of the poor” (WCT, 2013:4). Overall, the Wildlands CEBA Assemblage was successful in facilitating livelihood diversification in all case study communities through the various examples cited in this chapter. However, the link to achieving systemic, long-term climate change adaptation and poverty alleviation was not explicit due to the lack of M&E practices. Instead, incremental transformative adaptation shifts were noted through elements of poverty reduction. More positive results describing livelihoods diversification and increased individual functioning regarding equal opportunity and sense of achievement is presented in the next subsection.

### **7.3.3 Capability and functioning: Real opportunities to accomplish and Authentic self-direction**

This section describes additional positive impacts in the form of real opportunities to accomplish and authentic self-direction. Enviropreneurship was seen as an improvement of traditional livelihood strategies<sup>44</sup> allowing people the opportunity to experience the feelings of independence, self-employment, and self-sustenance. Two other capability aspects of employment developed by Sen (1979), '*income*' and '*recognition for being involved in valuable activities*' overlapped with findings explored under poverty reduction and livelihood diversification and were not included in this study. Community responses relating to *Real opportunities to accomplish*, and *Authentic self-direction* can be seen in Table 7.2 below.

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<sup>44</sup> In the context of this thesis, traditional livelihood strategies referred to community members securing water, food, shelter or planting crops for sale or consumption.

Table 7.2 Capability, Functioning and Utility: community responses

<b>Capability Set 1. Real Opportunities to Accomplish (Equal opportunity)</b>	<b>Capability Set 2. Authentic Self Direction (personal autonomy and achievement)</b>
“Opportunity to Work and send children to school” (P.4 & P.23, Interviews, September 2016, Buffelsdraai)	“Makes me happy, satisfied, doing something” (P.3, Interview, September 2016, Buffelsdraai)
“Has helped me manage to support my family” (P.51, Interview, September 2016, Swapo)	“Support my family” (P.101, Interview, September 2016, Obanjeni)
“Gained a way to survive” (P.1, Interview, September 2016, Buffelsdraai)	“Create development and independence in the community members” (P.88, Interview, September 2016, Obanjeni)
“Give community hope and make them work” (P.87, Interview, September 2016, Obanjeni)	“I am empowered, and I can see growth” (P.92, Interview, September 2016, Obanjeni)
“Helpful, we get jobs, better chances” (P.11, Interview, September 2016, Buffelsdraai)	“Feels good to work, helps to keep fit and fresh” (P.43, Interview, September 2016, Edendale)
“Encourages us to learn how to survive with natural resources and create businesses” (P. 137, Interview, September 2016, Esikhawini)	“Personal growth as a person and household contribution” (P.125, Interview, September 2016, Esikhawini)
“Opened our minds to what we can do with environment, household contribution and not depend on the male” (P.157, Interview, September 2016, Esikhawini)	“Have learnt a lot from Wildlands which I never learnt at school” (P.35, Interview, October 2016, Sweetwaters)
“Fight poverty and also uplift me” (P.50, Interview, September 2016, Haniville)	“Helps us to think and develop, manage to plant trees to live without a proper job” (P.55, Interview, September 2016, Swapo)

Measuring capabilities are a difficult task, however, ‘functioning’ can result in observable impacts and achievements (Sen, 1979; Alkire, 2005). For example, the table above (Table 7.2) reveals observable achievements in sending a child to school and making household contributions. CEBA project activities led to improvements in well-being by providing opportunities to make a living, uplifting individuals, opening minds to new ways of thinking, and giving hope to community participants (Table 7.2). CEBA community participants also moved beyond being recipients of project outcomes. The integrated and innovative CEBA intervention gave community participants agency to shape their own lives through ‘enviropreneurship’ activities like creating businesses. This can be seen in a community response stating, “*changed my life, bought things through selling bicycles*” (P.105, Interview, September 2016, Obanjeni) among others (Table 7.2). The results revealed diverse responses indicating improved chances of earning a livelihood and provision of opportunities previously non-existent. It was also discovered that real opportunities to accomplish CEBA project-related activities was a means to self-realisation and discovering forms of authentic self-direction, identifying personal growth in oneself. In this way, the assemblage created an enabling environment for participants to realise their individual potentials and recognising the heterogeneity in their individual capacities and capabilities.

#### *Real opportunities to accomplish and authentic self-direction*

Real opportunities refer to levelling of the ‘playing field’ and equal opportunity, while authentic self-direction refers to a sense of personal autonomy and achievement (Sen, 1979). Both concepts in the context of this study are used to describe how CEBA projects offered community participants the freedom to achieve and feel accomplishment in the presence of challenging socio-economic circumstances.

The Wildlands CEBA Assemblage provided community participants with opportunities to change their lives that were otherwise difficult to attain, seen in responses such as “unexpected opportunities” (P.144, Interview, September 2016, Esikhawini). One opportunity was the provision of bicycles to community members and in some cases the increased chances of accessing transport through the CEBA intervention. To explain further, some responses received were not linked to the CEBA project interventions in the form of receiving transport but rather alluded to being given “*a better chance to access transport*” (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjeni), as compared to the non-existence of the

Wildlands CEBA intervention. Overall, 36% of the community participants indicated having *access* to transport made a positive impact on their lives as they no longer needed to walk long distances to access transport. A further 11% claimed access to transport has bettered their lives and allowed them to search for job opportunities more efficiently. An independent study conducted by Wildlands in conjunction with their long-standing sponsor of bicycles<sup>45</sup> revealed, “the distribution of the bicycles led to indirect growth within the communities, as community members are now able to gain access to services, through the use of bicycles” (Wildlands, 2016:13). In other examples where some community participants received bicycles, it was expressed that the CEBA intervention, “*provides transport through bicycles*” (P.122, Interview, September 2016, Esikhawini), making their daily commutes easier. In these instances, it was deduced that the bicycles gave a sense of free uninhibited movement around the community playing an important functioning role in the lives of some community participants.

Participation in the Wildlands CEBA Assemblage also revealed that community members gained knowledge through capacity building activities, training and awareness raising. Wildlands Ubuntu Earth component considered a person’s capability to absorb knowledge, ability to think and transfer knowledge into actionable choices, thereby mobilising individuals to function differently. The project activities and associated training campaigns aided in participants learning the importance of conservation and climate change. Additionally, receiving training about the environment otherwise not learnt at school-level, and highlighting the responsibilities of communities in taking care of their surrounding environments were also noted. These project activities led to increased senses of hope and independence. This can be seen through responses such as, “*Fight poverty and also uplift me*” (P.50, Interview, September 2016, Haniville).

Positive results revealed that each CEBA project in the case study communities led to an improved quality of life for 83% of the participants. A further 88% of the participants revealed that the CEBA projects had a positive effect on others in the community, especially extended family members making others feel “*empowered*” and “*independent*” (Table 7.2) (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjeni). In contrast a fraction of 4% felt strongly

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<sup>45</sup> A form of livelihood support in the Wildlands suite of Programmes



about not having guidance from Wildlands, expressing their concern and dislike with the words, *“breaks my spirit”* (P.47, Interview, September 2016, Edendale).

The will to move beyond poor socio-economic circumstances were attributed to the project activities in the Wildlands CEBA Assemblage, culminating in individual and greater community benefits. It is important to note that while a small collective of the participants (14%) mentioned some form of religion and/or spirituality in relation to the significance of the environment, the relation between spirituality and nature was noted throughout the dataset of 157 responses in relation to other questions. People have not only associated an intangible and intrinsic value to the environment itself, noting the benefits and importance beyond the material world but have also personified it through responses such as *“calms me down”* (P.74, Interview, September 2016, Swapo) and *“reminds me where we come from”* (P.106, Interview, September 2016, Obanjeni). Findings demonstrated forms of development have indeed taken place, from personal growth experiences to holistic community upliftment. One community member expressed that the CEBA intervention also helped the larger community. This can be seen through responses such as, *“Give community hope and make them work”* (P.87, Interview, September 2016, Obanjeni) and *“Come together as community to collect seeds and chat”* (P.106, Interview, September 2016, Obanjeni).

Through their participation in CEBA community participants were able to improve various individual functioning relevant to their own circumstances. This further incited a sense of freedom within community participants to make personal choices otherwise non-existent. The Wildlands CEBA intervention offered 157 people a standard suite of CEBA project activities such as tree growing, waste collection and planting among others, which resulted in participating community members being rewarded with the same resources such as monetary income, vouchers for trees grown or waste collected. The findings revealed that the resources were used differently by community participants. Various community responses validate this finding in stating they were able to *“buy school uniforms and children can go on field trips, can do things I could not otherwise do”* (P.150, Interview, September 2016, Esikhawini), and it *“helps me I don’t have to buy other things with my pension then that money is not used until there are shortages”* (P.67, Interview, September 2016, Swapo).

Despite the overwhelming evidence revealing the successes of an integrated CBA-EBA intervention, negative community responses also indicated reduced functioning within the assemblage. When Wildlands changed their project barter model and switched from monetary

payments to vouchers throughout the CEBA intervention, these were rejected by the community participants. They expressed preference *“for people to have a choice so give money instead of vouchers”* (P.51, Interview, September 2016, Swapo). In another example, some community participants mentioned, *“receiving bicycles we do not really need, only receiving hampers which do not have everything we need”* (P.43, Interview, September 2016, Edendale) and *“we miss getting groceries”* (P.86, Interview, September 2016, Obanjeni). In these instances, the CEBA intervention did not improve capabilities and functioning, and community participants did not feel a freedom of choice or capability to achieve. The resource in terms of the vouchers, bicycles and hampers prohibited the capability of community participants, negatively affecting their functionality, resulting in dismay and frustration.

Organisational oversights like the lack of communication, overpromising and under-delivering, and a deficit in M&E processes compromised the Wildlands-Community relationships that were forged at initial phases of the CEBA projects (*Chapter Four*). The resulting consequence was a ‘push-back’ from the communities expressing their disappointment in Wildlands and disconnecting themselves from Wildlands as noted in one response stating, *“Wildlands was treating us well but now things have changed, we are getting fed up”* (P.34, Interview, September 2016, Sweetwaters). The battle between organisational and donor priorities was also noted in the lack of prioritising communication amongst others, due to donor priorities taking precedence over organisational functioning (*Chapter Five*). Community participants began to feel the strain of Wildlands lack of Project Management and leadership over various project activities and began speculating various notions of why they felt a lack of interaction from Wildlands during CEBA operations. One of those notions alluded to Wildlands closing its doors, as communities did not see project managers and field facilitators for weeks and sometimes months. The next section highlights green economy, environmental and ecological impacts resulting from the Wildlands CEBA Assemblage.

#### **7.3.4 Green economy, Environmental and Ecological Impacts**

Apart from positive socio-economic impacts, the integrated Wildlands CBA-EBA intervention also delivered environmental and ecological impacts. As highlighted by Wildlands the trees propagated in CEBA projects are *“planted into restoration sites that form the corner stone of Wildlands climate change mitigation and adaptation work”*, further stating that their recycling activities are aimed at creating income for poor individuals and *“creating a cleaner environment”* (Wildtrust, 2018:11,17). Both these aspects serve a green economy agenda as

identified by the United Nations Environment Programme (UNEP, 2011). This sub-section briefly highlights the number of green jobs created through the Wildlands CEBA adaptation intervention and the positive environmental and ecological impacts such as recycling of waste and tree propagation for reforestation activities (Plate 7.2). Data was extracted from the 2014/2015 CEBA reports produced as outcomes of the CEBA review process, Wildlands data dashboards and annual publications. It is important to note that although numerous attempts were made to retrieve follow-up data from Wildlands, it was unfortunately to no avail. One theory of speculation as to why retrieval of data was challenging is attributed to the multiple roles played by employees at NGOs, to fulfil donor demands. Hence detailed project data for the 2016, 2017, 2018, 2019, 2020 financial years are not presented in the analysis. In instances Where aggregated project data could be found, it was used in this sub-section to supplement study findings.



Plate 7.2 Backyard nursery and recyclable waste collection in Esikhawini

In the eThekweni CEBA Cluster Wildlands partnered with the eThekweni Metro Municipality and other stakeholders to assist in the control of invasive alien plants (IAP), to plant trees into degraded areas and to better manage the grasslands. In the 2015 financial year Wildlands employed 207 local community members who to date strive to maintain the ecological integrity of the Buffelsdraai area through the removal of IAPs in the winter months, and where appropriate the planting of indigenous tree species during summer months (Ramanand *et al.*, 2015a). Planting indigenous trees created an aesthetic buffer around the Buffelsdraai landfill site for neighbouring communities living alongside the landfill site. Planting of the indigenous trees also provided much needed employment in the area and promoted the concept of green jobs. In some way these activities also addressed socio-economic vulnerabilities highlighted in

*Chapter Six*, such as high rates of unemployment and low levels of income. During the financial period 2014/2015 approximately 184 582 indigenous trees were planted across 41.5 hectares and 258.31 hectares of IAP's were cleared.

Wildlands also engaged with the national Department of Environmental Affairs through their Natural Resource Management Landusers Incentive programme (NRM - LUI) in the King Chetswayo CEBA Cluster to both assist in the control of IAP's and to plant indigenous trees back into degraded areas. The King Chetswayo CEBA Cluster had a team of 118 people who removed IAPs in the winter months, and planting of indigenous species during summer. The team was divided into 27 team members in Ongoye, 49 in Richards Bay Coastal Dune and 42 in uMhlathuze Estuary. At the time, 380 056 trees were planted across 20.47 hectares and 193.61 hectares of land cleared of alien vegetation. Tree propagation, alien clearing and tree planting have since continued among other CEBA project activities. Recycling activities amounted for 269 345 kilograms of waste collected and bartered in 2017 (Wildlands, 2017).

The NRM-LUI agreement between Wildlands and the national Department of Environmental Affairs afforded Wildlands an opportunity to engage in alien vegetation removal and the planting of indigenous trees in the uMgungundlovu CEBA Cluster. In the case of the uMgungundlovu cluster of projects Wildlands had a team of 355 people clearing alien vegetation and planting indigenous trees. A total of 142 217 trees were planted and 119.26 hectares of alien vegetation was cleared. Collectively, the 2014/2015 financial period boasted the planting of approximately 706 855 trees over 61.97 hectares and cleared 571.18 of alien vegetation.

For all three case study districts, tree propagation, planting and alien vegetation clearing activities have continued and remain ongoing to date. Geographically 'clustered' progress updates can be found in Wildlands *Reflections* publications (WCT, 2016; Wildlands, 2017; Wildtrust 2018, 2019, 2020). Unfortunately, aggregated data updates regarding these activities could not be included in this study as these project data dashboards were not available for analyses.

Overall, the analysis revealed that Wildlands made positive attempts to develop CEBA activities that responded to the green economy and benefit the environment. Wildlands executed these activities through a circular model, inspired by the green economy (UNEP, 2011), where trees were grown by community participants in substantial numbers and immediately allocated to reforestation sites for greening activities, and community participants

were rewarded accordingly for their efforts. However, factors out of Wildlands control such as the droughts in South Africa negatively affected this circular model. Wildlands community participants indicated how the period of severe drought affected their tree project activities by indicating, *“It is drought and it’s killing our trees, last year was devastating”* (P.103, Interview, September 2016, Obanjeni). Wildlands attested that drought posed challenges to project activities and *“in some regions we have run out of areas to replant”* (Wildlands, 2018:11). Regarding drought, one community respondent stated, *“Change in weather and drought recently had an impact on us and our trees”* (P.71, Interview, September 2016, Swapo). However, running out areas to replant can infer design and adaptation planning challenges.

The analysis in this sub-section unveiled that executing uninterrupted and continuous CEBA project activities in the face of a changing climate can be challenging. While Wildlands made strides in creating green job opportunities, reforesting degraded landscapes and ridding the environment of waste, the circular design of the CEBA intervention was not without its own challenges. Challenges regarding inadequate adaptation planning, lack of impact measurement and organisational planning is dealt with in part two of this chapter. The next section deals with disadvantages and negative impacts of the Wildlands CEBA intervention.

### **7.3.5 Negative impacts of communications and Disadvantages of CEBA projects**

This section presents findings pertaining to the lack of communication between Wildlands and community participants and highlights disadvantages of the CEBA projects. Wildlands successfully integrated conservation and development issues and packaged this integrated ‘CEBA Philosophy’ as socio-ecological solutions in the form of the CEBA intervention, thereby rendering these issues as technical pieces of a project. However, findings in *Chapter Six* also revealed that Wildlands also failed to place adequate attention on post-project setup activities, threatening the coded aspects of the assemblage by weakening Wildlands-community relations and trust. With the assemblage becoming geographically widespread, a thinned-out labour force and the lack of a formal M&E system, a large array of disgruntled community participants’ feedback was noted regarding project implementation.

Community views on project implementation indicated that projects began on good footing as community participants indicated they have *“been enjoying working with Wildlands”* (P.9,

Interview, September 2016, Buffelsdraai), but began to slow down compromising the ‘CEBA Philosophy’ of achieving joint and impactful coexistence of sustainable communities and ecosystem preservation. Responses on project implementation indicated that while the CEBA intervention aided in poverty alleviation, unemployment, and the addition of intrinsic value to one’s life and purpose, collaboration between Wildlands and government was still an important consideration for large-scale change. Evidence by a respondent stating that *“Wildlands need to be in collaboration with government in order to have more impact in the community”* (P.74, Interview, September 2016, Swapo). Unhappiness towards the operational structure and supply chain of the NGO was implied by 26% of the participants who felt that the NGO was unstable, and they were no longer motivated to continue participating. Reasons for their unhappiness alluded to a *“Lack of communication and no facilitator visits”* (P.62, Interview, September 2016, Edendale). An interesting response by 6% of the participants alluded to the NGO *‘no longer having a positive impact’*. View on project implementation can be seen in Figure 7.3.

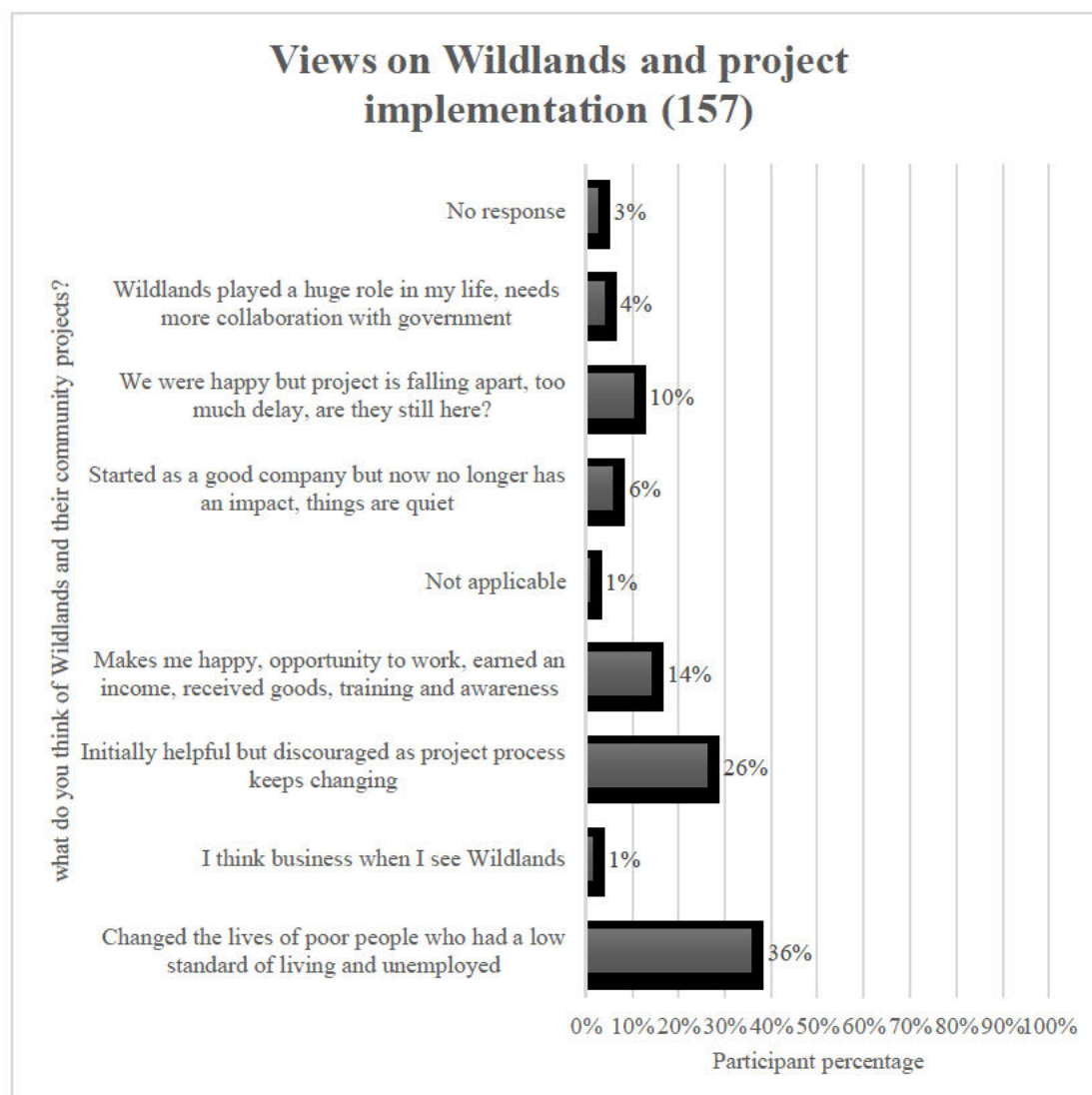


Figure 7.3 Views on Wildlands and their project implementation

All the community participants expressed their anger and suspicions of dishonesty as they noticed Wildlands project processes change, their concerns were justified in responses such as, *“No longer has truth or direction”* (P.118, Interview, September 2016, Esikhawini), *“there are retrenchments, and we no longer get visited”* (P.148, Interview, September 2016, Esikhawini) and *“Less employment opportunities”* (P.25, Interview, September 2016, Buffelsdraai). In general, all community participants relayed messages of needing improved communication and informed traditional and political leadership for decision making around climate change issues affecting communities’ livelihoods. Concern towards the decline in employment opportunities in CEBA projects were also relayed by most participants. The results also indicated, despite positive livelihood changes, the implementation of CEBA projects is not without confusing and demoralising effects on these communities due to poor communication and high-level project oversight. Participants further way from the city (Obanjeni, Esikhawini) were more welcoming and more open to participate in the research than those closer to cities (Copesville, Haniville, Buffelsdraai). Participants from Obanjeni and Esikhawini expressed more patience with Wildlands indicating *“they encourage us, and we understand they are still looking for funding”* (P.105, Interview, September 2016, Obanjeni). Others in Copesville, Haniville and Buffelsdraai expressed their dismay with Wildlands tardiness in delivering on livelihood support as promised. This is evidenced through one community participant stating there were *“delays in tree collection and delays in barter items”* (P.114, Interview, September 2016, Buffelsdraai). Part of the discussion on participating communities’ perspectives on project implementation includes a brief account of project implementation suggestions.

Project implementation suggestions are described from the community participant’s point of view (Figure 7.4).



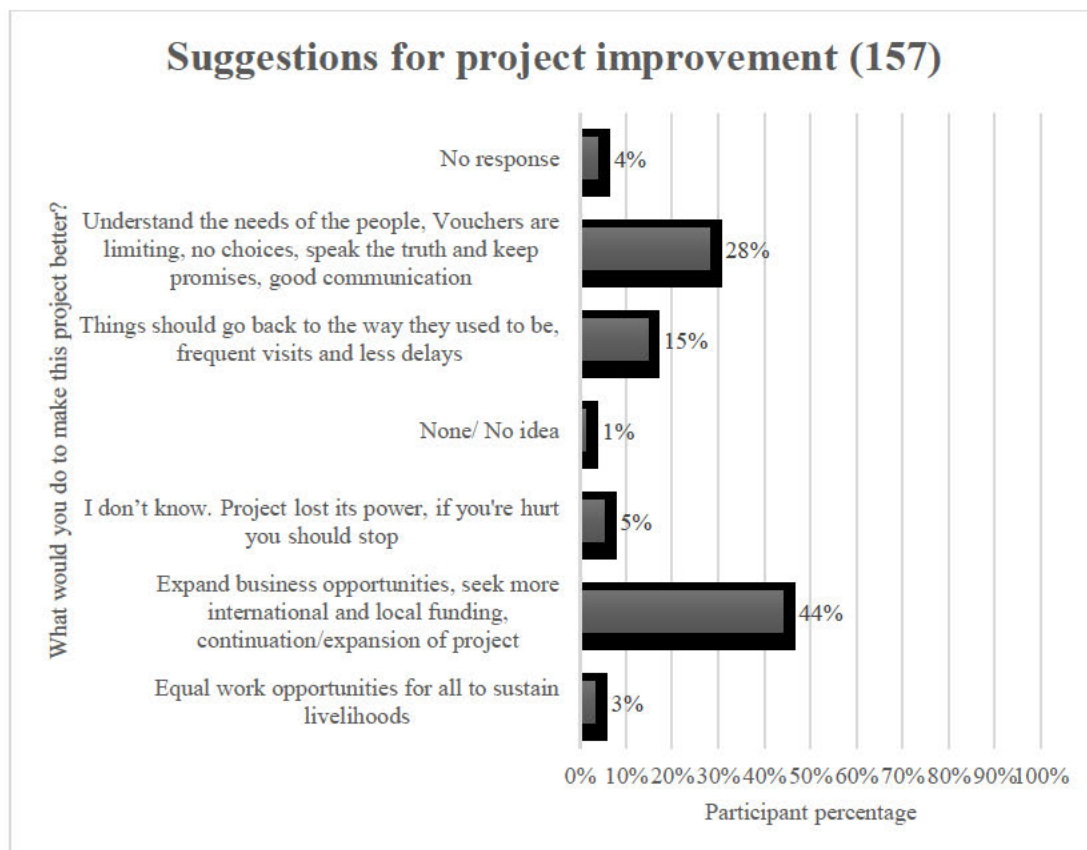


Figure 7.4 Suggestions for project improvement

One of the most interesting points of suggestion from community members, was for Wildlands to improve upon the Wildlands Field Project teams understanding of climate change. Job scarcity, food insecurity and inability to be released from the nets of poverty is what community participants wish to address through a more effective implementation of the Wildlands CEBA Assemblage. Forty-four percent of participants saw the need for '*seeking more local and international funding*' to ensure continuation and expansion of the project as well as expanding their own enviropreneurship activities. A further 28% felt strongly that understanding the needs of the people and ongoing communication remains pertinent to project success. Fifteen percent stated that the 'system' used previously by Wildlands was of a better standard due to frequent visits by Wildlands project teams and less delays on receiving compensation and payments for completed project work-related activities. These suggestions serve as a lessons-learned opportunity for Wildlands to consider in the context of managing certain aspects of CEBA project implementation with more rigour. However, no feedback loop was noted between Wildlands and participating communities to input these suggestions in their CEBA planning and review processes.



In some cases, the result of poor project delivery and unsatisfactory communication practices led to amicable and professional Wildlands-Community relations turning hostile. As one Project Facilitator stated, “*The community is angry with Wildlands and some don’t want to see them here*” (Anon.13, Wildlands ex-Community Facilitator, Interview, September 2016, Buffelsdraai) (Plate 7.3). According to the Wildlands ex-Community Facilitator, negative sentiments expressed about Wildlands developed in conjunction with the dwindling of Wildlands recycling operations and was further exacerbated by a lack of communication between Wildlands and the community.



Plate 7.3 Interview with ex-CEBA project field facilitator

Similarities and differences in opinions across study sites were also noted. Twenty-eight percent of the participants in Buffelsdraai noted negative responses stating delays in collections, payments and changes in project implementation affected their livelihoods. This is opposed to 12% in Esikhawini, who highlighted Wildlands’ project initially helped but no longer had a positive impact. Participants indicated their disappointment in receiving bartered goods they no longer needed or wanted, and expressed that it was “*no longer the same, was better before*” (P148, Interview, September 2016, Esikhawini). An additional case of dissatisfaction was indicated by a community participant indicating that, “*we were promised R30000 and got R10000, I even signed in black and white. Barter items and hampers no longer the same*” (P.102, Interview, September 2016, Obanjeni). The communication issues expressed

by community participants resulted in participants losing interest in both project activities and climate change issues. As stated by one participant, *“collections too slow, people lose interest and give up”* (P.123, Interview, September 2016, Esikhawini). Moreover, 75% of the Edendale community felt confused about operational project changes with one participant stating, *“No longer see a way forward, do not know whether the project is dead or what is happening”* (P.47, Interview, September 2016, Edendale).

A major portion of the disappointing and disgruntled responses particularly in the uMgungundlovu CEBA cluster revolved around the failing wastepreneur operations. Twenty-nine percent of the participants in Haniville and 21% in Copesville (Swapo) stated there were countless negative issues with the people who collect waste on behalf of Wildlands indicating *“they do not live up to the people’s expectations and communicating with them what they really need like money and food”* (P.60, Interview, September 2016, Swapo). Participants were also not certain if Wildlands was still in operation due to infrequent visits. A further 29% of the participants in the Sweetwaters community stated Wildlands recycling operations disappeared without a word of communication, recycling operations stopped, and children began playing around waste. Consequently, the community questioned Wildlands abilities and judgement (Thakur, 2018).

Responses from the Edendale, Sweetwaters and Copesville (Swapo) case study communities indicated participants were unhappy with bicycles, hampers, and barter items, they preferred cash instead. Finally, 17% of the participants in the Obanjani community stated the project was helpful in the past however conflict around the amounts of financial grants received and the way trees were counted became problematic. A few Responses in this regard were, *“Speak the truth to people concerning giving their money”* (P.19, Interview, September 2016, Buffelsdraai) and *“Things are not the same anymore, trees not counted like before. We were just given SASSA grants in lump-sums and its creating conflict amongst ourselves as we are not getting similar amounts”* (P.102, Interview, September 2016, Obanjani). Disadvantages of participating in CEBA is seen in Figure 7.5 below.

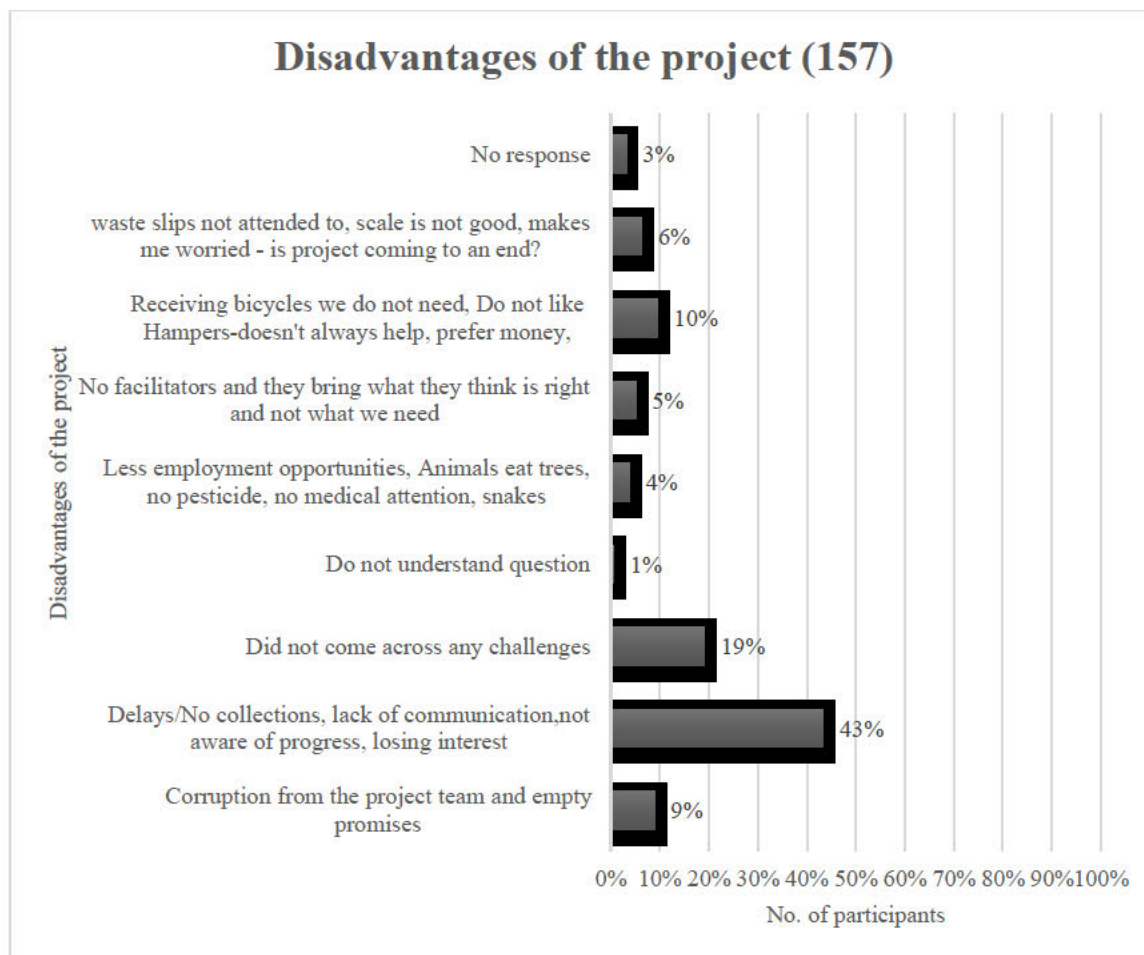


Figure 7.5 Disadvantages of the project

There were stated disadvantages of participating in CEBA project activities for community members. These are presented in Figure 7.5 above. A few aspects were highlighted including, the lack of communication, participants feeling misunderstood and the disappointment of empty promises indicating that “*their needs are no longer met*” (P.48, Interview, September 2016, Edendale) by the project intervention. Although responses were varied, 9% alluded to empty promises and “*corruption from project team members*” (P.156, Interview, September 2016, Esikhawini). This finding led to a culture of distrust amongst a few participants, indicated through responses such as, “*Not anymore, I never heard anything after my slips were collected*” (P.39, Interview, September 2016, Sweetwaters), “*Not flowing like it used to, hardly receive hampers*” (P.85, Interview, September, Obanjeni) and “*They hardly ask what we need, delays*” (P.139, Interview, September 2016, Esikhawini). Varied participant responses shared this sentiment in relation to Wildlands, ‘they bring what they think is right and not what we need’. A further 43% acknowledged the loss of interest in these projects due to feeling ‘*left out*

*of the loop*' (Various community responses, Interviews, September & October 2016, Buffelsdraai, Swapo, Haniville, Sweetwaters, Edendale, Esikhawini & Obanjeni) or being misunderstood. More than half (59%) of the participants indicated that Wildland's project team 'hardly ever' visits the project sites.

The lack of communication, absence of field staff and delivery of unwanted hampers indicated, the needs of the people were not fully understood and as a result not being met in some cases. Additionally, both senior office and on-site management accountability and transparency were among other important issues lacking within the NGO, as seen by participants. These issues along with on-going communication challenges, lack of robust stakeholder engagement infer that on-the-ground project implementation processes require equal attention as the bold strides taken at top-management levels supporting new visions and ideas. Unfortunately, Wildlands did not engage further on accountability and transparency issues in the interview process. Part two of this chapter sheds more light on the challenges experienced regarding the lack of M&E, associated ambiguities, uncertainties and whether adaptation was acknowledged to be achieved due to CEBA project activities.

#### **7.4 Part Two: Project Impacts and why Monitoring & Evaluation is Challenging?**

Part Two of this chapter details the complexities, ambiguities and uncertainties faced within the Wildlands CEBA Assemblage with respect to Li's (2007) practice managing failures and contradictions. According to Li (2007:3) this practice relates to presenting failures and contradictions as rectifiable and superficial as opposed to fundamental problems, where workable solutions and compromises can be "devised" to overcome these failures and contradictions. The findings revealed certain failures were not adequately managed in the Wildlands CEBA Assemblage. These related to confusion, uncertainty, disappointment, frustration, and anger amongst community participants, inadequate M&E practices and confusing interpretations of CEBA.

Though failures and contradictions were noted in the CEBA reviews, internal organisational dynamics, and several interpretations of CEBA as seen in *Chapter Five*, they were not always managed well. The lack in succession and exit strategy planning discussions were also noted by one response stating, "*Not enough discussion on why previous plans change and need to be a little stronger in pointing out strategy and repetition of errors*" (Anon.6, Wildlands Senior Management, Personal Communication, October 2016, Hilton). These areas of concern along with others were carried through the system resulting in unsatisfactory communication

practices, poor project implementation in some cases and frustrated community participants as described in section 7.3.5 above. In the context of this chapter the practice of ‘managing of failures and contradictions’ is used to explore how situations were handled with compromise, rendering superficial fixes in some cases and highlighting those situations where opportunities to find solutions were missed. In addition, it was discovered that essential questions regarding the type of vulnerability and hazard being dealt with and, a definition of adaptation were not a part of CEBA project planning. Three fundamental questions adapted from Brooks (2003) was used in the heuristic analysis framework to explore this adaptation planning deficit within the CEBA intervention (*Chapter Two*). These are: Is the principle concern biophysical/ social vulnerability and at what scale; what are the principal hazards of concern, are necessary resources available to resolve them, how do they affect vulnerability and adaptive capacity in project interventions and, is adaptation being defined at the system level (regional/ecosystem) or the sub-system level (project site-specific) for implementation.

Some of the challenges mentioned have been managed through rendering issues as technical and solvable pieces of work, while others have not been adequately managed. For example, the Wildlands CEBA review process was devoid of definition and scale discussions which were not initially managed well but were later revisited. Wildlands attempted documenting changes within the system through CEBA reviews and CEBA documents. However, a lack of robust, time series M&E information from which to draw insights, resulted in Wildlands being poorly placed to identify the challenges that caused confusion and disgruntlement amongst participating communities. Challenges in measuring project impacts and acknowledging the likelihood of achieving desired forms of adaptation were also noted. In addition, the absence of definitions, discussions regarding scale and baselines reduced the potential to identify whether the Wildlands CEBA Assemblage facilitated the creation of sustainable communities.

The discussion begins with exploring M&E challenges and concluding sections describe the vulnerabilities experienced in relation to the likelihood of achieving adaptation through CEBA project activities.

#### **7.4.1 Measuring and monitoring challenges: complexity, ambiguity and uncertainty**

M&E practices are viewed as a gateway to the provision of helpful impact information and outcomes of adaptation interventions. However, complexities, ambiguities and uncertainties in project processes create difficulties in monitoring, measuring, and evaluating project outcomes.

This section delves deeper into the impact of inadequate M&E practices, bringing to light Wildlands attempts at M&E.

The lack of M&E practices could be viewed as one of the major vulnerabilities in the Wildlands CEBA Assemblage. In this instance, I view the lack of an M&E component as a missed opportunity to analyse systemic change and potential acknowledgment to achieving adaptation impact over a long-term period of CEBA project since its initiation in the 2010/2011 financial period. Internal strategy documents produced by the researcher during her time of employment at Wildlands indicate that, while the project portfolio of the organisation expanded at an exponential rate, the structures, processes, and protocols did not keep up. Responses from CEBA review surveys in 2014/2015 such as, “*The CEBA reviews are a starting block for a much-needed M&E process*”, indicated that the Management team were expecting improvements in monitoring and evaluation to occur within the organisation, but this did not materialise, despite the large amounts of data collected (Anon.5, Wildlands Senior Management, Personal Communication, September 2016, Hilton). This meant that the institution was unable to move beyond data archiving towards investigating the effectiveness of CEBA project activities in different geopolitical and socio-economic settings (an issue in this research when trying to analyse trends based on past data and outputs). Linking back to the complexity discourse in climate change, Wildlands was not successful at managing complex data in the absence of an M&E system. Thereby compromising the opportunity for collective learning regarding the complex human-environment symbiosis, evident through CEBA.

The lack of M&E practices indicated that Wildlands failed to document changes within the assemblage especially regarding widespread disgruntlement on unwanted hampers, unpaid community members and dwindling recycling operations among others. In addition, the inability of Wildlands field project managers to remedy these concerns and fears despite promising solutions to the problem, lead to further disgruntlement of participating communities. Ultimately, the failure to address these issues indicated that Wildlands did not manage data and informational aspect of CEBA initially. In this instance, a workable compromise to remedy the situation was proposed to Wildlands much later in 2019 by a Wildlands donor. According to Wildlands CEO, “*we started using an online tool called Poverty Stoplight*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). Unfortunately, more research needs to be undertaken to assess the implications regarding the

use of this tool as well as ascertaining Wildlands ability to manage any shortcomings resulting from this new M&E practice.

The integration of the ‘social’ and ‘ecological’ in the Wildlands CEBA Assemblage is the nexus point creating both material and intangible socio-economic benefits to people and conservation value to surrounding natural environments. However, observational analysis indicated that the Wildlands CEBA review process was also initially devoid of definition and scale discussions in relation to project implementation and M&E practices (Observations, CEBA reviews, September & October 2015/2016, Hilton). The first-time aspects of definition and scale entered the Wildlands CEBA project discussions was in 2015/2016 upon my employment at the implementing agent. These aspects were noted in the delivery of a PowerPoint presentation from myself to the wider Wildlands management team; however, these aspects were not discussed further while I was an employee. In addition, during 2016 CEBA reviews, other key informants highlighted that *“It’s hard to strategize about the future of an area without having the Wildlands strategy to support it”* (Anon.17, Wildlands Senior Management, Interview, November 2016, Hilton). It was also uncovered that ambiguous definitions, and perceptions of CEBA arose amongst office and field staff at Wildlands during initial CEBA inception phases and were carried through as CEBA progressed, as other stakeholders interpreted CEBA differently, as explored in *Chapter Five*. This aspect of CEBA was not managed while the CEBA intervention upscaled and expanded. Instead, new CEBA definition and M&E discussions were incited *“in the 2019/2020 Wildlands financial period”* (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton) as described in *Chapter Five*.

The implications of not revisiting the definition and M&E discussions sooner were realised by Wildlands in 2019 for two main reasons according to Wildlands CEO. The first being the need to re-strategise Wildlands and CEBA positioning with the broader Wildlands team and *“sort out what CEBA really means in the context of our work”* (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). The second was to address the recycling operations in the context of Wildlands other work as well as community concerns. This is evidenced through community participants complaining about *“not being aware all the time of what is happening”* (P.28, Interview, September 2016, Buffelsdraai) and *“Their scale is not good, regular collections not done”* (P.30, Interview, October 2016, Sweetwaters). In this instance, the practice of managing failures and contradictions was also present to an extent, but the



acknowledgement regarding the negative effects of inadequate adaptation planning discussions must also be recognised.

The complexity of acknowledging adaptation to be achieved is compromised and further exacerbated in the absence of baselines as discussed in *Chapter Five*. In terms of complexity, and as expressed by one Wildlands Project Manager, “*Interaction with senior manager is vital for remote projects because not all efforts and issues are measurable*” (Anon.3, Wildlands Field Project Management, Personal Communication, September 2015, Cape Town). Findings revealed that Wildlands was beginning to give donor items/hampers (through its barter model) that were not desired and did not help communities as community needs were not being met or changed needs were not being heard (Section 7.3.5). The complexity in these findings was three-fold. First, it has been discovered that Wildlands did not define the words ‘poor and vulnerable’ in relation to the ‘CEBA Philosophy’. At an organisational level, the lack of the internal M&E system allowed this lack of definition to pass through Wildlands undetected and unquestioned. The implication of this oversight resulted in Wildlands missing an opportunity to gather baseline data to inform project evaluation activities. Second, Wildlands assumed that these ‘poor and vulnerable communities’ would accept what they are given based on their socio-economic circumstances.

Finally, the constant ‘go-with-the-flow’ mentality adopted throughout the organisation left little room for questions, planning, scenario building and contingency planning. These uncovered complexities contributed to community frustrations and a lack of trust as seen by on respondent stating, “No longer want things like hampers, carpets and bicycles” (P.51, Interview, September 2016, Swapo). In addition, observational analysis revealed the absence of succession plans, exit strategies and contingency communication strategies, left both Wildlands Project Field staff vulnerable to community frustrations and the community project participants without adequate direction and communication about changing organisational circumstances (Observations, CEBA reviews, September & October 2015/2016, Hilton). Furthermore, as noted above, ambiguities and uncertainties in the project intervention can be carried through the project process undetected and render false project results. As previously described in this section and in *Chapter Five*, CEBA review processes devoid of definition discussions resulted in several interpretations of CEBA in the Wildlands CEBA Assemblage (*Chapter Five*). The implications were a confused workforce, confused CEBA community participants and frustrated extended Wildlands stakeholders as one external stakeholder



expressed an inability to fully grasp the meaning of CEBA by stating CEBA is “*still confusing to understand*” (Anon.1, Wildlands Board, Personal Communication, June 2014, Durban).

Linking back to *Chapters Five and Six*, intentional acts focused on scaling-up and expanding CEBA created unintentional and challenging complexities for assessing project impacts. The findings also show that even though attempts were made to manage and assess project implementation data, integrated CBA-EBA adaptation interventions demand more formalised M&E practices to potentially avoid gaps, ambiguities and uncertainties in project outcomes. M&E forms one of the building blocks necessary for effective EBA implementation (GIZ, 2018)

The next section highlights links between vulnerabilities experienced and the potential likelihood of adaptation using three adapted questions from the Vulnerability, risk, and adaptation conceptual framework cited in *Chapter Two* (Brooks, 2003). In the CEBA Analysis framework Brooks (2003) questions are used to address adaptation planning components of the Wildlands CEBA assemblage.

#### **7.4.2 Adaptation likelihood and transformation**

Though results revealed positive socio-ecological and sustainable livelihoods impacts, the relationship between vulnerability and achieving systemic adaptation is equally important and discussed in this section. In this sub-section I argue that the type of vulnerability and associated principle hazards were not distinguished and identified by Wildlands. Additionally, the only form of resource mentioned was monetary funding. While poverty-reduction and ecological conservation impacts were achieved (Section 7.3.4), the absence of definitions, discussions regarding scale and baselines reduced the potential to identify whether the Wildlands CEBA intervention facilitated the creation of sustainable communities. Also included in this section are the three fundamental project planning questions posed by Brooks (2003). These questions are used to tackle the type of vulnerability and hazard experienced as well as the definition of adaptive capacity at differing levels with Wildlands; whether necessary resources were available to deal with these vulnerabilities and how adaptation was being defined, if at all. The discussion begins with assessing whether social or biophysical vulnerability was anticipated by Wildlands, if associated personnel to deal with the anticipated vulnerability and associated hazards were adequate and lastly, at what level adaptation was defined (regional or project).

*Answering three adaptation planning questions in the context of Adaptation planning in CEBA*

The first question *is the principle concern biophysical/ social vulnerability and at what scale?* focuses on the principle concern biophysical/ social vulnerability and at what scale the vulnerability is considered. I argue that the principle concern and scale of the concern needs to be a part of initial adaptation planning discussions to avoid enhancing ambiguities and uncertainties in adaptation interventions. Although the settlement type descriptions differ between case study communities, the social vulnerabilities experienced and responses to project implementation within the Wildlands CEBA Assemblage are similar amongst all 157 community participants. However, Wildlands did not distinguish nor include any questions in the planning phases of the Wildlands CEBA intervention on whether social, physical, biophysical vulnerabilities or a combination of these will be addressed. The assumed type of concern was both biophysical and social. This can be seen in the ‘CEBA Philosophy’ where poverty reduction and environmental conservation were overarching elements (WCT, 2012).

CEBA was initiated through an organic, coincidental and ad-hoc approach including the initial deliberate identification of participating communities. As mentioned in *Chapter Four*, initial CEBA discussions transpired in a boardroom with a select few people before the assemblage took any shape or form. Thereafter, a Geographical Information Systems (GIS) exercise was undertaken, *“defined by the Communities where we worked”* (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton) to ascertain possible geographical locations to test implementation. Thereafter, documentation exercises followed to assess whether the implementation of CEBA was, *“assisting communities to better manage their resources and surrounding natural ecosystems. It had to start with deliberate geographical identification of communities and ecosystems so that we could define the number and type of CEBA’s we actually had in our portfolio of work”* (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). The implementation began with Buffelsdraai (eThekweni Municipality) claiming the creation of social cohesion and sustainable communities through CEBA project activities. It was after this point, that eliciting wider stakeholder input and approaching other municipalities began, introducing the ‘CEBA Philosophy’ as an embedded part of Wildlands wider work ethic – *“in a way the development of CEBA was really organic rather than structured”* (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). No part of the initial process was found to facilitate discussions exploring the aggregation of which types of vulnerabilities were being addressed. Though CEBA was initially organic in structure the failure to define the type and scale of vulnerability being dealt with reduced the potential to deliberately facilitate data collection in anticipation of acknowledging the

likelihood of adaptation or transformation being achieved through CEBA project implementation. A lack of adaptation planning discussions revealed the type and scale of the vulnerability experienced were never adequately addressed in the inception discussions (*Chapter Four*), enhancing the possibilities of increasing ambiguities and uncertainties in the assemblage. Failure to adequately assign definitions and indicators to measure success in the CEBA ambit, resulted in the reduced potential to robustly conduct M&E tasks. This is also categorised as a missed opportunity to assess project interventions in the light of maladaptation (reinforcing existing vulnerabilities, redistributing vulnerability, introducing new vulnerabilities) as noted by Eriksen *et al.* (2021). The second question, *what are the principal hazards of concern, are necessary resources available to resolve them, how do they affect vulnerability and adaptive capacity in project interventions?* explores the links between hazards, vulnerability, and adaptation.

The second question focused on whether resources were available to respond to principle concerns and how this availability or non-availability affected project interventions. I argue that there must be alignment between assessing the type and scale of the principle concern, and resource availability to ensure appropriate adaptation responses are rendered. Both parts of this question remain unanswered in this research mostly due to key informants' inability to adequately understand differences between climate change, vulnerabilities and hazards. The first part of the question addressed what Wildlands viewed as the principal hazards of concern and whether necessary resources were available to resolve them. One response indicated that *"the whole idea with CEBA was to improve community stewardship and land rehabilitation to realise climate change adaptation in the long term. It might not have been very explicit from the start, but that was the ultimate outcome"* (Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). Another indicated that, *"using biodiversity and ecosystem services elements as part of a CEBA approach when working with communities is also completely in line with what we as Wildlands are trying to achieve"* (Anon.19, Personal Communication, March 2018, Hilton). In this research inquiry, hazards referred to dangerous atmospheric or weather-related phenomena and none of the responses alluded to addressing dangerous weather-related phenomena. The responses received did not state any dangerous phenomena, nor engage with what Wildlands viewed as principle concerns. Upon analysing the responses and despite follow-up communications, it was deduced that the question was not adequately understood. The second part of the question addressed how the identified principle concerns affect vulnerability and adaptive capacity in project interventions. This part of the

question was challenging for key informants to see as different from the first part question and therefore remains unanswered. However, in addressing issues of vulnerability a few key observations from CEBA reviews in the 2015/2016 financial period revealed inconsistencies in Wildlands organisational structure that directly affected project interventions. These inconsistencies were identified as a lack of management accountability, inadequate project discussions and the negative effects of shrinking donor funds.

As data gaps were uncovered, a lack of accountability and clarity from the broader management team on how these data gaps emerged was observed. These findings show that a misalignment between project goals and necessary resources to achieve these goals indeed existed. This is noted by one response stating a *“lack of funding to fully commit to the framework was the biggest challenge”* (Anon.20, Wildlands Senior Management, Personal Communication, June 2018, Hilton). A lack of adequate discussion on pertinent issues such as alternative to keeping projects ‘alive’ after donor funds ceased to exist was also noted (Observations, CEBA reviews, September & October 2015/2016, Hilton). Most of the Wildlands management team involved in reviews were also unsure of what drives the visionary changes and organizational shifts in CEBA project implementation. This is evidenced through one suggestion expressing, *“I think we need to have had a bigger picture Wildlands strategy discussion / review session before the CEBA reviews, so they can be guided by the broader vision* (Anon.17, Wildlands Senior Management, Interview, November 2016, Hilton). These observations revealed that pertinent adaptation planning discussions were missing from the CEBA reviews and larger management discussions. Two large grant funds had also come to an end, shrinking the organisation’s resource base, “As of 30 June 2017, the Trust had 237 employees (2016: 3 227 employees)” effectively reducing the workforce by a sizeable 2990 people and claiming the recommencing of these contracted employees by “September 2017” (Wildlands, 2017:1).

Internal organisational struggles diverted attention away from adaptation planning discussions outlining the principle hazards being dealt with including the associated resource needs. Coupled with the lack of exploration regarding types and scale of vulnerability, Wildlands inability to address how the identified principle concerns affect vulnerability and adaptive capacity revealed more complications in the assemblage. In addition, internal organisational struggles facilitated the ‘go-with-the-flow’ mentality in the organisation at the expense of outlining much needed M&E practices and adaptation planning discussions. In this light, the lack of M&E practices resulted in failure to render results pertaining to acknowledging

adaptation to be achieved in line with the suite of CEBA activities, said to deliver an ‘Africanised response’ to South Africa’s developmental challenges (*Chapter Four*).

Another key linkage found in *Chapters Five* and *Six* was the relation of working at Wildlands to that of ‘hanging onto a runaway train’. This analogy also reveals that planning discussions came second to implementation. This was viewed as an unintentional consequence arising from intended CEBA activities. The implication of this finding reveals that resource and organisational planning for long-term were not prioritised resulting in dwindling recycling operations and disappointed participating community members. The final of the three questions *is adaptation being defined at the system level (regional/ecosystem) or the sub-system level (project site-specific) for implementation?* sheds light on how Wildlands defined adaptation.

The third question focused on how adaptation was defined and at what scale. I argue that working towards an adaptation definition and the scale to which the anticipated adaptation is to occur, creates grounds for acknowledging changes that lead to adaptation and long-term transformation.

Conversations regarding definitions and M&E practices were reinstated in 2019/2020, however, the discussions did not result in defining adaptation nor the scale at which it would be addressed. At this point it must be noted that although key concepts were not defined, the rhizomatic nature of the Wildlands CEBA Assemblage facilitate the reopening of this conversation. In this way, CEBA was evolving again. This aspect is discussed further in *Chapter Eight*. As seen in *Chapters Four* and *Five*, CEBA was borne out of ad-hoc circumstances taking lead from global climate discourses. Wildlands staff and CEBA project communities became receptive to the idea of a new Wildlands CEBA intervention, promising the creation of sustainable communities and ecological restoration through Wildlands suite of seven existing programmes. In addition, exponential upscaling of CEBA activities as described in *Chapter Five* added an 18-month gap between CEBA reviews and left little room for strategic discussions, including definition and scale. Wildlands CEO who was a part of the ‘Think-Tank’ of experts brainstorming CEBA’s inception was asked, “in your opinion, did climate change adaptation have anything to do with the CEBA framework and Wildlands work on the ground?” The response followed with, “*Yes, it did, in terms of enabling carbon sequestration and improved land management. The whole idea with CEBA was to improve community stewardship and land rehabilitation to realise climate change adaptation in the long term. It might not have been very explicit from the start, but that was the ultimate outcome*

(Dr R. Kloppers, Wildlands CEO, Personal Communication, March 2018, Hilton). In addition, the Wildlands CEBA intervention was propelled into a regional approach known as the ‘cluster approach’ with no strategic discussions involving on-the-ground Project Staff, presence of ambiguities or uncertainties. Findings indicated, baselines for M&E measurements in the Wildlands CEBA Assemblage have never adequately existed to share robust insights on the achievement of any acknowledgement to achieve adaptation or transformation of communities. This evidence shows that parts of the assemblage were compromised due to the upscaling and expansion of the assemblage and definition and scale discussions were not of primary concern to Wildlands despite the re-opening of these discussions as stated above. The implications of placing low levels of focus on aspects of definition and scale reduced the chances of Wildlands to explore CEBA intervention activities through the lenses of transformation and resilience as outlined in their vision statements (Wildlands, 2017; Wildtrust 2018, 2019, 2020).

Further investigation on these fundamental adaptation planning questions would benefit an increased understanding of adaptation assemblages such as the Wildlands CEBA Assemblage. Further insights regarding adaptation planning are listed below.

#### *Adaptation Planning and M&E*

Adaptation planning is critical when framing adaptation in relation to the issues being dealt with in adaptation interventions. This is especially important when assumptions, ambiguities and uncertainties are embedded and “remain unchallenged” in adaptation projects (Nalau *et al.*, 2021).

Deciphering the pace of change regarding the acknowledgement to achieve adaptation proved difficult due to the unclear type of vulnerabilities and hazards being addressed, resources available to address those concerns and lack of an internal CEBA M&E timeline series. It is evident that organisational transformation planning will require the re-opening of past discussion points highlighted above in the three adaptation planning questions explored (Brooks, 2003). These are: Is the principle concern biophysical/ social vulnerability and at what scale; what are the principal hazards of concern, are necessary resources available to resolve them and how do they affect vulnerability and adaptive capacity in project interventions and, is adaptation being defined at the system level (regional/ecosystem) or the sub-system level (project site-specific) for implementation. I deemed the three fundamental grassroots-level questions posed by Brooks (2003) as important first steps to planning and implementing adaptation interventions with the view to reducing vulnerabilities and avoiding maladaptive

outcomes. If these questions are not engaged with and answered in the initial adaptation planning process, the ability to acknowledge any form of adaptation and reduced vulnerability remains pending. In relation to the questions asked in this section, Eriksen *et al.* (2021) found evidence of three types of adaptation-vulnerability linkages. The first reinforces vulnerability, another redistributes it and the third introduces new vulnerabilities. The relevance of the findings this section and the new questions posed by Eriksen *et al.* (2021) creates a new opportunity for Wildlands to pursue more rigorous M&E activities.

From a transformational adaptation perspective, the identified gaps regarding the lack of criteria and baselines to measure impacts threatens the potential of the Wildlands CEBA Assemblage as both a systemic and technological advancement with respect to integrated CBA-EBA interventions and ultimately, the fight against climate change. The lack of robust data and information pertaining to types of vulnerabilities and hazards being experienced also negatively impacts the coded aspects of the assemblage leaving room for ambiguous interpretations of perceived achieved adaptation. Varying levels of positive impacts were revealed; however, much room is left for improvement regarding M&E practices. Although the achievements through CEBA projects cannot fully be considered transformational (in the systemic sense) due to the absence of robust definitions and M&E practices, positive impacts on participating communities were noted. An improvement in community participants daily functioning and innate capabilities were noted as positive, including improved self-esteem, confidence and ambition.

The Wildlands CEBA intervention placed itself in a position to actively contribute to the Green Economy through forms of employment, promoting sustainable development imperatives, addressing education and basic needs challenges in parts of South Africa. In addition, Wildtrust (2018:10) stated, “we believe our greatest impact will be the developing and improving of the restoration sector through implementing benchmark restoration projects that will deliver meaningful benefits for both the environment and communities” (Wildtrust, 2018:10). While there is merit to the “*go-with-the-flow mentality*” (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton), adopted by Wildlands, this approach hinders project progress in some instances coupled with their obligatory need to deliver results to a third party (donor agencies). This undesirable combination inevitably affects the delicate stakeholder trust and relationships built in CEBA projects, ultimately weakening the Wildlands CEBA assemblage (Section 7.3.4).

Systematically thought-out activities like the CEBA review process inspired by Wildlands ex-CEO initially attempted to address project implementation concerns and archive information and through CEBA documents and data dashboards. However, acknowledging adaptation and transformation especially in the context of creating sustainable communities requires effective adaptation planning and accountability through M&E processes. In addition, measuring adaptation impacts are challenging (Perreault *et al.*, 2015). These adaptation planning tasks coupled with several interpretations of one concept (CEBA) increases the complexity of measuring project impacts in an integral fashion. This thesis argues for transformation at both the adaptation intervention level and the internal organisational level. From a transformational adaptation perspective, the misalignment between project demands and resources required to achieve those demands is cause for concern. It can be said that adaptation is more challenging to achieve at the systemic level when an imbalance occurs in these elements while the intervention continues to upscale and expand in a rhizomatic fashion.

## **7.5 Conclusion**

In this chapter, I argued Transformational Adaptation responses to climate change are difficult to achieve in multi-level dynamic systems in the absence planning and M&E practices. This chapter set out to showcase the socio-economic and ecological achievements of the Wildlands CEBA Assemblage in three districts, using the practice of rendering technical (Li, 2007). I also described the challenges with impact measurement in adaptation projects in the absence of adequate planning. The practice of rendering technical which relates to complex issues being broken down into workable tasks (Li, 2007). This practice highlighted how greening and recycling project activities under the CEBA domain were combined to formulate CEBA project activities as a ‘set of relations’ and adopted by local leaders. Managing the failures and contradictions in relation to the lack of definition discussions and M&E practices were also noted where compromises were formulated to respond to these contradictions in CEBA.

Through the Wildlands CEBA Assemblage, both the social and to a lesser degree the ecological aspects of each case study project were revealed. Despite some failures in the CEBA intervention to meet its initial aims of creating sustainable communities and contributing to a green economy, noted in part two of this chapter, the interconnectedness and value between Wildlands and ‘poor and vulnerable’ communities were recognised. However, the achievement of positive CEBA project activity outcomes also raised concerns and challenges. The results gave an indication of positive and negative outcomes. For CEBA interventions to fulfil their



various mandates across the different geographies of South Africa, a few non-negotiable aspects are fundamental in the project process. These being, ongoing communication between Wildlands and the participating community; transparency and openness between stakeholders always; inclusivity of communities during planning stages of CEBA related project interventions and, placing priority on capacity building within Wildlands and the project community. On a positive note, the CEBA project intervention implemented by Wildlands has shown the potential to add positive value to a person's life in the form of personal, social, community, financial and physical value as shown in part one of this chapter. However, as Adger *et al.* (2003:185) and Klein and Juhola (2014:101) point out, adapting to changes of extreme weather events, seasonal variability, shifts in agricultural systems and societal dynamics become an “inescapable conclusion” with “large gaps still remaining between adaptation research and action”. The IPCC AR5 also highlighted Africa will be hard hit as a consequence of climate change (Victor *et al.*, 2014), and while aspects of poverty reduction have been demonstrated, the noted uncertainties and suggested changes towards project implementation must be taken seriously so as not to threaten livelihoods and the assemblage further. On a negative note, a fundamental disconnect was noted between all at the organisational level (*Chapter Five*) and the situation on the ground regarding the assumption that CEBA is understood by everyone involved in the assemblage. Another disconnecting aspect was the lack of communication between Wildlands and community participants, causing widespread frustrations, threatening the stability of the assemblage.

Achieving systemic forms of adaptation through climate change adaptation interventions like the Wildlands CEBA intervention requires a consistent tracking and evaluation approach. Unfortunately, it was discovered that Wildlands missed fundamental opportunities to showcase the potential adaptation impact and assess potential maladaptive outcomes over a long-term period of project implementation, due unclear representation of definitions, types of vulnerability/ hazards being dealt with and inadequate baselines for M&E. Consequently, the purpose of strategic planning at annual CEBA review processes need further interrogation to remain relevant and impactful (*Chapter Five*). Furthermore, results from this chapter demonstrate that without adequate adaptation planning the full success of integrated CBA-EBA interventions may not be presented due to the absence of baseline indicators from which success, progress and project intervention deterioration can be measured. That said, the qualitative results in this chapter indicate that communities have benefited in various respects and restoration was achieved in some instances due to the CEBA intervention. However, the

existing M&E gap in the Wildlands CEBA Assemblage hinders the process of ascertaining whether a community has improved or further deteriorated because of the integrated CBA-EBA intervention.

The findings showed varied incremental shifts towards systemic adaptation. However due to informal M&E practices or non-existent M&E system, findings could not prove any large-scale measurable systemic shifts acknowledgement of transformation on a landscape scale. Further research will be required to uncover landscape systemic level changes in the Wildlands CEBA Assemblage. That said, the results from this research have revealed one significant outcome, integrated CBA-EBA responses to climate change make a sizeable positive impact to poor and vulnerable communities. An overarching discussion of the research findings and knowledge contributions resulting from this study are detailed in the next chapter.

## **8. ASSEMBLING, REASSEMBLING AND RETHINKING ADAPTATION INTERVENTIONS: BRINGING THESIS FINDINGS INTO VIEW**

Exploration of the Wildlands CEBA Assemblage provided a glimpse of a fourth-generation adaptation research activity exploring an integrated CBA-EBA response to climate change (Klein *et al.*, 2017). For the purposes of this research, and the focus on systemic change, transformative adaptation project activities, and shifts in organisational and managerial functions (noted as incremental changes in a ‘system’) have been acknowledged as integral and necessary shifts towards the achievement of transformational adaptation outcomes. Various key influencing factors that positively or negatively influence the Wildlands CEBA Assemblage were also considered. A descriptive account of transformation was given in relation to various aspects, such as organisational changes, the expansion of project sites or processes, changes in livelihoods and individual functioning, as well as material movements in the Wildlands CEBA Assemblage. In this chapter I am discussing the research findings in relation to the broader literature bases I have engaged with in *Chapter Two* of this research inquiry. I do this by engaging the acts of assembling, reassembling and re-thinking in relation to an integrated CBA-EBA adaptation intervention. The practice of reassembling in this research context is used to explain how new elements were inserted to improve the functions within the assemblage and how older aspects were re-engaged and reword to meet new demands within the assemblage.

The chapter consists of three parts. This first part of the discussion, ‘*Assembling Adaptation: Bringing thesis findings into conversation with assemblage and transformation literature*’, covers how the Wildlands CEBA intervention evolved from a concept to be characterised as an adaptation assemblage. The processes by which CEBA was assembled are discussed in relation to assemblage and transformation literature. The second part, ‘*Reassembling CEBA: Discussing the research findings in the context of Assemblage Thinking, Transformational Adaptation and Adaptation literature*’, is an overarching discussion of how CEBA was reconfigured to new purposes throughout its evolution. The findings are presented under the headings Reconfigurations of CEBA, Organisational oversights and Missed opportunities, and the significance of M&E practices in adaptation planning. Finally, I will move the discussion beyond the context of CEBA and discuss how we can use assemblage thinking to re-think

adaptation intervention design, planning and execution. The third part of the chapter, *'Rethinking Adaptation through Assemblage Thinking and Heuristic Analysis Frameworks'*, discusses the research findings in relation to other assemblage studies and the broader climate adaptation discourse. I will also discuss the usefulness of heuristic analysis frameworks in engaging with complex aspects of climate change adaptation interventions. A brief conclusion brings the chapter to a close.

## **8.1 Part one: Assembling CEBA: Bringing thesis findings into conversation with assemblage and transformation literature**

Assembling CEBA in the context of this chapter collates the research findings and provides an overarching view of how CEBA evolved from an idea to an implementable concept and eventually came to be characterised as an adaptation assemblage. Active processes and key influencing factors through which CEBA was assembled, upscaled and expanded have been presented in previous chapters. This study does not aim to use the assemblage approach as a “simple joining-up exercise” as cautioned by Allen (2011:156). Instead, it is used to explore the complex range of factors that upscaled and expanded CEBA, investigate and describe the relationships present in an integrated CBA-EBA adaptation intervention.

CEBA was an integrated CBA-EBA response to socio-economic stresses and ecological degradation exacerbated by climate change, as described in *Chapter Six*. Wildlands intervened through CEBA by introducing a suite of project activities that was deemed an ‘African’ response to these stresses and degradation. In this section I will discuss the active processes and key influencing factors in relation to the assemblage thinking and transformational adaptation literature base in *Chapter Two*. These processes and key influencing factors are championing of the adaptation discourse through learning, innovation and leadership; scale and complexity; the rhizomatic expansion of CEBA; assessing and measuring project impacts and how assemblage thinking played a role in CEBA’s evolution. Each of the processes and key influencing factors are presented in order of their presentation in the research inquiry.

### *Championing of the adaptation discourse through learning, innovation and leadership*

Building on from theoretical and conceptual work undertaken by Girot *et al.* (2012), the Wildlands CEBA Assemblage is an integrated CBA-EBA response to development challenges revealing numerous relational dynamics and interconnections. In *Chapter Four*, Li’s (2007) practice of authorising knowledge revealed that CEBA took root from CBA and EBA bodies of knowledge. It can be said that CEBA was in part constructed through these bodies of literature and used as an entry-point to introduce CEBA to the world at COP17/CMP7. Foucault’s approach to thinking about ‘relational aspects’ is recognised (Foucault, 1982), revealing that power dynamics and actor relationships were forged as built-in aspects of the

Wildlands CEBA Assemblage through its evolutionary process. In this instance we can see the power of knowledge being exercised to influence decision-making.

Empirical evidence presented in this research also revealed the presence of numerous heterogeneous elements working together under one initiative, the Wildlands CEBA Assemblage. The Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) (IPCC, 2012) notes that transformational change can be brought about by using various approaches, such as learning, innovation, adaptive management and leadership. Three out of the four of the abovementioned approaches, that is, learning, innovation and leadership, are incorporated into the Wildlands CEBA Assemblage. I will deal with each of these in turn.

The first aspect, *learning*, is consistent with Marans (2015) and Kato and Ahern (2008), where ‘learn-by-doing’ approaches were directly expressed in the empirical evidence detailing the origins of CEBA. The first project (Buffelsdraai, Durban) described in *Chapter Four*, was expressed as a ‘learn-by-doing’ project, creating the foundation for the initiation of other CEBA projects. Steenbergen and Warren (2018:8) also discovered that although implementation of socio-ecological projects took shape from theoretical conceptions, these projects were “reshaped” post implementation “to gain salience in their local contexts”. The same applies to CEBA, CEBA reviews were formulated to assist in the learning-by-doing approach by creating a platform where project decisions could be reviewed and changed based on implementation practices.

### *Addressing Innovation*

I argue the second aspect of *innovation* is present in the Wildlands CEBA Assemblage. The integration of CBA-EBA responses to the climate and development challenges can be regarded as innovative and ‘new’ in South Africa. Olsson *et al.* (2017:1) recognised a lack of social and sustainability innovation and focus on human-environmental interactions in the context of large-scale transformational shifts. The authors proposed “the act of bricolage” suggesting that combining social and ecological elements of interventions, are innovative and can broaden the focus of integrated socio-ecological interventions in both research and practice. I agree with Olsson *et al.* (2017) in recognising social innovation in climate change, as lived experiences under the CEBA ambit displays a move towards systemic shifts. The ideas of social innovation, ecological impact and poverty reduction was also promoted through the integrated CBA-EBA response. That is, the existence of an interchangeable relationship between social innovation

and ecological impact in adaptation interventions create better grounds for developing solutions suited to systemic change. I argue that we need to view sustainability innovation as an embedded aspect of adaptation assemblages as was the case with the integrated CBA-EBA Wildlands CEBA Assemblage.

Finally, the third aspect of *leadership* is shown by the act of ‘championing’, which expresses leadership by local leadership figures, propelling a marginalised adaptation agenda forward as described in *Chapter Four*. The idea of a climate change adaptation intervention that would render both pro-poor development and ecological integrity proved enticing to political leadership at a time where the Green Economy took flight. Through climate champions, Dr Andrew Venter and Professor Debra Roberts, CEBA was given a space in discussions that transpired at mega global events such as COP17/CMP7. The presence and efforts of these climate champions were instrumental in pushing the adaptation agenda forward and eliciting the engagement of various influential non-state stakeholders towards the implementation of the CEBA intervention. One of the main reasons the adaptation agenda was mainstreamed in Durban and South Africa, was due to the championing efforts of local leaders, Dr Andrew Venter and Professor Debra Roberts. The championing of adaptation efforts in South Africa is also widely recognised by other theorists.<sup>46</sup> Carmin *et al.* (2012:22) recognised the value of champions in adaptation planning by focusing on Durban as a case study for a World Bank research symposium. The author found that local government actors were a “critical resource” when championing and advocating for the mainstreaming of adaptation.

Even with the three aspects of change outlined above, realising the ‘CEBA philosophy’ was more complicated than what was originally put forward at global spectacles like COP17/CMP7. In early CEBA discussions (*Chapter Four*), the desire of Wildlands and eThekweni was to move beyond ‘another reforestation project’ to expand projects and include socio-economic and biodiversity conversation aspects. However, the findings of previous chapters noted that while CEBA implementation forged ahead, little to no attention was paid to the transformation of organisational and managerial aspects of the implementing agent. The lack of transformation in this respect, enhanced ambiguities and uncertainties within CEBA project implementation

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<sup>46</sup> Douwes, 2018; Roberts, 2008; Roberts & Diederichs, 2002; Roberts & O’Donoghue, 2013; Roberts *et al.*, 2012; Roberts *et al.*, 2016

and the interpretation of CEBA itself. In addition, according to Venter (Dr A. Venter, Wildlands ex-CEO, Personal Communication, February 2015, Hilton) the difficulty was not formulating or *assembling* the CEBA concept/philosophy, nor piloting it. These initial steps included a small number of people in closed-door discussions who agreed to a plan of action, to find resources and to move forward to the pilot phases. As described in *Chapter Four*, the additional Tongaat and Umbilo CEBA project sites were initiated easily on the back of offsetting the COP17/CMP7 mega event, alongside widespread neighbouring community interest. Funding for CEBA project activities was sourced as part of the initial project process. Instead, the difficulty was related to implementing it and up-scaling it in the face of larger stakeholder groupings (municipalities, traditional leaders, communities, Wildlands and external donors), multi-stakeholder agreement, ambiguities, uncertainties and donor-satisfaction.

### *Scale and Complexity*

I argue that an assemblage approach provides opportunities to investigate embedded ambiguities, uncertainties and complexities through exploring the fluid, interconnected and relational aspects of upscaled adaptation interventions. CEBA evolved from an idea to a large-scale innovative and implementable adaptation intervention through integrating aspects of CBA and EBA knowledge and practice and increased donor funding. Head (2010) recognised scale as an issue of importance in adaptation interventions, stating that insignificant attention was paid to scaling up and power dynamics, both being areas of inquiry in this research. In this instance, the Wildlands CEBA Assemblage revealed that scaling up an adaptation intervention is indeed possible. However, while the significant upscaling of the Wildlands CEBA Assemblage took place, it was not without negative effects on organisational dynamics as highlight in *Chapter Five*. Through increased donor funding the implementing agent was sent into what I have termed ‘delivery-overdrive’, at the expense of adequately transforming organisational aspects. Linking back to the complexity discourse, implementation becomes more difficult and complex with scale. Complexity and scale in climate change are well documented (Turhan, 2016; Steenbergen & Warren, 2018; Adger *et al.*, 2003; Ogurtsov *et al.*, 2013; Kjellström *et al.*, 2018; Pettengell, 2010). Recently the complexity discussion entered a new era exploring “de-complexification” where King and Jones (2021:4) note that modern day complexities can become “largely indecipherable” and potentially “introduce additional risks”. In principle CEBA proved to be implementable but practically the relationships, uncertainties, lack of M&E system and fluidity of donor funding rendered the CEBA intervention complex.



Despite the complexities, CEBA gained momentum and expanded to other geographical territories across KwaZulu Natal and other areas of South Africa. The Wildlands CEBA Assemblage spreads across time and space, territorialising different geographical landscapes and communities by its rhizomatic expansive nature. As described by Deleuze and Guattari (1987), a rhizome can start from anywhere and does not have an end. It also has a lateral growth pattern without a centre, periphery, or hierarchy.

### *Expansion of CEBA*

The expansion of the assemblage was not solely due to Wildlands intervening and introducing CEBA as described in *Chapters Five and Six*. The Wildlands CEBA Assemblage was described as rhizomatic as project nodes also progressively expanded due to community participant interest and community conversations. Wildlands also have a long-standing relationship in numerous communities in South Africa and used these relationships to anchor the Wildlands CEBA Assemblage in various geographical territories. Interaction between neighbouring communities, via word-of-mouth conversations influenced the recruitment of other communities into the assemblage, resulting in the rhizomatic expansion of the Wildlands CEBA assemblage. Based on the evidence, CEBA evolved from an idea, concept and framework to an adaptation assemblage. Li's (2007) practices of assemblage and Delanda's (2006) relations of interiority and exteriority were present in CEBA as an adaptation assemblage. Detailed explanations of the usefulness of these practices and relations can be viewed in the fourth part of this chapter.

Deleuze and Guattari's (1987) work is central to this thesis as assemblage thinking has been used to explore and understand the fluid, interconnected and relational aspects of the CEBA intervention in various socio-economic settings. The Wildlands CEBA Assemblage emerged as fluid, flexible, complex, and evolving, influenced by numerous factors. These include donors, global climate discourses such as the green economy, and gets impetus from COP17/CMP7 and FIFA<sup>TM</sup> mega events. CEBA was characterised as an adaptation assemblage, while the Wildlands staff, donors and community participants characterise CEBA differently. For these staff, donor entities and community participants, CEBA was not adequately theorised, and hence, several floating descriptions of CEBA exist as described in *Chapter Five*.

The CEBA concept, as described by Douwes (2018:165), can be described under the banner of transformative adaptation, as it addresses socio-economic disparities and attempts to achieve

ecologically sustainable outcomes. Douwes (2018) states that climate change is “too complex and cross-cutting” to achieve transformation at landscape level. The author suggests “deconstructing larger challenges into components” might have a greater potential to catalyse transformation. My thesis supports Douwes (2018) and draws a larger picture of what CEBA encompasses. In *Chapter Seven* it was shown how Li’s (2007) practice of rendering technical was used to ‘package’ developmental challenges into smaller implementable tasks that would render an integrated ‘Africanised’ response to said developmental challenges. The Wildlands CEBA Assemblage was successful in achieving transformational shifts in the integrated CEBA intervention through incremental changes over a ten-year period.

#### *Assessing and measuring project impacts*

The findings of this research inquiry proved incremental changes in poverty reduction and ecological restoration. These changes satisfied ecological and development agendas of various stakeholder groups, however, a clear trend towards building adaptive capacity and resilience in the form of sustainable communities was not inferred. However, Chevallier (2017) asserted that adaptation thinking, and practices require more maturity before outcomes are deduced. In this instance, I agree with Chevallier (2017) and recommendations for further research in this regard is detailed in *Chapter Nine*. Areas of strength in the Wildlands CEBA Assemblage related to the reposing of development issues and deconstructing issues into more manageable technical aspects, eventually packaged into a set of criteria used to attract both political support and communities to participating in CEBA projects. These were: established connections with the local government structures and donor agencies; ecological conditions that would support tree growth and planting; communities situated in poor and vulnerable conditions; presence of large quantities of recyclable waste and the potential of labour (project field staff). Using an assemblage approach allowed for the said criteria to be situated within the practices of rendering technical and anti-politics (Li, 2007) and better understood in relation to other constituents within the assemblage.

The relationship between Wildlands and impoverished communities resulted in widespread demand for the proposed CEBA projects, resulting in the growing rhizomatic nature of the assemblage. Engagement and collaboration with traditional leadership, national and local governments were also seen as necessary components of the process. The connection amongst Wildlands, donor agencies, traditional leadership structures and participating communities resulted in the scaling-up and expansion of the Wildlands CEBA Assemblage. On one hand,

Wildlands and donor agencies promoting CEBA, required ‘buy-in’ from traditional leaders and participation from community members. On the other hand, to improve their livelihoods, participating CEBA communities were aware that donors and Wildlands were able to afford an ‘improved livelihood’ experience through CEBA. This interconnection led to a growing interest in the CEBA intervention, built on the momentum of the initial Durban CEBA project sites (*Chapter Four*).

However, the failure of wastepreneur operations (Thakur, 2018) coupled with the lack of M&E was a significant setback for measuring project impacts and achieving systemic changes. Consequently, forgoing initial adaptation planning questions posed by Brooks (2003) detailed in *Chapter Seven*, also led to inadequate project impact measurements and missed opportunities to create longitudinal time series datasets. Pettengell (2010) brings to our attention that resilience deteriorates with changing conditions and processes for assessing needs against available resources, existing uncertainties and level of adaptive capacity is required. I concur with Pettengell (2010) in recognising the need for continuous assessment of community needs based on changing circumstances (climate, social, economic and personal).

#### *Assemblage Thinking and the evolution of CEBA*

Throughout this research inquiry the integrated CBA-EBA concept was viewed as an alternative possibility to the current development challenges in South Africa through what was termed as an ‘Africanised’ response in *Chapter Four*. A post-structural approach can be used to describe The Wildlands CEBA Assemblage. A Post-structural approach can highlight the importance of climate change adaptation planning by accounting for both social and natural system change. Dujardin (2019) used a post-structural lens to demonstrate that development planning should be considered in line *with* climate change and not *alongside* or *for* it. Using Assemblage thinking practices, I argue a similar disposition where I advocate that the current climate crisis requires us to design, plan and execute integrated CBA-EBA adaptation interventions by recognising relationships, interconnections, tensions and aspects of fluidity as part of adaptation interventions.

Exploration of the Wildlands CEBA Assemblage afforded great opportunities to engage with relationships, interconnections, power dynamics and on-the-ground lived experiences. CEBA evolved from an idea to a piloted concept and through this research came to be characterised as an adaptation assemblage. Assemblage thinking practices mentioned in previous chapters explained how the CBA and EBA knowledge bases were fused to construct the idea of CEBA.

In addition, actor networks were formed, and developmental challenges were broken down into smaller more manageable tasks to achieve the implementation imperatives of CEBA and consequently upscale and expand the Wildlands CEBA Assemblage. Risks and Failures within the CEBA intervention were also managed to avoid the creation of fractures in the assemblage. To understand the effects of interlinked discursive and material movements in the assemblage, relationships of interiority and exteriority were engaged. Assemblage theory was used to highlight the importance of focusing on relationships, power dynamics, tensions, fluidity and interconnectivity *within* the CEBA adaptation intervention, to construct meaning and provide an understanding of how assemblage approaches are useful in exploring adaptation interventions.

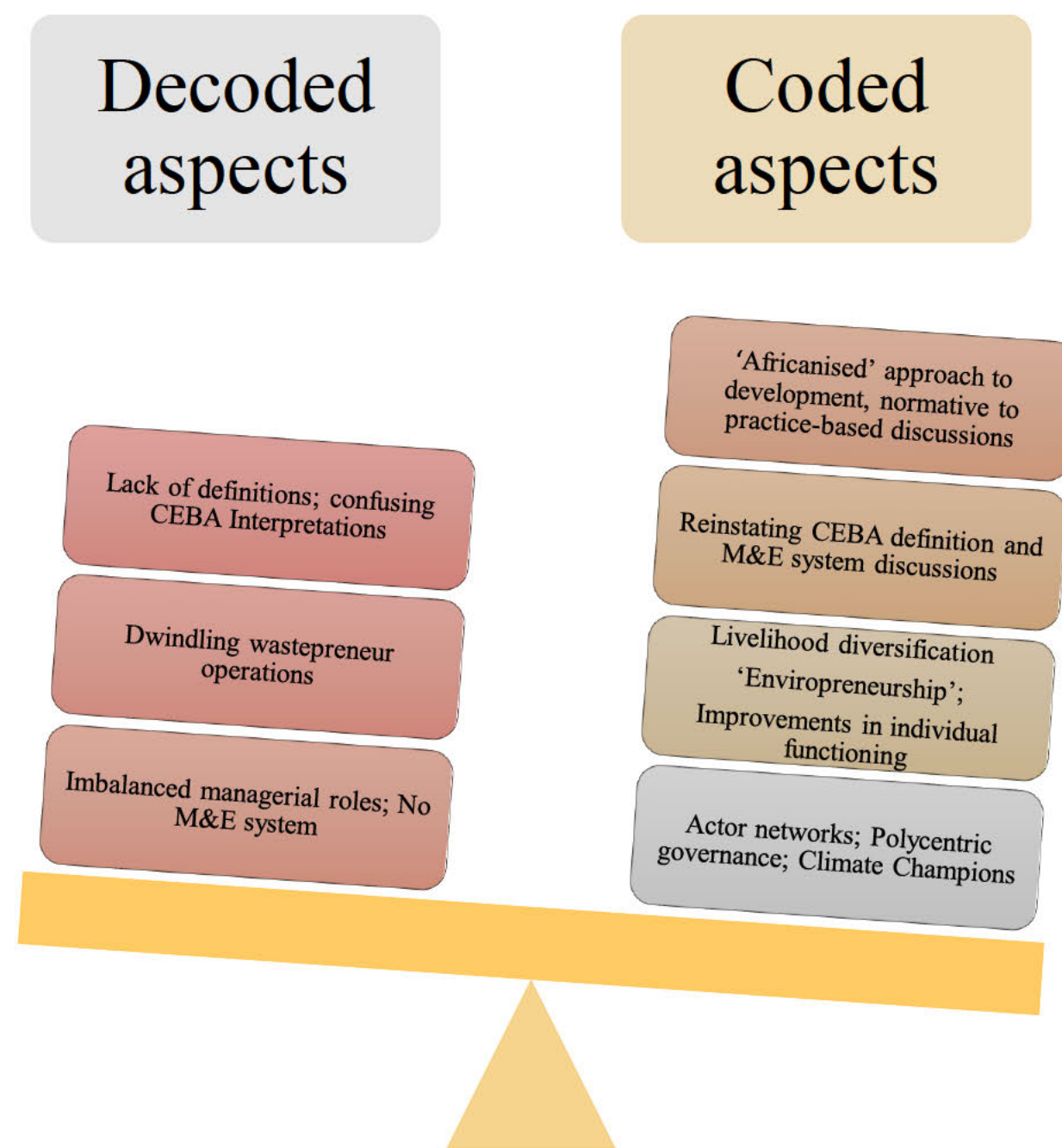
The Wildlands CEBA Assemblage also brings into view four aspects that revealed inherent interlinkages. Firstly, the presence of socio-ecological problems and power imbalances through tensions between the implementing agent and participating communities. Secondly, an interconnection exists between M&E practices and assessing long-term project impacts with respect to addressing transformation and systemic change. Thirdly, the findings reflect attempts of addressing vulnerabilities over large scales requires more robust adaptation planning where the co-existence between humans and non-human aspects (natural environments) are recognised. Deciphering the types of vulnerabilities to be addressed did not appear key to the CEBA adaptation planning phases. Finally, it was uncovered that socio-political contexts including donor demands have the power to heavily influence project implementation. It was also noted that organisational, and managerial aspects of climate change adaptation interventions lack equal transformation.

In this section the processes and key influencing factors responsible for assembling CEBA were restated and discussed in relation to the literature cited in *Chapter Two*. This research inquiry also revealed that certain aspects of the Wildlands CEBA intervention were reassembled to repurpose the assemblage to different ends. Reassembling CEBA is detailed in the second part of this chapter under the following headings: Interconnections and outcomes, Organisational considerations and oversights and Significance of M&E practices in Adaptation Planning.

## **8.2 Part two: Reassembling CEBA: Discussing the research findings in the context of Assemblage Thinking, Transformational Adaptation and Adaptation literature**

Changes in project operations, global discourses and donor requirements gave rise to new Wildlands management discussions as described in *Chapter Five*. These acts served to reassemble CEBA in a way that satisfied donor demands through new modes of donor reporting and gave more operational direction to Wildlands staff. This section is a discussion of the findings in previous chapters in relation to the broader literature bases cited in *Chapter Two*. Successful and unsuccessful aspects of the Wildlands CEBA Assemblage are explored in relation to reconfiguring the assemblage towards its new purposes regarding M&E reporting and streamlined implementation. Li (2007:24) viewed the practice of reassembling as “grafting new elements onto the assemblage” and reworking old elements towards new purposes. The practice of reassembling in this research inquiry follows this definition provided by Li (2007).

The *reassembling* of CEBA outlines key aspects deemed as successful and unsuccessful in reconfiguring the Wildlands CEBA Assemblage to new purposes. The discussion in this section addresses the reassembling of CEBA by explaining key shifts in the CEBA process leading to the reconfiguration of certain aspects of CEBA. These aspects, changing governance regimes, an evolving CEBA discourse, the ‘clustering’ of CEBA project sites, redefining CEBA and reconfiguring project reporting to suit the needs of donors. Conflicting data or explanations in the research are also noted. A thread of common themes generated throughout the research (Appendices 12 & 13) from which overarching findings were extrapolated, are presented below in Figure 8.1.



(Produced by Ramana, 2021)

Figure 8.1 Reassembling CEBA: Coded and Decoded aspects

The findings in previous chapters are presented around coded and decoded aspects of the Wildlands CEBA Assemblage (Figure 8.1). Coded aspects refer to elements keeping the assemblage intact such as, strong connections between the implementing agent and communities, whereas decoded aspects refer to fractures in the assemblage, like a lack of an M&E system. In this study it is argued that, relationships are necessary for an integrated CBA-EBA intervention to take shape and form; linkages between the discursive and material aspects of CEBA aided in the upscaling of the Wildlands CEBA Assemblage; expansion of the Wildlands CEBA Assemblage was achieved across the South African landscape in a rhizomatic fashion and for transformational adaptation to be realised at systemic level, transformation through the project intervention as well as the organisational level is required.

The aspects of the Wildlands CEBA Assemblage that are argued as destabilising or decoding the assemblage appeared in *Chapters Five, Six and Seven*. These included the lack of an M&E system, ambiguity, and uncertainty in defining CEBA, a confused workforce, donor-funded expectations and, disgruntled participating community members. Despite these destabilising aspects, the Wildlands CEBA Assemblage has remained intact, and aspects of the assemblage have been reassembled to suit project and donor needs. This is evidenced by recent communication with Project Partners stating, “*when collating learnings from our various projects we try to look at these through the lens of how challenges and achievements contribute or detract from CEBA*” (Anon.14, Senior Manager, eThekweni Municipality, Interview, July 2021, Durban). The discussion continues in the next section under the heading interconnections.

### **8.2.1 Reconfigurations of CEBA**

The practice of reassembling CEBA is further discussed in relation to changing governance regimes, a changing CEBA discourse, reconfiguring wildlands vision and redefining CEBA.

#### *Changing governance regimes*

Evidence presented in *Chapter Four* highlighted a change in governance regimes was successful in responding to national government mandates. South Africa is comprised of both traditional and state governance regimes that place great importance on the inclusion of

communities in development planning (Janoska, 2013; Beck *et al.*, 2013; DEA, 2018b; van Niekerk 2014; NBI, 2017; South African Government, 2018; Adaptation Network, 2020). The involvement of communities and traditional governing bodies present in CEBA case study communities further entrenched a change in decision-making authority to include actors outside formal governing bodies. Assemblage thinking afforded the opportunity to explore and understand aspects of polycentric governance in the Wildlands CEBA Assemblage. Actor-networks, the institutionalisation of CEBA as an ‘Africanised’ response to development challenges and uncovering relational power dynamics amongst state and non-state stakeholders were engaged with. CEBA is a real-world pragmatic example of how multi-actor decision making and action contributed to an integrated and ‘Africanised’ CBA-EBA response to development challenges. Other studies also emphasise adopting a pragmatic approach, particularly in the face of faltering action in climate negotiations (Cole, 2015). Focusing on a polycentric approach to climate governance, emphasises mutual learning, innovation, societal relevance, evolution of knowledge, and enhances cooperation across an increased number of actors (Dorsch & Flachsland, 2017).

Collaboration between state and non-state actors was evident in the Wildlands CEBA Assemblage, hybrid governance structures, polycentric forms of governance, and what Swyngedouw (2005) terms Governance-beyond-the-state, played a key role in mobilising actors from different stakeholder groupings to action the Wildlands CEBA Assemblage. While this thesis argues in favour of aspects related to fluidity, flexibility, multiplicity, and adhocracy (Swyngedouw, 2005; Dryzek, 2000), it does not fully agree with ad-hoc governance structures. I argue that the state has an equally important role to play in enhancing the adaptation discourse through multilateral agreements and forging alignments with like-minded state entities that place focus on transboundary impacts of climate change, biodiversity and conservation projects. Eriksen *et al.* (2021) notes that maladaptive effects of adaptation interventions outside the project boundaries of these interventions also need to be explored and understood.

The processes of rescaling were also evident as part of CEBA’s evolution. Using Li’s (2007) terminology, a ‘map of parties’ described the reason for involvement in CEBA and revealed the interconnections between actors in the assemblage under a polycentric governance



formation described in *Chapter Four*. This form of governance involved non-state actors to which climate action was ‘out-scaled’. The recognition of ‘hybrid’ governance structures and processes of rescaling are also recognised by Nel (2015) where processes of scaling were explained in line with territorialising agents and objects of governance. Though my research has not employed the concept of scaling in the same vein, it does concur with Nel (2015) in acknowledging the processes of upscaling, downscaling and outscaling as a means of reorganising or reassembling parts of an assemblage including governance responsibilities. The first part of this evidence was a deeper understanding of the numerous actors required to achieve the ‘rooting’ and expansion of the Wildlands CEBA Assemblage in global climate discourse and through project interventions on the ground, by means of upscaling and downscaling CEBA activities. As described in *Chapter Four*, the downscaling of climate advocacy from national government to local governance structures, used the DAC to advocate for adaptation mainstreaming in decision-making. The second part was the ‘out-scaling’ of activities from local governance entities in Durban (*Chapter Four*) to Wildlands, with an emphasis on shared responsibilities and risks in project implementation.

#### *A changing CEBA Discourse*

Prior to the introduction of CEBA in 2012, Wildlands activities comprised of independent suites of greening and conservation programmes as described in *Chapter Four*. With the introduction of CEBA, the Wildlands CEBA intervention became the umbrella under which all the organisation’s programmes operated. To entrench the idea of an integrated CBA-EBA intervention that appeared to be than a reforestation initiative (as desired by Wildlands and eThekweni) the word CEBA began making appearances in all of Wildlands organisational material for a period of seven years (WCT 2012-2016; Wildlands, 2017; Wildtrust 2018, 2019). Over time ‘CEBA discourse’ arose from an amalgamation of CBA and EBA bodies of literature and eventually included wording and language such as, ‘Africanised development’, CEBA (philosophy, teams, clusters, communities, projects) social cohesiveness and inclusion, green job creation, progressive transformation, and underwriting community livelihoods noted in *Chapter Four*. Reassembling CEBA discourse in this manner redirected the attention and

behaviour of communities away from difficult to reach livelihood opportunities towards the basket of CEBA project activities said to enhance livelihood opportunities and well-being.

Linking back to the approach taken by Tompkins and Adger *et al.* (2003) to include the word *actions* in adaptation discourse, the reassembling of the CEBA discourse also moved towards action orientated outcomes. In addition, Fleming *et al.* (2014) and Fairclough (1989,1992, 2003) also argued that discourses can strengthen and further embed certain norms and practices in various contexts. In this instance, an evolution in the CEBA discourse over the seven-year period, reinforced the idea of potential beneficial outcomes of CEBA project activities within the minds of community participants. The various interpretations of CEBA also increased the flexibility of the assemblage to the point where donors and funders could make changes to the assemblage at any given time (*Chapter Five*).

### *Reconfiguring Wildlands Vision and Redefining CEBA*

Whilst Wildlands grew in stature and funding, other elements did not follow suit such as defining of key concepts, CEBA being one. Upon commencement of this research inquiry, the underlying assumption was that the Wildlands office and field project staff and the community participants understood the acronym ‘CEBA’ and its perceived meaning (*Chapter One*). It was found that the diversity in understanding ‘*what CEBA was*’ and its perceived meaning extended beyond the initial assumption. CEBA was interpreted differently by staff and participating community members from 2011-2020 as noted in *Chapter Five*. A much wider audience including Wildlands Executive Board members, External Stakeholders and Wildlands donors also had no clear understanding of CEBA. Drawing from observational analysis, one Wildlands Board member expressed frustration at a senior management meeting in 2014 mentioning that CEBA is “*still confusing to understand*” (Anon.1, Wildlands Board, Personal Communication, June 2014, Durban). Conversations around definitions, terms and concepts required more attention than was initially given, and the rhizomatic nature of the Wildlands CEBA Assemblage allowed for these definition discussions to be revisited. The reinstating of CEBA definition discussions revealed that the Wildlands CEBA Assemblage was accommodating to the reopening of past discussions without the disruption of the whole assemblage itself. With

respect to the practice of reassembling (Li, 2007), I view this shift in definition discussions as a ‘reworking’ of CEBA to new ends.

Although this integrated CBA-EBA response is aligned to Dujardin’s (2019) notions of hybrid approaches to climate adaptation, this research inquiry emphasised equal importance and attention needs to be placed on organisational and institutional growth for effective socio-ecological responses to climate challenges. The assemblage remained fluid in the light of influential externalities, representative of the ‘reassembling’ practice, constantly changing in its interpretation to suit changing organisational visions and the pursuit of funding. While this benefitted the rhizomatic expansion of the assemblage, the fluidity of CEBA also created unwanted confusion at the organisational level. In the former years, the CEBA philosophy was interpreted as the link between local communities and their supporting ecosystems, emphasising the holistic aspects of human interaction and biodiversity. The philosophy progressively changed to including phrases such as strategic focus on restoration, pro-poor development approaches and establishment of critical delivery partnerships (Venter *et al.*, 2014). In 2012 Wildlands organisational vision was a “sustainable future for all” (WCT, 2012:1) and remained this way until 2020. The Wildlands vision was then reconfigured to “A Thriving and Resilient World” in realising the “interconnectedness of people and planet” (Wildtrust, 2020:5).

Reassembling CEBA to fit into the new 2020 configuration set by Wildlands management was an evident need after Wildlands changed executive leadership 2019 and in response to the global COVID-19 pandemic in 2020. Wildlands embarked on a team-wide management workshop in 2019 focusing on project implementation discussions in all CEBA project sites. The discussions around the complexity of the CEBA language at this recent CEBA Management Workshop demonstrated what Ziervogel *et al.* (2016b) considered as sharing perspectives and inventing solutions to complex problems. This act resulted in a new definition recently referred to as a ‘true CEBA’. To reiterate, “*A true CEBA is one that considers ecological restoration, the biodiversity economy and sustainable communities*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). A ‘common language’ describing CEBA related work was agreed upon. These included the three areas of operation

(ecological restoration, biodiversity economy and sustainable communities) that are used for external communication, while ‘CEBA discourse’ or the reference to the word CEBA is still used by Wildlands internal team and by project partners as described in *Chapter Five*.

This shift with respect to redefining the meaning of CEBA, is what I consider an incremental change in the Wildlands CEBA assemblage. I further argue that this incremental change can be viewed as a move towards exploring what transformation means in the context of designing, planning and executing integrated CBA-EBA interventions. The next section briefly discusses missed opportunities with respect to organisational oversights.

### **8.2.2 Organisational Oversights and Missed Opportunities**

In this thesis, I have argued transformation in the context of the complexity discourse and ‘Transformational Adaptation’ school of thought takes on a double meaning. The first is transformation within the adaptation assemblage. The second includes transformation at the organisational level. Transformation of organisational and managerial functioning, and governance regimes are also necessary components for systemic transformational adaptation changes. An integrated CBA-EBA approach is a plausible reality, provided the on-the-ground operations, monitoring and evaluation and managerial aspects are considered in the processes.

Wildlands positions itself as an innovative socio-ecological development NGO by stating “working with communities...especially in rural areas, has historically been a niche of Wildlands” (WCT, 2016:8). However, the analysis indicates that Wildlands lacked organisational and managerial functioning to keep abreast of the ever-expanding Wildlands CEBA Assemblage as shown in *Chapter Six*. This research showed organisational and Managerial functionality is causally linked to project implementation successes, failures and ultimately sustainability in the long-term. Pelling (2011) and Girot (2013) point out that contradictory approaches to adaptation exist because the vision of the adaptation intervention does not match the actual implementation. In the case of Wildlands confusion amongst the office and field staff regarding CEBA project implementation was in contradiction with what was occurring at the implemental level. This mismatch can be considered as placing more attention on one component of the adaptation intervention at the expense of another. In the context of reassembling, this organisational oversight is seen as a missed opportunity where

aspects of the organisation could be reassembled to better suit the needs of the integrated CBA-EBA project intervention. In *Chapters Four* and *Five* we see how CEBA was upscaled at an exponential rate due to increased donor funds, while managerial aspects were not paid equal attention and upscaled. This lack of managerial functioning is also in contradiction to some extent with Wildlands positioning of being innovative. While I agree with Pelling (2011) and Girod (2013), and I recognise a mismatch with the growth of the CEBA intervention and organisational needs, I cannot confirm that the case of CEBA and Wildlands constitutes what they term ‘contradictory’ as more research is required to assess maladaptive outcomes of CEBA. I do however agree with Pelling *et al.* (2015) in recognising that transformation within organisations require equal attention from both a research and practice perspective in relation to the Transformation discourse.

Organisational oversights also existed in the form of unmanaged community expectations and inadequate stakeholder engagement regarding community needs. These oversights caused Wildlands to experience what I have termed ‘community push-back’ (*Chapter Seven*). The packaging and presenting of activities under the CEBA domain eventually resulted in generalizing the needs of every potential project community. Wildlands did not place enough importance on managing the expectations of project participants resulting in project implementation setbacks and complexities, causing frustration and disappointment. In addition, the failure to scope types of vulnerabilities and hazards being dealt with resulted in assumed interpretations of community needs. Huq and Reid (2007) suggest exploring or scoping a community’s vulnerabilities and subsequently taking informed and scientifically inclusive action. I agree with the approach taken by Huq and Reid (2007) to scope community needs more closely before embarking on a plan of action. There is no evidence in this research inquiry to suggest that Wildlands restructured its community engagement processes to better understand the needs of the community. This remains an area for further work. However, the non-negotiable aspects of ongoing communication, transparency and inclusivity reflected strongly throughout the research as participating communities advocated for improved project implementation. The next section expands on the importance of M&E practices in the context of the research findings and adaptation planning.

### 8.2.3 Significance of M&E practices in Adaptation Planning

The CEBA philosophy derived in the eThekweni-Wildlands closed-door discussion made socio-ecological integration seem simple. However, the implementation and up-scaling of CEBA created technical challenges, evident through the inability of Wildlands to robustly authenticate field data (*Chapter Four*). Though the Wildlands CEBA Assemblage was upscaled significantly across South Africa, providing proof of meaningful impact and ‘progressive transformation’ (as Wildlands put it) required robust M&E data and interpretation. However, without any M&E practices in place as indicated in *Chapter Four*, CEBA philosophy aspirations<sup>47</sup> were out of reach. The lack of M&E practices and issues of ambiguity, uncertainty derailed the momentum of the Wildlands CEBA Assemblage at different points in its decade-long lifespan (2010 – 2020). This section delves deeper into the challenges of impact measurement in adaptation interventions and importance of M&E practices. The positive and negative aspects of reassembling the CEBA review process, the clustering of CEBA projects, and outcomes in the CEBA intervention are discussed.

In *Chapter Seven* I argued that transformation at the organisational level is also important for the achievement of systemic level change, pertaining specifically to M&E practices. An absence of this critical component in the project process leaves room for ambiguity and uncertainty to prevail and in some cases increase. In this research inquiry, the lack of M&E practices is seen as a missed opportunity towards creating verifiable qualitative and quantitative project datasets over a prolonged period of time. Soal and Diedericks (2018) recognise the need for strong M&E practices in climate change projects especially for those practitioners that are new to climate projects. While Pal et al. (2019:25) place importance on “tailoring M&E systems” to suit the needs of complex climate projects seeking to foster transformation at systemic scales. Recently, Singh et al. (2021:2) point towards eleven framings under which effective adaptation planning can cater for “better conceptualised and designed adaptation processes”. The authors state that how we frame adaptation influences the way adaptation implementation and outcomes are monitored, measured and evaluated. The key findings in this

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<sup>47</sup> Joint and impactful coexistence of sustainable communities and ecosystem preservation

research inquiry concur with Singh *et al.* (2021), Soal and Diedericks (2018) and support Pal *et al.* (2019) in recognising the links between adaptation planning and M&E practices as well as the critical role of M&E with respect to learning, shared understanding and succession planning in integrated CBA-EBA adaptation interventions over long time periods.

### *CEBA Review Process*

The lack of M&E practices added rolling complexities to the Wildlands CEBA Assemblage in the form of ambiguities and uncertainty over its decade long lifespan. The lack of an M&E system proved to be a significant oversight in the earlier years of CEBA project implementation. As mentioned by Dr A. Venter, Wildlands ex-CEO, “*it is a weakness of ours, we don’t have those embedded descriptors, all our M&E indicators are downstream*”<sup>48</sup> (Personal Communication, August 2016, Howick). While CEBA reviews were used to manage project progress and inform decision making, the lack of data management and ambiguity in data derailed the purpose of the reviews where data discrepancies to centre stage, resulting in frustrated Wildland management staff (*Chapter Five*). A CEBA review processes devoid of structure caused the Wildlands CEBA review process to be in a constant state of flux, re-emerging on an annual basis with different rules around actor-engagement (*Chapter Five*). In addition, the CEBA Documents lacked structure and was compiled by people in the organisation based on their area of interest/expertise. These findings resulted in biased styles of writing, piece-meal data presentation and no verifiable track record of writers or data custodians. The review process was then reassembled by improving on the structure of the review process in 2015. Though this reassembling process incited different strategic discussions each time, the overall result was fragmented with incomparable project data. Since then, Wildlands has begun placing more emphasis on M&E practices as, “*donors require tracking and proof*” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton). Realignment occurred through a change in management in 2019 and new M&E activities in 2020 (primarily donor-led). Perreault *et al.* (2015) noted developing baselines and ascertaining

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<sup>48</sup> Downstream refers to end-of-project intervention results such as number of project beneficiaries, number of trees planted etc.

systemic shifts become nearly impossible if M&E practices are overlooked. The findings in this research inquiry concur with Perreault *et al.* (2015) by recognising the lack of M&E practices as an obstacle towards gaining incremental and systemic change insights. The Wildlands CEBA Assemblage in its current state mostly reflects the reporting of project actions taken in response to donor budgetary concerns (WCT, 2016).

### *Clustering of CEBA projects*

CEBA projects were treated as stand-alone initiatives from 2011-2015 but were subsequently reassembling projects from a strategic management standpoint, according to their geographical vicinities to one another. As mentioned in *Chapter Five*, CEBA projects increased from 19 projects in 2011, to 32 projects in 2014 and 60 projects in 2018. This led to Wildlands ‘clustering’ projects in the same geographical region to accommodate for easier CEBA review formats and more efficient use of resources. While this served the implementing agents logistical and review needs, it created compounding negative effects on data management. Confusion regarding data management was expressed as a concern by Wildlands Management throughout this period. Due to the rhizomatic nature of the Wildlands CEBA Assemblage Wildlands did not need to need to disrupt CEBA project implementation and begin from a zero-starting point to respond to new donor M&E demands. With a change in executive leadership in 2019, Wildlands executive management redirected their project implementation trajectories towards attaining donor-desired M&E results. In doing so, CEBA was reconfigured to new forms of reporting. Wildlands ‘grafted’ new M&E aspects into the Wildlands CEBA Assemblage with the introduction of an online M&E tool:

“We use a tool now to track and monitor what goes on in each project, and sometimes we even decide beforehand on where we put the resources based on what the tool shows us about the community we want to work in” (Dr R. Kloppers, Wildlands CEO, Interview, February 2020, Hilton)

In addition, the act of filling in gaps by eThekwini, in the Durban datasets (*Chapter Four*) can attest to the reworking of existing aspects of the Wildlands CEBA Assemblage for new and improved purposes. Thus, reassembling parts of the data management aspects of the assemblage to render more robust and complete impact information. These acts can be



described as reassembling or asignifying rupture as proposed by Li (2007) and Deleuze and Guattari (1987). Despite this positive change to include M&E practices in the Wildlands CEBA Assemblage, challenges with data management and project impact measurement remain. Whilst the clustering of CEBA projects based on geographical boundaries seemed like a good idea at the time, the overlap of project activities across community boundaries was completely overlooked and hence a level of complexity and uncertainty was added to the assemblage.

### *Challenges of Impact Measurement in Adaptation Interventions and Importance Of M&E Practices*

The capturing of information in adaptation interventions is a key piece in understanding expanding rhizomatic adaptation assemblages with respect to assessing systemic change. Lonsdale *et al.* (2015) referred to learning as an integral part of transformational adaptation planning while Klein *et al.* (2017) documented M&E information as critical for developing “actionable knowledge” moving beyond processes towards the understanding of project outcomes. This research found that if principle concerns, definitions, types of vulnerabilities and scale are not part of the initial adaptation planning activities, the associated M&E practices cannot be effectively and robustly undertaken. Ample evidence throughout this study suggested the carry-over of ambiguity, uncertainty, data gaps and assumed interpretations of CEBA resulting from non-existent baselines, inadequate progress monitoring and inefficient impact evaluation. In addition, there have been no other platforms for leadership in the organisation to create regular opportunities for testing core project assumptions or project strategies, apart from the inconsistent CEBA review process noted in *Chapter Five*. Barrott (2020) cautions against the reproduction of solutions carrying forward the same errors if left unattended. It was revealed in *Chapter Five* that the lack of adequate attention paid to M&E practices creates room for carry-over risks, ambiguities and uncertainties in adaptation interventions. The connection between integrated CBA-EBA adaptation interventions and M&E practices identified in this research inquiry reinforces views expressed by Midgely *et al.* (2012: i), Ssekamatte (2018) and Barrott (2020). The authors recognise that the “complexity” in socio-ecological adaptation interventions require M&E practices to avoid data gaps, ensure accountability and improve on robust project outcomes.

This research also highlighted a second missed opportunity for the development of community-level M&E impact indicators due to the exclusion of an M&E system from the beginning of the CEBA process in the 2010/2011 financial period. Without adequate M&E practices, project site comparisons, deductions, reflections and impacts could not be attained for the entire 10-year period of the Wildlands CEBA Assemblage existence, and unfortunately datasets could not be compared with other stakeholders such as the eThekweni Municipality. Widespread ambiguities around definitions (*Chapters Five and Seven*) emphasised compounding uncertainties in the assemblage with respect to CEBA project implementation. From a transformational adaptation perspective several theorists note M&E practices improves disaster risk information bases, increases the “defensibility of data” and expands quality of life indicators (Rist *et al.*, 2012:9; Macleod *et al.*, 2016; Roberts *et al.*, 2012; Cole, 2015; Marans, 2015).

This research revealed that robust quality assurance and quality control lacked greatly in CEBA project implementation processes increasing frustrations, as expressed by numerous community participants in *Chapters Five and Seven*. This finding is further supported by the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results (UNDP, 2014) as M&E practices within implementing organisations have been considered as organisational weaknesses. These unfortunate oversights negatively impacted development of information bases and baselines upon which trends and patterns could be measured and evaluated against. These findings also concur with Chevallier (2011) reminding us that baselines are required to track incremental and systemic changes in adaptation interventions. It is yet to be seen if the newly grafted M&E practices in the assemblage deliver more robust and meaningful project outcomes. Fedele *et al.* (2019:117) recognises the value in investing in M&E, but also states that “policy-makers rarely consider transformative adaptation” as a solution to developmental challenges. I differ with Fedele (2019) on the point that policymakers rarely consider transformative adaptation as the eThekweni municipality showed due consideration to transformative solutions by engaging CEBA (Douwes, 2018). However, I also agree with Fedele (2019) in recognising that M&E practices require more attention to help identify transformative changes in adaptation interventions.

### *Project based Outcomes and adaptation planning*

Through the Wildlands CEBA Assemblage, Green Economy imperatives were realised, improving livelihoods, creating ‘green jobs’ and contributing to the ecological imperatives of the case study communities and municipalities involved in the assemblage. CEBA activities through the Wildlands CEBA Assemblage resulted in community participants gaining a sense of purpose, direction, gratification, and accomplishment. Grassroots level evidence resulting from this research inquiry supports Wildlands publicly available published material indicating that CEBA project activities brought back a sense of dignity to a person (WCT, 2012-2015). Direct community responses described in *Chapter Seven*, revealed a positive role in livelihood diversification, reducing apathy, increasing individual functioning, and reducing poverty in some instances.

Despite the success in ecologically restoring landscapes and addressing livelihood concerns in various project communities, it must be recognised that the connections between understanding and addressing community needs were not fully engaged through CEBA. Community participants expressed disappointment and frustration due to receiving unwanted barter items from Wildlands. A large percentage of community participants expressed happiness, purpose and satisfaction regarding their participation in the Wildlands CEBA Assemblage. There is still much work to be done to ascertain the full extent of the impacts of the CEBA intervention on participating communities. This is evidenced through Wildlands failure to ask pertinent M&E related adaptation planning questions. As noted in *Chapter Seven*, fundamental questions regarding types of vulnerability/hazards, scale and definitions need to be part of adaptation planning to avoid the risk of maladaptation and increase the changes of systemic transformation. Dujardin (2019:6) suggests that accounting for human and non-human aspects in adaptation planning is key to “extending our understanding of systemic relations”. In this regard, the findings of this research inquiry suggests that an improved understanding of project processes and impacts using robust M&E practices, can also enhance our understanding of what constitutes transformation in adaptation interventions.

A significant implication of the findings also highlights the importance of M&E practices in enhancing our understanding of socio-ecological systems. A lack of project impact information

over longitudinal time horizons can also impede our understanding and characterisation of long-term adaptation to climate impacts. The next section delves into the Wildlands CEBA Assemblage study findings in relation to other climate assemblage studies and explores the usefulness of heuristic analysis frameworks.

### **8.3 Part three: Rethinking Adaptation Interventions through Assemblage Thinking and Heuristic Analysis Frameworks**

Climate change adaptation research has evolved from ‘first-order’ knowledge production (scientific evidence) to the link between the social and ecological aspects, implementation practices and further into transformational adaptation (fourth generation knowledge) (O’Brien, 2018; Klein et al., 2017 and Barrott 2020). Over a decade ago, Ziervogel and Zermoglio (2009) identified that large gaps exist between adaptation practitioners and scientists in understanding climate change information. Ten years later, Pal *et al.* (2019:1) still advocates that “transformation should be rooted in shared understanding”. Departing from a shared understanding point of view, characterising adaptation interventions as assemblages enables the idea of re-thinking adaptation. Eriksen *et al.* (2021:12) recognised the impact of the COVID-19 pandemic on “our collective futures”, pushing forward their argument of taking a post-adaptation view to development amid a crisis that disrupted a globalised world. In the same way, I explored moving parts of an adaptation intervention (CEBA) and the assemblage itself (Wildlands CEBA Assemblage) amidst changing circumstances. I am arguing that movements in heterogeneous elements of adaptation interventions impose different effects on the larger assemblage they are a part of, also compelling us to ‘rethink adaptation’.

In the previous sections of this chapter, I restated how CEBA was assembled using specific assemblage thinking practices outlined by Li (2007) and discussed these findings in relation to assemblage thinking and transformation literature. I then proceeded to discuss how aspects of CEBA was reassembled to suit new purposes by citing the broader adaptation literature base in *Chapter Two*. This section discusses the knowledge contributions of the research with respect to other assemblage studies, the ‘Transformational Adaptation’ school of thought, and the use of heuristic analysis frameworks. Through the findings of this research inquiry, it was

revealed that certain aspects of integrated adaptation interventions need to be reconsidered if the desire is to achieve systemic transformational adaptation shifts. The conversation moves beyond the CEBA intervention to ‘rethinking’ how adaptation interventions can be theorised and implemented using assemblage approaches.

In the context of this research rethinking refers to reviewing and reconsideration of key aspects involved in adaptation interventions. These aspects include asking key adaptation planning questions at the initial phases of adaptation planning, defining terms and concepts at the outset, including M&E practices in adaptation planning, analysing changing discourses and ascertaining how these shifts in discourse affect the implementation of adaptation interventions and assessing organisational capacities of implementing agents. Each of these key aspects are discussed under the titles assemblage thinking, transformation and heuristic analysis frameworks. The discussion begins with detailing contributions of assemblage thinking to transformational adaptation research.

### *Assemblage Thinking*

The assemblage approach is a key contribution to this thesis. In the words of Savage (2020:1), “Assemblage thinking has exploded”. As explained in *Chapter One*, several scholars have engaged assemblage thinking to explain the interconnections and relations between a variety of heterogeneous elements in numerous social, political and environmental settings.<sup>49</sup> This thesis also recognises the role of assemblage thinking as one that explores relations, patterns, trends, and agency in a complex and changing world. The Wildlands CEBA assemblage was characterised as an adaptation assemblage due to its heterogeneity, relational aspects (actor networks and power dynamics), aspects of territorialisation and ability to produce new realities for impoverished communities. These constitute four of the five elements of assemblages recognised by Muller (2015), that is relational, heterogeneous, productive, and territorialised.

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<sup>49</sup> Ethnography (Ghoddousi and Page, 2020), Anthropology (Crate & Nuttall, 2016), Botany (Bedford *et al.*, 2012), Policy research (Gillard *et al.*, 2016; Savage, 2020; Ober & Sakdapolrak, 2020; Fox & Alldred, 2020), Ecology (Head, 2010; Hobbs *et al.*, 2018; Jones & Magurran, 2018), Political Ecology (Nel, 2015; 2017); Gender and education (Tamboukou, 2008), Buildings (Rose *et al.*, 2010), Population Geography (Duffy & Stojanovic, 2018), Architecture (Dovey & Fisher, 2014), climate terrorism in contested climate politics (Telford, 2020).

Nel (2017) explored assemblage approaches from an arborescent point of view making use of virtuality and materiality to explain and connect market environmentalism to broader forestry contexts (macro politics, economics, and global environmental regimes). The Wildlands CEBA Assemblage is different in that it presents a rhizomatic expansive nature. However, this research links to Nel's (2017) work by also making use of virtual and material axes of co-functioning (Deleuze & Parnet, 2006; Dittmer, 2014). It can be said that virtuality and materiality work well to explain the interconnections between the normative adaptation concepts and the realistic upscaling and expansion of integrated CBA-EBA interventions.

Deleuze and Guattari (1987) recognised that assemblages also need to be explored and understood in relation to their spatial components, that is, (de)territorialisation. In this research, the concept of territoriality was used to explore the spatial dynamics of an upscaled integrated CBA-EBA intervention. Through this concept, I explored how coded and decoded aspects of the Wildlands CEBA Assemblage influenced its territorialisation and deterritorialization over varying geographical boundaries. To reiterate coded aspects of the assemblage such as the reinstating of CEBA definitions and M&E functions, livelihood and ecological impacts, improved individual functioning, climate champions and multi-actor networks, stabilised the Wildlands CEBA Assemblage. These coded aspects assisted in maintaining the 'hold' over already absorbed territories in the assemblage. Although the Wildlands CEBA Assemblage never collapsed in totality (Li, 2007), it was faced with several challenging aspects described in *Chapter Six* threatening the deterritorialization of the assemblage. It can be argued that the concept of territoriality as proposed by Deleuze and Guattari (1987) enhanced the exploration and understanding of how an integrated CBA-EBA adaptation intervention upscaled to a formidable size. Assemblage thinking in the ecological sciences is widely used for evaluating species responses to external environmental factors (Jones & Magurran, 2018; Hobbs *et al.*, 2018), while Head (2010) notes its value as beneficial in realising adaptation through ever-changing realities in the face of climate change.

In the context of place-based conservation Hobbs *et al.* (2018) recognises intrinsic-value relationships between human and their surrounding environments. Through assemblage thinking, the author further advocates for the consideration of system dynamics and human-

environment connections to be part of adaptation planning. Like Socio Ecological Systems research by Reyers and Selomane (2018) and Gillard *et al.* (2016), this research inquiry also identified the use of assemblage thinking as a route to understanding complex realities, tensions, and relational aspects of adaptation interventions between human and non-human constituents. This is useful because assemblage thinking allowed the exploration of relational aspects of an integrated CBA-EBA intervention. Although Jones and Magurran (2018:1) use assemblage thinking purely in the ecological sense (in terms of species dominance), a key argument is that small changes can have major effects on the “functioning and sustainability” of an ecosystem. In the Wildlands CEBA Assemblage it was found that small organisational and managerial changes negatively affected participating community members of the Wildlands CEBA Assemblage (*Chapters Five and Six*). As with other research (Nel, 2017; Duffy & Stojanovic, 2018; Li, 2007) the practice of rendering technical was widely employed in various contexts present in this research inquiry allowing the exploration of development and political issues through a practical lens. As previously mentioned, I have argued that organisational and managerial review is a necessary component of transformation towards achieving systemic climate transformational adaptation imperatives.

In policy analysis, Fox and Alldred (2020) applied assemblage thinking through a ‘posthuman’ perspective, where the complexities of climate change and actions taken to address climate challenges are explored in their entirety, as opposed to choosing easier aspects to deal with (renewable energy) and leaving out the more complex aspects such as climate justice. According to the authors, assemblage thinking provides a platform for addressing both policy development and the effects those policies have on addressing climate challenges for a holistic perspective. Though I did not place focus on addressing governance issues in the same manner as Fox and Alldred (2020), I do agree that institutionalising adaptation as a mainstream agenda item on political agendas requires us to look at addressing climate challenges in their entirety. In this regard, analysing changing global environmental discourses also proves to be useful in recognising the interconnections between discursive aspects and material aspects of adaptation interventions.

Most recently, in explaining Climate Terrorism Assemblages, Telford (2020) builds on arguments around environmental change and conflict, revealing that assemblage thinking is integral to explaining causal complexities between climate and power relations. Although not expanded on extensively, cyclical dependency relationships did exist in the Wildlands CEBA Assemblage where power dynamics shifted between actors creating tensions at times Allen (2011:154) notes that “relationships may co-exist uneasily with one another”, in which case, assemblage thinking helps us understand that heterogeneous elements can exist within the same ‘system’ without necessarily conforming to a “coherent whole”. Tensions were indeed present and noted in the Wildlands CEBA Assemblage between Wildlands and participating community members. This is evidenced through disgruntled and frustrated community participants, discussed in *Chapter Seven*.

### *Transformation*

It is a deduction of this study, that assemblage thinking contributes to the ‘Transformational Adaptation’ school of thought by exploring and explaining relational patterns, generating concepts for improved socio-ecological realities, and re-shaping the agencies necessary for systemic adaptative shifts. The fluid nature of the Wildlands CEBA Assemblage allowed the CEBA concept to remain relevant to various actors in changing global circumstances, despite its ever-expanding nature. As mentioned previously, from a transformational adaptation perspective, assemblage thinking encourages the reconceptualization of processes, relationships, and knowledge use. It also favours rethinking the way poverty, vulnerability and resilience is framed within the adaptation discourse, and in turn what is required to achieve systemic shifts towards transformational adaptation.

Revisiting the IPCC’s (2012) definition of transformation and transformational adaptation as interpreted by Lonsdale *et al.* (2015), this research inquiry supports and aligns with these bodies of work. This research concurs with the interpretation of Transformational Adaptation as viewed by Lonsdale *et al.* (2015) where transformational adaptation includes incremental transformative changes. Transformation indeed extended beyond a project intervention and its constituents to other components, such as organisational, managerial and governance systems, incrementally altering the entire assemblage. Robust measurable shifts towards large scale



transformation could not be proven yet, more research is required for such claims. However, a significant outcome of this research is the mismatch between other theorists, practitioners and entities advocating for more evidence-based knowledge such as Wills *et al.* (2016) and DEA (2012), and the non-existence of M&E practices in a large-scale integrated CBA-EBA intervention. In the context of re-thinking adaptation interventions, this mismatch requires us to interrogate what is being asked for and what is being applied in real-world adaptation intervention contexts.

Part of re-thinking adaptation interventions through a lens that offers a relational perspective, is also the inclusion of asking key adaptation planning questions at the initial phases of adaptation planning. In this regard, I link back to the three types of adaptation-vulnerability linkages identified by Eriksen *et al.* (2021). The authors find that certain interventions may reinforce, redistribute or introduce new vulnerabilities. Apart from defining the parameters of what constitutes adaptation and transformation in the confines of a specific project, transboundary effects and impacts resulting from the intervention must also be engaged with. In addition, identifying the principle concern, type of vulnerability or hazard being dealt with, defining key concepts in adaptation planning and determining the scale of implementation are recognised as the building blocks for understanding interconnections between human and non-human aspects in adaptation interventions, as well as improving robust project impact measurement and evaluation. Lang (2019), Català (2014) and Kates *et al.* (2012) views of transformational adaptation state that society is part of the ecological system and not separate from it. Dujardin (2019:6) also found that narratives based on defining adaptation as a response to climate change reinforces the view that climate change is external to our functioning and further separates human and environment relationships in adaptation planning. I concur with all four authors as approaching an integrated CBA-EBA adaptation intervention through an assemblage thinking lens provided unique opportunities to uncover the importance of the environment to the communities that depended on them. In some instances, community participants described their relationships with their natural environments as having ‘divine-value’, seeing themselves as part of the ecological system. CEBA community participants recognised natural resources as “*natural things from God*” (P.52, Interview, September 2016,

Haniville) stating, “*we grew up knowing we have to look after the environment*” (P.18, Interview, September 2016, Buffelsdraai). It is therefore my opinion that exploring the interconnections of human-environment relationships in response to climate challenges, benefits from assemblage thinking approaches. In addition, discoveries such as these can lead to more informed adaptation planning as noted by Hobbs *et al.* (2018).

The evidence presented throughout this chapter has indicated the value of assemblage thinking practices in adaptation research especially towards enhancing ‘Transformational Adaptation’ school of thought from a systemic point of view. Assemblage thinking can be applied as an innovative and pragmatic approach to explore systemic change in the context of transformation if the linkages between adaptation planning needs and implementation of adaptation interventions coincide with one another. Girot *et al.* (2012) noted that elements of CBA and EBA have been interchangeable for some time in both theory and practice. In this research inquiry, understanding complex relations from a pragmatist research perspective helped create more understanding around the complexities in an integrated CBA-EBA adaptation intervention, in relation to transformation. The next section details the usefulness of heuristic analysis frameworks in transformational adaptation research.

### **8.3.1 Heuristic Analysis Frameworks**

This research inquiry notes, heuristic analysis frameworks in socio-ecological research inquiries assist in gaining more understanding of the relational aspects involved in integrated CBA-EBA adaptation interventions. Heuristic approaches to complex socio-ecological research queries under the umbrella of the Pragmatist research philosophy are favoured by Dewey (1910), Rorty (1980) and Pratt (2016). The research explored an integrated CBA-EBA approach through a heuristic theoretical framing. The linkages between lived realities, experiences, interactions, and interpretation of complex relations were also easier to identify and understand through multi-dimensional thinking embedded in MMR approaches (Mason, 2006). A heuristic analysis framework assisted with exploring the links between the coexistence of sustainable communities and ecosystem preservation, emphasising pragmatic balance and value between application in the real world and theory emphasised in this research. Some of the associated aspects investigated in this research inquiry were the inception of an

integrated CBA-EBA intervention, managerial roles, organisational culture, leadership styles, the subtleties of social vulnerabilities in the case study communities, poverty reduction and human capabilities. The sections to follow include brief positive and negative accounts of the usefulness and practicality of each theory/model used in the research inquiry. The discussion covers practices of assemblage, discourse analysis, managerial roles and livelihoods, vulnerability and impacts.

### *Heuristic approaches*

I view heuristic approaches as bridges between integrating theory and practice in adaptation interventions. These approaches to transformational adaptation queries are useful for analysing how we engage with climate discourses, address organisational needs in adaptation interventions and how we construct meaningful and impactful data resulting from adaptation interventions. While I agree that heuristic approaches are beneficial for transdisciplinary research inquiries these approaches are also not without critique. Nalau *et al.* (2021:2) support adaptation heuristics but also caution the reliance on heuristic approaches. The authors recognise that heuristic approaches can increase the policy, planning and implementation burdens on local authorities, inadequate interrogation from “untested” assumptions can steer projects in directions that may not be beneficial in the long-term and following untested assumptions can increase the vulnerability of already vulnerable populations. Interrogating interconnections, relational dynamics, fluidity and interlinkages in adaptation interventions is favoured by a heuristic approach as we have seen throughout this research inquiry, but I agree with Nalau *et al.* (2021) in cautioning against untested assumptions and unchallenged outcomes of using such approaches. I also advocate for a further interrogation of heuristic approaches in the transformational adaptation discourse especially when we begin to consider adaptation interventions through the lenses of assemblage thinking practices.

Though the initial steps of developing a heuristic analysis framework can be lengthy, heuristic approaches undoubtedly can help identify overlooked or unnoticed aspects of transdisciplinary research like the presence of interconnections and relationships between heterogeneous elements in adaptation interventions. Sellberg *et al.* (2021:293) identifies heuristics as having a nexus point between “*Science, Society and Self*”. This research inquiry recognises that a

nexus indeed existed between the self, the literature and the object being studied. A heuristic approach allowed me as a researcher to view my own stance in relation to the subject being studied and the integrated CBA-EBA intervention, the object. First, I viewed the research from the perspective of a practitioner and as part of the adaptation intervention when employed at Wildlands and thereafter as an outsider observing the CEBA processes in relation to changing discourses and project impacts. The exercise of choosing appropriate theoretical aspects to include in a heuristic analysis framework was lengthy as it was designed to investigate links between heterogeneous aspects operating under one domain. In addition, determining what elements of theories were suitable to the research inquiry was based on the guiding research questions, aims and objectives. Contemplating the contribution to knowledge the chosen theories and associated adaptations will make to the overall discussion of climate change adaptation involved triangulating each adaptation from the chosen theory with each objective of the research. Thereafter, the adaptations were employed through the heuristic analysis framework to support the arguments, assumptions, deductions, and conclusions reached through the data and information acquired throughout the duration of the study. Also included in heuristic approaches is mixed research methods comprising of case studies and a combination of quantitative and qualitative material. Multiple case study research strategies are not always preferred methods of research inquiry (Baxter & Jack, 2008; Gustafsson, 2017; Idowu, 2016). However, it worked well in this research inquiry giving rise to overall inferences, patterns, and variances related to the objectives of the study. Publicly available published information could be compared with empirical evidence arising from the research.

### *Practices of assemblage*

Assemblage theory allowed the exploration of relationships between heterogeneous elements (parts of the system) within the Wildlands CEBA Assemblage and encouraged exploration of the assemblage in its entirety (the system itself). Assemblage thinking practices used in this research inquiry have been extensively discussed in the first three parts of the chapter. However, to reiterate, this research resonates with views expressed by Li (2007), Deleuze and Guattari (1987), Delanda (2006, 2016), Ball (2018), Anderson and McFarlane (2011), Head (2010) and Larner (2011).

Assemblage theorisation ‘opened the doors’ for exploring complex relationships, power dynamics, actor networks, socio-ecological outcomes and socio-spatial relations (territorialisation) in a climate change adaptation context. Although exploring power dynamics was not an explicit focus in this study, an understanding of power dynamics emerges when one views what unfolded as a result of CEBA, through interrelated lenses of visible, hidden and invisible power (Gaventa, 2006). Gaventa (2006) proposed ‘the power cube’ as an approach to analysing the places, spaces and dynamics of power where he argued that power must be understood in relation to the spaces created for engagement, who engages and what the rules of engagement are.

In the context of CEBA, successful CEBA activities were implemented in the public arena in eThekweni (*Chapter Four*), later expanding rhizomatically throughout South Africa (*Chapter Six*) displaying visible power. In the ‘visible’ sense, a prominent political entity, the eThekweni Municipality, displayed support in favour Wildlands and CEBA project interventions both at the local and international level. The power exerted by Wildlands (on a local level) were also tangibly seen in the landscape through the large organisational and geographical project footprint in the landscape. The establishment of CEBA projects within eThekweni and other geographical locations were not without broader stakeholder engagement (*Chapter Four*). The procedures of decision-making regarding the project activities to be implemented, included engagement with local municipalities, Traditional Leadership and communities. These large-scale integrated CBA-EBA project activities shaped the boundaries within which reforestation, recycling and community development became infused with one another.

Recalling *Chapter Four*, the framing and championing of CEBA was predominantly shaped by an initial closed-door discussion in 2011 and thereafter by two prominent figures in the landscape, Professor Debra Roberts and Dr Andrew Venter, increasing the visibility of CEBA nationally and internationally (hidden power). Gaventa (2006:) points out that ‘hidden’ power exists in these settings where powerful actors “maintain their influence by controlling who gets to the decision-making table and what gets on the agenda”. The rules of participating in CEBA activities also became apparent when Wildlands Management had a closed-door discussion in 2019, constituting what a ‘true CEBA’ was (*Chapter Five*), maintaining influence over CEBA

in the landscape. The ‘true CEBA’ definition was broken down to include what activities were allowed as part of CEBA, which donor entities were a part of the project activities and which activities were not part of Wildlands CEBA Framework. Essentially, the agenda of how CEBA was to be deployed and used was being set, displaying hidden and ‘invisible’ power dynamics. Due to ‘agenda setting’ occurring in the absence of communities, project operations changed without clear information and inclusion.

In the ten-year lifespan of CEBA, the sustained community and donor participation made possible the successes achieved in all CEBA projects to date. However, the final form of power known as the ‘invisible’ power, was also influential in the lifespan of CEBA. While *Chapter Seven* revealed how CEBA positively contributed to livelihood diversification and the supplementation of community wellbeing, internal Wildlands decisions to retract wastepreneur operations significantly negatively affected CEBA communities (Thakur, 2018). In doing so, a reduction in Wildlands workforce also ensued, leaving questions in community participants minds and feelings of hopelessness, abandonment and confusion. The evidence gathered in this study also revealed the influence such decisions had on intimate levels of power, that is, people’s beliefs, creating apathy and a low sense of self, where waste operations ceased to exist. The internalisation of powerlessness occurred within community participants through this type of internal organisational decision making. Invisible power dynamics influence “how individuals think about their place in the world – acceptance of the status quo, even their own superiority or inferiority” (Gaventa, 2006:29). If we relate Gaventa’s (2006) ideas of invisible power back to the findings of Eriksen *et al.* (2021), socio-economic vulnerabilities may have been reinforced or redistributed in these communities as a result of this retraction process, bolstering apathy and the acceptance of the status quo, in the wake of the climate crisis.

Deleuze and Guattari’s (1987) rendition of a rhizome in relation to the expansion of the Wildlands CEBA Assemblage was especially useful in understanding the countrywide upscaling of an adaptation intervention. The relationships of exteriority and interiority as described by Delanda (2006, 2016) and Ball (2018) made possible the exploration of discursive and material aspects of an integrated CBA-EBA intervention through coded and decoded aspects in relation to territorialisation and deterritorialization. From an assemblage theorisation

perspective, the use of a virtual and material axis brought to the fore a deeper understanding of influential aspects stabilising and destabilising the Wildlands CEBA Assemblage. In addition, engaging with discursive dimensions of the Wildlands CEBA Assemblage in relation to actual on-the-ground material aspects of the assemblage in terms of CEBA implementation practices were better understood through relationships of exteriority and interiority.

Li's (2007) six practices of assemblage (forging alignments, rendering technical, authorizing knowledge, managing failures and contradictions, anti-politics and reassembling) were also applied in this research inquiry and a main departure point for analysis and discussion of research findings in previous chapters. The practice of forging alignments aided in explaining the interconnections in actor-networks also revealing that levels of polycentric governance is required to undertake integrated landscape level CBA-EBA adaptation interventions. Rendering technical revealed how various development issues were broken down into manageable aspects and sold to decision-makers as workable solutions through project activities. In a similar light, Anti-politics revealed the usefulness in reframing politically contentious issues into technically relatable pieces of information, thereby avoiding politically framed discussions on what to govern and how to govern. Instead, the focus was placed on how to solve a problem through the integrated CBA-EBA adaptation intervention. The practice of Authorising knowledge was used to demonstrate the power of actioning and integrating CBA and EBA bodies of knowledge to benefit and underpin the overarching philosophy used to drive project action forward. Engaging this practice also highlighted how initial agendas related to the mainstreaming of the adaptation discourse in a local context were championed and carried forward. The practice of managing failures and contradictions aided in diverting attention from central concerns in the adaptation assemblage to reducing the concern to a smaller fixable issue. While this practice proved beneficial in shifting implementation responsibilities from national government to a non-state actor, the risks related to such a responsibility was increased. In addition, the pressure placed on the implementing agent caused misalignment between the needs of the integrated CBA-EBA adaptation intervention and the organisational capacities required to meet those needs. Finally, the practice of reassembling was used to understand how an integrated CBA-EBA adaptation intervention was reconfigured

to new ends. The reconfigurations of the adaptation assemblage further entrenched the power of rhizomatic assemblages to remain intact during states of flux and change in the pursuit of new purposes.

### *Changing discourses in adaptation*

Though improvements in climate science have been made, this research concurs with Ziervogel and Zermoglio (2009) and Pal *et al.* (2019) as it was acknowledged in this research inquiry that a ‘common language’ is still missing from climate change engagements between stakeholders from different sectors. The purpose of using aspects of critical discourse analysis was to explore the various socio-political circumstances influencing the evolution and implementation processes of an integrated CBA-EBA intervention. The three dimensions in Fairclough’s model allowed for a well-structured approach in which to tackle analysing discourses in relation to the formulation of an integrated CBA-EBA adaptation intervention. Fairclough (2003) saw discourse analysis as a means to represent physical, mental and social world and therefore aligns well with ascertaining how adaptation is defined, understood and engaged with in various contexts. I focused on tracking the Wildlands CEBA Assemblage from inception in 2011 to its current day (2021) format by employing the three-dimensional model. In doing so, varying interpretations of CEBA was identified increasing the understanding of each interpretation was applied to different ends.

Critical Discourse Analysis became a useful starting point to follow the evolution of ‘CEBA discourse’ in this instance. Analysing the social conditions under which texts were produced lends itself to interpreting the value of the textual output under different periods of time. Janks (1997) also advocated that critical discourse analysis allows for the deep exploration of textual and visual content that aids in connecting real-world circumstances to the way we think and behave. The intensive and extensive dive into the volumes of material required to be sifted through during this research inquiry created an overarching view of a particular issue from which the nuances, linkages, relations and subtleties in the text were uncovered. Apart from these positively mentioned uses of Fairclough’s CDA model, there is one point of negativity, as the amount of time required to get through material using the model is significantly longer than initially anticipated in this research. Overall, analysing changing discourses in relation to



understanding the interconnections in adaptation interventions, helped uncover vital information highlighting the influence of external sources on behaviours, interpretations and actions related to the implementation of the adaptation intervention. In addition, how the integrated CBA-EBA intervention was viewed and portrayed influenced the aspects of funding.

### *Managerial roles*

This research revealed management capacities in adaptation interventions need to match the size of operations as well as the technical needs of the intervention. As recognised in the study, Adhocracy was the point of departure for the use of Mintzberg's theory. If Adhocracy is considered (Hage, 1999; Clayton, 2018), only a portion of the leadership and management functions was implemented in the adaptation intervention. Managers were unable to adjust to changes (influenced by relationships of exteriority) timeously enough to operationalise changes within projects. Exploring managerial roles helped uncover that the organisational workforce, accustomed to the previously mentioned *go-with-the-flow* mentality related to the NGO environment as previously described, did not prioritise managerial roles in the adaptation intervention. Overall, the Informational (Disseminator) and Decisional (Disturbance Handler, Resource Allocator) aspects of managerial roles were deduced as the missing pieces required to manage the intervention more successfully. Mintzberg's management theory proved especially useful in exploring the gaps in managerial roles at organisational level. Lunenburg (2012) recognizes and emphasises that organisational strategy and structure are interrelated aspects and should not be treated in isolation. As previously argued in this research, transformation of implementing organisations is also of grave importance if systemic change is the desired outcome of adaptation efforts. A re-thinking of the types of managerial roles and organisational dynamics is necessary to address the needs of adaptation interventions without causing fractures in the intervention, confusion amongst staff and disgruntled intervention participants. The pragmatic balance and value between application in the real world and theory emphasised in this research, notes that whilst adhocracy creates adaptive and flexible spaces, certain circumstances and situations do require defined leadership, roles and responsibility identification and clear lines of communication.

### *Livelihoods, vulnerability and Individual functioning impact*

Aspects of Scoones (1998) SLF provided a platform to address the social vulnerabilities identified in this research inquiry and respond to analysing poverty reduction and other evidence-based information from a climate change adaptation intervention. Assessing livelihood aspects in relation to climate challenges asserted the importance of interlinkages and relationships between communities and their ecosystems. Incorporating this framework into the heuristic approach used in this research inquiry offered opportunities to draw evidence-based knowledge from practical examples in an integrated CBA-EBA adaptation intervention.

Apart from the livelihood's impacts community participants abilities and capabilities to function under challenging circumstances were also analysed. Aspects of Sen's (1979) capability approach were versatile, unique, and permitted intangible human functioning information to be considered that are otherwise not given as much importance as income and job creation by funders and government. Whilst income and nourishment are basic to human survivability, recognising the exact motivations and inspirations that drive project participants towards engaging in adaptation project activities are just as important. Hence, the flexibility of Sen's CA lends itself to research investigating socio-ecological issues by allowing the researcher enough freedom to analyse qualitative data that may otherwise be overlooked or undervalued. As identified by Clark (2006), most of literature critiquing the CA relates specifically to its applicability to a situation or circumstance as opposed to the actual framework itself. Assessing individual functioning through frameworks such as the Capability Approach provides a platform to interpret, explain and analyse sense of purpose, dignity, individual capability and well-being resulting from climate change adaptation interventions. The approaches of Sen and Scoones were informationally demanding and required significantly more time on-the-ground in each case study site placing further pressure on logistical resources.

Recent research conducted by Nalau *et al.* (2021) also found that varying degrees of understanding and interpretations exist regarding aspects such as scale in adaptation planning. The authors recognise the usefulness of heuristics in capturing evidence-based knowledge based on practical experience. Barrott (2020:6) also recognises pragmatic approaches promotes more palatable "win-win adaptation options". In a similar light, Brooks's (2003) vulnerability, risk and adaptation framework questions were an especially useful incorporation into the

heuristic approach used in this study, as it increased the validity of pragmatism in socio-ecological research inquiries. It was useful in analysing whether key assumptions in a CBA-EBA adaptation intervention process were adequately considered and aided in interrogating underlying assumptions in the absence of these assumptions. I deemed *Transformation* and *Adaptation Likelihood* as interconnected concepts in this research inquiry with respect to re-thinking adaptation interventions. Using a heuristic approach in a transformational adaptation research inquiry offered a glimpse into what practical decision-making looks like in the context of shifting global discourses and complex realities that are compounded by a changing climate.

#### **8.4 Conclusion**

This chapter was set out in three parts. Part one detailed key influencing factors used to track the evolution of Wildlands CEBA intervention and described how assemblage thinking played a role in CEBA's evolution. It was discovered that championing of the adaptation discourse, innovation and scaling up CEBA influenced the mainstreaming of adaptation into local political agendas and expanded CEBA into other geographical territories. It was argued that the Wildlands CEBA Assemblage expanded across the case study community sites in a rhizomatic fashion through actor relationships, interconnected CEBA project activities, increased donor funding and through keeping abreast of global climate discourses. The second part of the chapter discussed the reconfiguration of CBEA in the context of the findings in previous results chapters and the broader literature base cited in *Chapter Two*. It was found that the lack of an M&E system throughout the CEBA intervention lifespan between 2010-2020, created missed opportunities to robustly measure and evaluate CEBA project impacts.

Theoretical knowledge contributions to assemblage thinking and the Transformational Adaptation school of thought were also explored and discussed. In this respect, assemblage thinking contributes to the Transformational Adaptation school of thought by promoting more pragmatist research inquiry into understanding the complexities in integrated CBA-EBA adaptation interventions. The inclusion and usefulness of heuristic analysis frameworks was also discussed in relation to re-thinking the integration of theory and practice in undertaking adaptation interventions or research investigating adaptation interventions. Assemblage theory

proved useful in exploring complex relationships, power dynamics, actor networks, socio-ecological outcomes and socio-spatial relations (territorialisation) in a climate change adaptation context. In addition, adding supplementary aspects to the heuristic analysis framework aided in uncovering new findings and assisted in analysis evidence-based findings.

Drawing from the results of this research inquiry, reassembling adaptation also means exploring aspects of the ‘system’ in need of transformation itself, like organizational structure, managerial skills, communication practices, project processes and M&E practices. O’Brien (2012) noted ‘systemic change’ as core signifier for the achievement of transformational adaptation. While I agree with this outlook, I also agree with Ziervogel (2019) in noting, incremental shifts are necessary for transformational adaptation imperatives to be achieved. Throughout this research inquiry I have argued that transformational adaptation also involves transformation of governance, monitoring and evaluation practices, institutional structures, organisational and managerial functioning and, outlooks on poverty reduction.

‘Africanising’ development in the context of transformation can also be viewed as an opportunity to increase in-depth and expansive global environmental change research in the context of integrated CBA-EBA adaptation interventions. In this regard, it is considered a missed opportunity to ‘shy’ away from ‘*CEBA Discourse*’ as Wildlands did in preceding years (*Chapter Five*). Instead, ‘*CEBA Discourse*’ should be viewed as a unique entry-point into socio-ecological discussions focused on exploring innovative climate change adaptation interventions. Whilst this research highlighted the varying interpretations of CEBA, it coincidentally added to that range of interpretations. The definition of CEBA in this research inquiry is underpinned by the research carried out in this study. I characterise the Wildlands CEBA Assemblage as: “*an integrated socio-ecological adaptation assemblage designed to facilitate practical entry points to climate change adaptation for the coexistence of Pro-Poor Community Development and Ecosystem Preservation*”. This characterisation could be used to advance integrated CBA-EBA research.

Assemblage thinking practices (when applied to climate change adaptation) have the potential to enhance the understanding of relationships and dynamics of human, non-human and institutional aspects involved in adaptation projects. It was found that the Wildlands CEBA

Assemblage indeed could be characterised as an adaptation assemblage due to its rhizomatic nature, relational dynamics, and inclusion of heterogeneous elements. Other theorists are of the view that human-environmental relations still lack in understanding (Olsson *et al.*, 2017; Chevallier, 2011, 2017; Girot *et al.*, 2012; Hobbs *et al.*, 2018). This study provides an introductory grounding for the advancement of integrated CBA-EBA research through assemblage theorisation and Transformational Adaptation.

While the dataset within this research inquiry is not expansive, it previews the perceptions, processes, actors, governance, socio-ecological outcomes, challenges, organisational dynamics, and resources involved in undertaking integrated CBA-EBA adaptation interventions. In this regard, the evidence-based outcomes of this research inquiry (*Chapter Seven*) responded to DEA's 2019 National Climate Change Adaptation Strategy and South Africa's shift towards nexus approaches where evidence-based research is welcomed (Liu *et al.*, 2018; SFSA, 2019; The Nexus Platform, 2019). Vermeulen *et al.* (2018) views 'at scale' interventions as ideal circumstances where transformational adaptation could be seen. I disagree with this outlook in this instance because direct responses from participants in the Wildlands CEBA Assemblage inferred dismay towards scaling up project activities that were no longer serving the needs of communities. On the other hand, evidence-based information such as positive poverty reduction, livelihood diversification and ecological outcomes were noted in the research. However, more research is encouraged to ascertain the full extent of the impacts of the CEBA intervention on participating communities.

M&E challenges, data unreliability and inconsistencies in organisational dynamics were also considered and discussed. The absence of M&E practices leave room for ambiguity and uncertainty to prevail. In the context of reassembling CEBA, it was found that although aspects of CEBA were reworked and grafted to keeping the assemblage intact, diverting attention away from organisational needs weakened the Wildlands CEBA assemblage to an extent. It can be said that changes in managerial aspects also require attention if we are to respond to climate challenges that require innovative and systemic solutions. Based on the findings of this chapter, I proposed a re-thinking of adaptation interventions in relation to the broader adaptation

discourse, discussed in the next and final chapter. The next chapter also concludes this research inquiry in relation to the research problem and the intended aims and objectives.

## 9. RE-THINKING ADAPTATION

This thesis explored the emergence, evolution and scaling up of the Wildlands CEBA Assemblage, operated by the NGO Wildlands in KwaZulu-Natal, as a local response to the current climate adaptation deficit. Exploring an integrated CBA-EBA response to climate challenges through the lenses of assemblage thinking and transformational adaptation, supports views of approaching adaptation from a radical and experimental point of view (Klein et al., 2017 and Pelling, 2011). The research also aimed to explore whether Assemblage Theorisation is useful in describing climate change adaptation. This study can be seen as an entry point for more transformational adaptation discussions in South Africa and internationally. It confirms that experimental approaches to climate challenges encourages better understanding of transformational adaptation. An exploration of complex interconnections, fluidity, relations and hybridity through the Wildlands CEBA Assemblage, embedded a ‘re-thinking’ of adaptation interventions. The thesis was informed by post-structuralist views regarding adaptation consider the dynamic interplay of language, knowledge, varying worldviews, and discourses shaping or building into dominant structures of society. A ‘rethinking’ of adaptation interventions from a community participation perspective is also encouraged, where the participating community is involved in the project design phases, as opposed to piecemeal participation in introductory stakeholder discussions or not being involved at all in the design phases.

In 2019, the South African National Adaptation Strategy called for South Africa to directly address climate change and play a leading role in encouraging the building of robust local climate change knowledge (DEA, 2019a). This thesis sought to explore an integrated CBA-EBA adaptation intervention and building on established knowledge of transformational adaptation. While it is difficult to draw one collective long standing argument regarding adaptation prior to the entry of the ‘Transformational Adaptation’ school of thought, a few key accounts have been noted. As mentioned in *Chapter One*, the concept transformational adaptation and the word transformation remains a work-in-progress, but it has been defined differently by various theorists and practitioners (Barrott, 2020; Català, 2014; Lonsdale *et al.*, 2015; Klein *et al.*, 2017, Taylor *et al.*, 2019). Mummery and Mummery (2019) have also drawn attention to traditional linear models and risk frameworks that no longer serve society. In addition, Reyers and Selomane (2018) noted lack of empirical evidence and an abundance of

simplistic and restrictive approaches which failed to adequately consider links between social and ecological wellbeing. To restate Fox and Alldred (2020), assemblage approaches have not yet been sufficiently applied to enhance understanding of systemic shifts in climate change adaptation contexts. This research was an exploratory study that focused on furthering the understanding of integrated approaches to adaptation and supports the use of assemblage thinking in climate change adaptation, as noted in other research (Bracking *et al.*, 2014, Nel, 2015, 2017; Anderson & McFarlane, 2011; Head, 2010; Jones & Magurran, 2018; Dovey, 2012).

As an ‘Africanised’ integrated CBA-EBA climate change adaptation intervention, the Wildlands CEBA intervention, was tracked from evolution to implementation. The impact of this work is both theoretical and empirical. I employed a heuristic theoretical analysis framework for exploring an integrated CBA-EBA adaptation project, and gathered empirical, evidence-based information. The heuristic CEBA Analysis framework was helpful in engaging varying aspects of the Wildlands CEBA Assemblage with assemblage theorisation as the main point of departure, supplemented by critical discourse analysis, managerial functioning and livelihoods and capability analysis. This study did not focus on the organisational and managerial aspects of organisations from a task-driven point of view but rather from a management perspective in relation to project implementation. The study did not aim to be a perfect application of the approaches but rather to be practical and useful.

The implications and contributions of using an assemblage approach in this study is discussed under three sections. Firstly, the research aims, and objectives are revisited, and their fulfilment is briefly discussed. Secondly, the contributions of this thesis will be considered with respect to CBA, EBA and Transformational Adaptation literature. Finally, I will highlight concluding thoughts, the study limitations and provide recommendations for further research. This research is concluded with the anticipation that the findings and differences will culminate into furthering knowledge on CBA, EBA and Transformational Adaptation. The next section reflects the research findings in relation to the aims and objectives.

## **9.1 Reflections on the Research Findings, Aims and Objectives**

This section reflects on the guiding research questions, aims, objectives, and findings. The aims and objectives were explored through the research by characterising the Wildlands CEBA Assemblage as an adaptation assemblage and by using Li’s (2007) six practices of assemblage: forging alignments, rendering technical, authorizing knowledge, managing failures, anti-



politics, and reassembling. The research aims and objectives were achieved in this study through employing an assemblage thinking approach where complex relationships between human, non-human, structural and institutional aspects within Wildlands CEBA were engaged.

To restate, the aims and objectives were as follows. Firstly, the intention of the research was two-fold, tracking the evolution of the integrated Community Ecosystems-based Adaptation (CEBA) intervention in KwaZulu-Natal, and characterising CEBA as an assemblage. The first objective was to understand the complex range of factors that influenced the mainstreaming of the Wildlands CEBA Assemblage and a marginalised (adaptation) agenda. The second was to explore the upscaling of the Wildlands CEBA Assemblage, followed by the third objective, exploring the impacts of the Wildlands CEBA Assemblage on the livelihoods of participating communities in KwaZulu-Natal. Finally, the fourth objective was to explore the utility of an assemblage approach to understanding adaptation. Through this research inquiry, I have applied assemblage theorisation to socio-ecological issues over space and time in the context of climate change adaptation. I reflect on the guiding research questions when addressing the fulfilment of the research objectives, in chronological order.

*How did CEBA emerge as an idea and gain traction as a socio-ecological response to climate change challenges?*

CEBA played a significant role in mainstreaming adaptation by enabling ‘ad-hoc’ polycentric arrangements of ‘governing-beyond-the-state’ (Swyngedouw, 2005) in the eThekweni municipality. As noted in *Chapter Four*, the local government relied on an NGO when it came to implementing CEBA in Durban. In addition, and recognised by other theorists<sup>50</sup>, leaders from different actor networks championing the adaptation agenda acted as drivers for transformation by encouraging ‘system-wide’ participation. The formulation of CEBA also served as a spectacle at successive mega events, showcasing how multi-actor networks play a significant role in initiating and upscaling adaptation and mainstreaming an adaptation agenda. Understanding of integrated CBA-EBA adaptation interventions was formulated, without being prescriptive on which project activities can be employed within the confines of the definition. I characterised the Wildlands CEBA Assemblage as: “*an integrated socio-ecological adaptation assemblage designed to facilitate practical entry points to climate*

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<sup>50</sup> Barrott (2020), Douwes (2018), Roberts (2008), Roberts and Diederichs (2002), Roberts and O’Donoghue (2013), Roberts *et al.* (2012) and Roberts *et al.* (2016).

*change adaptation for the coexistence of Pro-Poor Community Development and Ecosystem Preservation*”. The Wildlands CEBA intervention presented an opportunity to view socio-ecological issues, poverty reduction and ecological preservation in an integrated manner. The Wildlands CEBA intervention can be considered a real-world example advancing the adaptation discourse by navigating a complex range of factors and influencing development planning through an integrative CBA-EBA formulation. Li’s (2007) ‘practices’ of forging alignments, authorising knowledge, rendering technical and managing risks and contradictions were applied in understanding the evolution of an integrated CBA-EBA intervention and the mainstreaming of a marginalised adaptation agenda. This helped to fulfil the first research objective.

*How did the Wildlands CEBA Assemblage ‘upscale’ and progress towards implementation across the seven case study sites?*

The achievement of the second research objective materialised using Delanda’s (2006, 2016) relations of interiority and exteriority, supplemented by critical discourse analysis (Fairclough, 1989, 1992, 2003), to understand the upscaling of the Wildlands CEBA Assemblage. Relationships of interiority and exteriority (Delanda, 2006 and 2016) aided in unveiling the interlinkage between discursive and material dynamics in the Wildlands CEBA Assemblage. Analysing changing discourses also revealed both alignment and misalignment in the Wildlands CEBA Assemblage. Alignment was viewed through relations of exteriority and misalignment was viewed through aspects of confusion discussed under relations of interiority.

The influence of discursive shifts in global environmental regimes on material aspects of the Wildlands CEBA Assemblage was key in understanding how macro-level socio-political issues influenced the upscaling and rhizomatic expansion of CEBA on the ground described in *Chapters Five and Six*. Relationships of interiority and exteriority facilitated the understanding of how the Wildlands CEBA Assemblage ‘upscaled’ and progressed towards implementation across the several different cases study communities in this research. Relationships of interiority referred to parts of the Wildlands CEBA Assemblage that had no independent existence outside their relation to one another, while relationships of exteriority referred to the autonomous nature of the ‘parts’ of the Wildlands CEBA Assemblage despite their relation to one another. The findings presented in *Chapter Five* revealed that relations of exteriority worked to grow and, in some instances, stabilise the assemblage. Three discourses were determined to be influential in this thesis. The impact of the Neoliberal discourse resulted in

opening pathways towards monetary-value-based solutions. The theme ‘enviropreneurship’, afforded livelihood diversification with additional monetary gain and varying degrees of outcomes within the CEBA Assemblage. The second, the complexity discourse in climate change, influenced an institution like Wildlands into taking a course of action towards climate change through the integrated CBA-EBA adaptation intervention. Finally, transformation, as the most recent school of thought, further entrenched the idea of integration and interconnectivity into climate change responses giving more impetus to the Wildlands CEBA Assemblage as an inclusive and systemic approach to climate change challenges. In addition, a derived ‘CEBA Discourse’ also surfaced through terms such as CEBA communities, CEBA reviews, CEBA documents and CEBA project naming.

The Wildlands CEBA Assemblage expanded across parts of KwaZulu-Natal, South Africa extending beyond the initial CEBA project sites. This expansion was deemed as rhizomatic in nature resulting in territorialisation of different geographical boundaries. Territorialisation of geographical regions over space and time became a standard feature of the Wildlands CEBA Assemblage. In this regard, Deleuze and Guattari’s (1987) interpretation of a rhizome was especially useful in understanding and describing the coded and decoded aspects of the Wildlands CEBA Assemblage in relation to territorialisation and deterritorialization. Coded aspects were seen to ‘knit together’ meaningful socio-ecological solutions to local development challenges stabilising and expanding the Wildlands CEBA Assemblage. On the other hand, relations of interiority worked against aspects of the implementing organisation, Wildlands, and created fractures and confusion in managerial aspects as well as project implementation. These aspects were viewed as decoding in the Wildlands CEBA Assemblage threatening the destabilising of the assemblage. Regardless, project upscaling forged ahead and the need to analyse shifts in livelihoods, reductions in poverty and successful biodiversity conservation grew, increasing the interconnectedness of heterogenous elements in the assemblage.

*What are the complexities, gaps, ambiguities and uncertainties that arise in the implementation of the Wildlands CEBA Assemblage?*

This research has shown that an increase in scale has a direct influence on complexity, increased ambiguity, and uncertainty. It is with this reasoning that I argue for transformation at both the adaptation intervention level and the internal organisational level. Li’s (2007) practice of managing failures and contradictions and anti-politics aided in highlighting the ambiguities and uncertainties in CEBA language and project implementation. As argued in

*Chapters Five and Seven*, confusion around definitions and a lack of planning and M&E practices contributed to implementation challenges and inadequate impact measurement. When ambiguities and uncertainties are not documented, there is a risk that project impacts will appear more robust than they are (Chevallier, 2017; CSIR, 2015 and Lorimer, 2018). In addition, carry-over decoding aspects such as a lack of communication between project communities and the implementing agent, threatened the stability of the Wildlands CEBA Assemblage. This subsequently resulted in fractures in the assemblage evidenced by disgruntled community project participants in *Chapter Seven*. Ziervogel *et al.* (2014), noted more learning is required before integrated approaches are fully realised. While the Wildlands CEBA Assemblage did not provide a seamless integrated approach to development and adaptation challenges as seen by the empirical evidence, it afforded an opportunity to study the lived experiences of 157 participating community members involved in an integrated CBA-EBA intervention.

*What impact does the Wildlands CEBA Assemblage have on the livelihoods of the participating communities in KwaZulu-Natal?*

An integrated CBA-EBA response to climate challenges does render positive outcomes and intrinsic value impacts on impoverished and vulnerable communities. Ziervogel *et al.* (2014:614) noted one of the “critical research areas that would strengthen adaptation research and practice” is, “how adaptation can address the reduction of poverty and inequality”. The empirical evidence has laid a foundation for describing incremental adaptation shifts within communities contributing to sizeable poverty reduction and ecological impacts. This was described in *Chapter Seven* and responds to the third research objective of the study. The CEBA intervention added to the lives of participating community members in the form of personal, social, community and financial value. Though results revealed positive socio-ecological and sustainable livelihoods impacts the overall analysis revealed the type of vulnerability experienced and associated principle hazards were not distinguished in initial project planning phases. The absence of discussions regarding types of vulnerability and hazards, scale and baselines reduced the potential to identify whether the Wildlands CEBA Assemblage facilitated the creation of sustainable communities. The findings in this study could not prove any measurable systemic shifts towards the creation of ‘sustainable’ communities. However, I acknowledge that incremental changes in integrated CBA-EBA adaptation interventions are necessary in achieving the collective vision of systemic transformational adaptation. My

findings are in support of Pelling *et al.* (2015) noting that incremental changes over long periods of time can foster transformation.

*Is Assemblage Theorisation useful for describing climate change adaptation?*

Assemblage theory provided the ‘blueprint’ necessary for a complex research inquiry exploring integrated and relational dynamics between human and non-human elements (Grant and Osanloo, 2014). Assemblage theorisation was helpful in exploring an array of actors, technical expert information, ad-hoc and deliberate relationships, the reframing of political issues, the reordering of processes and a geo-spatial element (territorialisation) (Deleuze and Guattari, 1987). It also provided the platform to recognise the rhizomatic expansion of the CEBA intervention and the reopening of past conversations within Wildlands without disrupting the Wildlands CEBA Assemblage.

I explored the aspects of the Wildlands CEBA assemblage that were both successful in upscaling and expanding the assemblage, and unsuccessful in terms of measuring project impacts and transforming organisational practices. The practice of reassembling outlined the aspects that worked towards reconfiguring the assemblage to fit into the new ‘True CEBA’ definition despite the loss of CEBA language since 2016. Li’s (2007) and Anderson and McFarlane’s (2008) practice of reassembling aided in exploring and explaining changes, fluidity, and flexibility within the Wildlands CEBA Assemblage. Contrastingly organisational transformation regarding managerial skills and M&E practices were lacking. Li’s (2007) practice of reassembling was key in highlighting new ways of thinking about adaptation interventions. This proved to be instrumental in tracking the evolution of CEBA. Exploring successful and unsuccessful elements within the Wildlands CEBA Assemblage prompts a re-thinking of adaptation interventions. Transformation should also apply to aspects of M&E and organisational dynamics.

Based on the content of this thesis, I argue that assemblage thinking practices are well suited to enhancing research responding to global environmental change with the aim of providing new pathways in understanding integrated CBA-EBA responses to climate change adaptation. I argue that CEBA can be characterised as an adaptation assemblage through an assemblage approach. Transformational adaptation, when viewed from a systemic change point of view, can also mean transforming the planning processes of projects to explore other revolutionary and sometimes unheard-of solutions. From a transformational adaptation perspective and to restate the overall findings discussed in *Chapter Eight*, incremental transformational shifts

extended beyond CEBA projects to other components such as organisational, managerial and governance systems, altering the entire assemblage. These findings concur with Kates *et al.* (2012:2) noting that “common adaptations” can become transformational if practiced over great scales and in integrated forms. CEBA itself was both integrated in nature and practiced over vast geographical scales. The next section briefly addresses contributions to theory.

## **9.2 Contributions to CBA, EBA and Adaptation Literature**

Assemblage theory can be best applied and contribute to Transformational Adaptation thinking by providing a theoretical framing upon which interconnected parts of an adaptation intervention can be investigated. The thesis has unveiled incremental findings can contribute to enhancing our understanding of larger assemblages. This contribution enables us to view micro, meso and macro issues operating at different scales, through one lens. This section gives a brief account of how this thesis contributes to the broader literature base in which it is placed. This section covers information related to the Transformational Adaptation school of thought, contributions to the discipline of geography, CBA and EBA literature, and Pragmatist research perspectives.

A novel contribution of the research is exploring an integrated CBA-EBA approach through the transformational school of thought. Schipper *et al.* (2021) recognises the COVID-19 pandemic as a ‘wake-up-call’ for the movement towards integrated development solutions benefiting humans and non-human entities. Relatedly, research by other theorists advances the discipline of geography by exploring climate change adaptation in varying developmental contexts exploring interlinkages between humans and non-human entities.<sup>51</sup> I add to these research bases by arguing that assemblage approaches to integrated CBA-EBA responses to climate change can enhance our understanding of the plethora of heterogeneous elements housed within integrated development solutions. My thesis identifies with Lonsdale *et al.* (2015), Català (2014) and Magnan *et al.* (2020) in recognising society as part of the ecological system, attesting that transformational adaptation aligns with the dynamism of changing systems.

Research undertaken by O’Brien (2012) notes systemic change is viewed as key to the achievement of transformational adaptation. The Wildlands CEBA Assemblage was seen as

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<sup>51</sup> Liverman (2009), Larner (2011), Castree (2015), Ziervogel *et al.* (2006 and 2014), Ziervogel and Zermoglio (2009), Ziervogel (2003, 2006); Ziervogel *et al.* (2016a)

successful in achieving transformational shifts in the integrated CEBA intervention through incremental polycentric forms of governance; sharing of responsibilities and risks through multi-stakeholder networks; geographically upscaling and expanding CEBA projects and responding to poverty reduction and ecological restoration. However, this study found that while an integrated CBA-EBA approach advances the climate change adaptation discourse and practice in South Africa, measuring transformational adaptation shifts at landscape level is challenging due the sizable nature of these interventions. The key reason for this deduction is if the identified ambiguities, uncertainties, and organisational inconsistencies uncovered in this study are not equally accounted for in detail in other projects aiming to employ integrated CBA-EBA approaches, there is a risk of Maladaptation at landscape level projects (Watts, 2015).

It is well acknowledged that the interdisciplinary nature of Geography facilitates practical and interdisciplinary inquiry in research especially in response to climate change adaptation (Larner, 2011 and O'Brien, 2012). Magnan et al. (2020) recognises existing dichotomies in grappling with incremental and transformational adaptation, where transformational adaptation is often viewed as being too complex to achieve if not broken down into incremental actionable pieces. I assert that an assemblage thinking lens can accommodate both the incremental and transformational aspects of adaptation if adaptation is characterised as an assemblage. Heterogenous aspects of a system and the system itself, in this case CEBA project activities and the Wildlands CEBA Assemblage, have been studied rendering findings of both an incremental and transformative nature. O'Brien (2012:667) recognised the need for "new approaches to transdisciplinary research" as noted in *Chapter One*.

I have argued that across social and spatial divides, humans, non-human elements, structures and institutions require exploration from an integrative view, to understand transformational adaptation and systemic shifts. Wiid and Ziervogel (2012) advocated for creating more local knowledge in climate change research. This thesis provides one of the first formalised, local philosophical definitions of an integrated CBA-EBA adaptation intervention (*Chapter Four*). To restate it is, "*an integrated socio-ecological adaptation assemblage designed to facilitate practical entry points to climate change adaptation, for the coexistence of Pro-Poor Community Development and Ecosystem Preservation*". The development of this definition accommodates a shift in geographical inquiry from exploring physical environmental problems to including more integrative and pragmatic socio-ecological research inquiry. This thesis finds purpose in integrating CBA-EBA bodies of knowledge and inciting conversations concerning connectivity, fluidity and flexibility in adaptation thinking. This approach is further supported

by Girot *et al.* (2012) who advocate for integrated CBA-EBA approaches to socio-ecological development challenges.

From an academic perspective, I argued for the pragmatist research philosophy as a point of departure for socio-ecological research inquiries, especially in an integrated discipline such as Geography. The research philosophy in this thesis was based on pragmatism. The ‘learn-by-doing’ references made throughout this research by other theorists and practitioners involved in the evolution of the Wildlands CEBA Assemblage give further impetus to Dewey’s and Rorty’s views on pragmatism (Dewey, 1910; Rorty, 1980). The authors argued that linking practice, theory and human action informs ‘real-world’ practical application of philosophical discoveries. Exploring climate change adaptation through pragmatic and heuristic research inquiries, builds on transformational adaptation bodies of literature. This is facilitated through informing new ways of researching the complexity in socio-ecological issues, reducing normative and reductionist thinking in response to real-world challenges such as climate change.

Transformational Adaptation is also about flexibility and innovation; therefore, we must consider the movements of both human and non-human entities within a system to better understand the socio-ecological challenges we face and seek out innovative and effective solutions to our global climate challenges. My thesis also aligns with views expressed by Fox and Alldred (2020) who make the argument that ‘the environment’ can be viewed as a totality of the social and natural world where everything (human and non-human elements) become relational instead of separate to one another. Relationships and connections between human and non-human actors in climate change adaptation interventions are rarely linear in nature, if ever. Assemblage theory reminds us that entities are never fixed or remain stable in their state or place of being (ontologically). Exploring an integrated CBA-EBA intervention through relations of interiority and exteriority also enhanced the understanding of interconnected discursive and material elements in such interventions. Several theorists<sup>52</sup> claim flexible approaches to understanding specific socio-economic climate challenges are required. This thesis creates grounds for more in-depth research into integrated CBA-EBA approaches and associated complexities in the relationships between humans and nature. Assemblage thinking approaches to climate change adaptation interventions help us understand the relational aspects of forging alignments, power dynamics and differing types of governance required to achieve

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<sup>52</sup> Mummery and Mummery (2019), Dinshaw (2014), Ojea (2014), Schreckenberget al. (2018) and Pelling (2011)



socio-ecological incremental and transformational systemic shifts. It is also important to identify the context and particular socio-ecological challenge, and subsequently consider the spectrum of adaptation options available as gaps remain between adaptation research and action (Klein & Juhola, 2014; Aronson *et al.*, 2019).

An integrated CBA-EBA response to adaptation has been proven implementable at scale evidenced in this research with noteworthy tangible positive effects on aspects of quality of life, poverty reduction and a person's ability to realise their innate potential. The key question remains, how can assemblage approaches add to geographical research inquiry? In the quest for innovative solutions to addressing climate challenges, a pragmatic research philosophy guided by a heuristic theoretical approach proved useful. In its simplest form, assemblage thinking allows the uncovering of links, aspects of fluidity and flexibility, relationships, and power dynamics. The heterogeneous elements that drive the adaptation intervention can be explored as well as the adaptation assemblage itself, in the context of changing climate discourses, new governance regimes, organisational dynamics and community impacts. The next section describes the research recommendations followed by concluding thoughts.

### **9.3 Recommendations for further research**

This section lists recommendations for further research.

#### *Recommendations for further research*

This section discusses research recommendations in relation to further research inquiry. Recommendations are based on the limitations of the study and on the research findings. Allen (2011:156) noted that assemblage thinking should be used to “open up new questions”. The recommendations in this research inquiry follow in Allen's (2011) footsteps and reminds us to engage with the intricacies and interlinkages within adaptation assemblages.

Transformational Adaptation research facilitates the breadth and depth in understanding of the social and environmental complexities surrounding climate change (Hulme, 2009a; Liverman, 2009, 2017; Ziervogel, *et al.*, 2006, 2014; Ziervogel & Zermoglio, 2009; Ziervogel & Calder, 2003; Ziervogel *et al.*, 2016a; Setten & Brown, 2018; Dujardin, 2019; Barrott, 2020; Eriksen *et al.*, 2021). This research inquiry allowed for in-depth exploration and understanding of interconnected issues regarding social and environmental complexities in adaptation through an assemblage approach. However, more research is necessary to increase the breadth of exploration regarding the impacts of integrated interventions like the Wildlands CEBA

Assemblage. Key points to consider in furthering CBA, EBA and transformational adaptation research are the multiplicities and socio-spatial relations between the moving parts of the system/ intervention; the way transformational adaptation is understood; the transformation of implementing organisations in dealing with integrated adaptation interventions; how ambiguities and uncertainties are addressed in integrated CBA-EBA interventions, moving beyond case study approaches to landscape level approaches and, finally, assessing the role of M&E in ascertaining robust outcomes and impacts of integrated adaptation interventions. Though M&E was not an initial Wildlands priority (*Chapter Four*) the next decade of CEBA project interventions can be dedicated to exploring new M&E context-specific M&E indicators. This research inquiry represents a fraction of the potential research required to uncover ‘systemic level’ changes as a result of integrated CBA-EBA interventions like the Wildlands CEBA Assemblage. It is highly recommended that this research be built on and the findings of this research be used as a foundation towards more complex research inquiries into integrated CBA-EBA responses to climate change.

The Wildlands CEBA Assemblage is a real-world example of an integrated adaptation intervention demonstrating potential towards further research inquiries aimed at advancing knowledge on integrated CBA-EBA approaches in a developing world context. Lonsdale et al. (2015:31) put forward various areas for future inquiry with one being “Learning by example”. Other areas for further research include exploring of past socio-political legacies that affect the way climate change issues are viewed in different settlement types in South Africa. The role of the private sector regarding investment into combined mitigation-adaptation interventions (Ramanand and Ward, 2019 and PIDG, 2020). Like Toole *et al.* (2016), this research inquiry supports additional inquiry into evidence-based qualitative insights regarding decision-making at individual, household, and community levels in response to climate shocks and stresses.

From a practical point of view, capitalising on the lessons-learnt from this research and addressing other areas of research involve various strands of exploration. As expressed by Wills *et al.* (2016), DEA (2012) and DEA (2019a), South Africa does not have a large evidence-based climate change adaptation dataset. This research inquiry provided a glimpse into how socio-ecological datasets can be built to further improve our understanding of the potential outcomes of integrated CBA-EBA adaptation interventions. For a more expansive undertaking regarding the development of a socio-ecological ‘impact-outcome’ database, a dedicated M&E system constituting an ‘upscaling’ of the data gathering process for socio-ecological qualitative datasets (like the Wildlands CEBA Assemblage) is recommended as it

could prove useful in realising trends towards long-term transformational adaptation shifts. In this light, the third research objective in this study can be expanded and built on. That is, exploring the impacts of the Wildlands CEBA intervention on the livelihoods of participating communities.

From a practitioner perspective, a few M&E and maladaptation considerations can be included. It is important for us to consider whether this expansive 10-year long integrated CBA-EBA intervention provided examples of maladaptation in the quest to address socio-ecological challenges. It is evident from the evidence provided in chapters Five, Six and Seven that maladaptation did occur when the recycling component of the assemblage ceased to function. Several communities fell victim to this unfortunate event and their socio-economic vulnerabilities were increased. Regarding M&E, the lack of effective monitoring was raised as a concern by key informants and other actors in the assemblage, with indications that only downstream indicators were focused on. Creating more explicit links between the development of national upstream and midstream indicators, regional climate models and global adaptation goals, our understanding of these integrated CBA-EBA interventions can be improved in relation to reducing maladaptive effects of such projects. Finally, more attention needs to be paid to actor relationships and interactions. In other words, we need to be more mindful of how we frame negotiations, are they ‘with actors’ or ‘for actors’ and what are the resulting implications of these interactions? In doing so, we may be able to collaboratively co-design and co-frame both the challenges and solutions to this global climate crisis.

Although the Wildlands CEBA Assemblage expanded across various provinces of South Africa, it was discovered that no value chain exploration exercises were considered. The Wildlands CEBA Assemblage provides an opportunity to further evidence-based M&E research in this regard. Regarding organisational and managerial insights and as expressed in *Chapter Five*, this research inquiry added to more normative managerial research. Thus, the recommendation is to investigate the role, task and capacity of managers involved in adaptation interventions (see Czarniawska, 2007; Burgaz, 1997). Exploring the managerial needs required to manage and upscale integrated CBA-EBA interventions, have highlighted the importance of increased organisational capacities. Further investigation into implementing organisations such as Wildlands, may help shed light into the type of organisation and resources needed to manage interventions with numerous heterogenous elements operating under one overarching ambit, as well as the requirements for achieving internal transformational change within organisations attempting to implement and manage integrated CBA-EBA adaptation assemblages.

Unfortunately, gender responsiveness was not a point of concern in this thesis, hence the exploration of newly added terms in the Adaptation discourse such as ‘Gender-responsive-action’ is encouraged in the context of integrated CBA-EBA interventions.

Participating community members in CEBA projects also provided suggestions for project improvements but the implementing agent did not have a mechanism to internalise these. They include the improvement of links between community needs and climate change projects, addressing job scarcity, food insecurity and inability to be released from the nets of poverty and more exploration regarding sustainable funding sources. These can be considered for further research. Based on the findings of this thesis and recent findings by Eriksen *et al.* (2021), a new key question to be considered in adaptation planning processes, is whether redistribution of vulnerability is present as result of integrated CBA-EBA project activities. New M&E suggestions by Eriksen *et al.* (2021) regarding maladaptation, effects of adaptation on socio-political dynamics, well-being and resilience were not explored as this research precedes these revised suggestions. However, exploring these aspects further in integrated CBA-EBA interventions is highly recommended to enhance the variety, integrity and transferability of project impact data. To sum up, a few concluding thoughts are presented. As a final key point of consideration, it was uncovered that intentional acts can lead to unintentional consequences in adaptation assemblages. A recommendation for future research is to explore the degree to which people are in control in adaptation interventions when they expand over large geographical scales. In doing so, other key elements of integrated CBA-EBA approaches can include how one can improve ‘negotiations with’ actors and not ‘for’ actors.

#### **9.4 Concluding thoughts**

Realistically, there are a few, if any, ecosystems in the world today that have not been influenced in some form by humans. The battle between combating an increasingly perilous environmental crisis and striving for economic growth continues in the face of unavoidable and irreversible climate change. In the most recent 2021 IPCC report, the Sixth Assessment report (AR6) (IPCC, 2021:42, it has been noted that “unequivocal human influence” has warmed the earth with widespread changes to various natural systems. Professor Debra Roberts, Co-Chair of Working Group II of the IPCC responsible for assessing impacts, adaptation and vulnerability, echoed the following in an interview upon the release of the Special Report on Global Warming of 1.5 °C (SR15),

“It’s a line in the sand and what it says to our species is that this is the moment, and we must act now, this is the largest clarion bell from the science community, and I hope it mobilises people and dents the mood of complacency” (Watts, 2018: par. 4)

The conclusion of a complex socio-ecological research inquiry begs the question, “Why does this thesis matter?”. In drawing this thesis to a close, I hope I have seized the moment and heeded the sound of the clarion bell. This thesis assisted in enhancing our understanding of integrated CBA-EBA approaches through assemblage thinking practices. From a researcher positionality perspective, as a practitioner, I initially viewed CEBA within the confines of a framework with which projects could be evaluated and re-designed for better execution. As a researcher, my view of CEBA has changed. Using an assemblage approach to explore the CEBA intervention helped me realise that larger forces are at play within an integrated CBA-EBA intervention. It was indeed a bold undertaking at a critical time in our history where innovation, transformation and adaptation framing are also viewed in integrated manner. More complex questions need to be asked when seeking solutions to climate change challenges and the assemblage thinking lens has proved to be useful in this regard. One such question is, “What is the net-benefit of this integrated process?”

The Wildlands CEBA Assemblage can be viewed as a forward-thinking attempt at combining CBA and EBA approaches in response to Transformational Adaptation schools of thought seeking to reduce socio-economic concerns and enhance adaptive capacities against climate change. Eventually taking on a life of its own, the interconnected and fluid Wildlands CEBA Assemblage can indeed be termed a ‘runaway train’, forging ahead in every direction as a rhizome would, despite the challenges. Integrated CBA-EBA adaptation interventions inspired by innovation and new ways of thinking have potential to incite courage and creativity in the face of climate change. The understanding of interconnections between the natural sciences, technological advances and social sciences are pivotal to scholastically engaging with the challenges of climate change under the Transformational Adaptation domain. Hulme (2009b) and O’Brien (2016) remind us that the solutions to climate challenges require more than purely technical and normative research inquiry, and political solutions but instead requires us to reverse our outlooks on climate change and incite necessary integrative, creative and psychological thinking into climate change solutions.

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## 11. APPENDICES

### APPENDIX 1: semi-structured Key Informant interview guide (Climate/Sustainability/Environmental Expert)

#### Basic Questions/Imbuzo ejwayelekile:

1. Have you ever heard of climate change?  
Useke wezwa ngokushintsha shintsha kwesimo sezulu (*Climate change*)?
2. If yes, what does Climate change mean to you?  
Uma uvuma, ngabe ukushintsha shintsha kwesimo sezulu (*Climate change*) kuchaza ukuthini kuwena?
3. Have you ever heard of CEBA?  
Useke wezwa nge- CEBA?
4. If yes, what does CEBA mean to you?  
Uma uvuma, ngabe ichaza ukuthini kuwena i- CEBA?

#### Specific discussion questions:

1. Who are you and where are you from?
2. Ungubani kanti futhi uqhamukaphi? What is your occupation and what are the activities you are involved in?
3. Ngabe wenza msebenzi muni? Have you ever heard of “adaptation”? If yes, what does this mean to you?
4. Useke wezwa ngaphambilini nge- “adaptation”? Uma uvuma, ngabe ichaza ukuthini kuwena? Do you think adaptation is a fully understood concept in South Africa? Why?
5. Uma ucabanga ngabe i-adaptation iqondakala kangcono eNingizimu Afrika? Kungani?
6. Do you think climate change adaptation projects are working/ yielding successful progress? Why?
7. Uma ucabanga i- climate change adaptation project ayasebenz/ akhiqiza impumelelo? Kungani?
8. Can you list advantages and disadvantages of climate change adaptation projects and their effects on communities?
9. Ungangibalela okuhle (izinzuzo ezinhle) kanye nokungekukhle (izinzuzo ezingezinhle) mayelana ne-climate change adaptation project kanye nomthelela wawo emphakathini? What do you think of the information we see from climate change models and projections?

10. Ingabe ucabangani ngemininingwane (*information*) esiyibona kwi-climate change models kanye projections? A “goodwill oriented action” is: when a person/organisation chooses to do something out of respect for the ‘moral law’.
11. “Business as usual” is: normal and unchanging execution of operations despite difficulties or disturbances
12. Do you think business as usual practice and goodwill oriented actions can co-exist in the 21<sup>st</sup> century with climate change issues? Why?In donor funded climate projects, whose needs do you think is being responded to?
13. Kuma-project amayelana nokushinsha shintsha , ezabani izidingo ezisuke ziphendulwa?What do you think can be done better in climate change adaptation projects?
14. Uma ucabanga ini engenziwa kangcono ku- climate change adaptation projects?



## **APPENDIX 2:        Semi-structured interview guide for Wildlands Community field staff**

### Basic Questions Imbuzo ejwayelekile:

1. Have you ever heard of Climate change?

Useke wezwa ngokushintsha shintsha kwesimo sezulu (*climate change*)?

If yes, what does Climate change mean to you?

Uma uvuma, kuchaza ukuthi ukushintsha shintsha kwesimo sezulu (*climate change*) kuwena?

2. Have you ever heard of CEBA?

Useke wezwa nge- CEBA?

If yes, what does CEBA mean to you?

Uma uvuma, ngabe ichaza ukuthi i-CEBA kuwena?

### Specific discussion questions:

1. What can you tell me about your community leadership, community members and resources?

Ini ongangitshela yona mayelana nobuholi bomphakathi, amalungu omphakathi kanye nezinsiza kusebenza?

2. Have you ever heard of “adaptation” If yes, what does this mean to you?

Useke wezwa nge- “adaptation” Uma uvuma, ngabe ichaza ukuthini kuwena?

3. Do you think the project is good/bad for the community? Why?

Ngabe ucabanga ukuthi le-project yinhle/ yimbi emphakathini? Kungani?

4. Do you enjoy participating in this Wildlands project? Why?

Ingabe uyakujabulela ukuba yingxenywe yale-project yaka-Wildlands? Kungani?

5. What do you think about Wildlands projects?

Ingabe ucabangani ngama-project aka-Wildlands?

6. What would you do to make this project better?

Ikuphi ongafisa ukwenza ukuthuthukisa le-project?

7. What have you learnt in this project?

Ikuphi osukufundile kule-project?

### APPENDIX 3: Semi-structured interview questionnaire for CEBA community participants

- Imibuzo ephathele neZinga leMpilo

#### Section 1: Resource Questions

- Isigaba 1: Imibuzo mayelana neziNsizakusebenza
- 
- 1. Please tick where you get your water from:
- Sicela ithicke lapho uthola khona amanzi akho:

River or Stream - Emfuleni noma Esiphethwini	
Municipality / Tap - Nginompompi/ Awakamasipala	
I have a Jojo water tank - Nginethangi lakaJojo	
If other, please state: Uma unokunye, Sicela ukubale:	

#### 1.1 How does having water change your life?

- Ukuba namanzi kuyishintsha kanjani impilo yakho?

--

#### 2. Please tick where you get your electricity from:

- Sicela ithikhe lapho uthola khona ugesi wakho:

Municipal services - Ngihlinzekwa uMasipala	
Solar power - Owesola	
Wind power - Ophehlwa ngomoya	
Hydro-power - Ophehlwa ngamanzi-	
If other, please state: Uma unokunye, sicela ukubale:	

#### 2.1 If you do not have electricity, how would having electricity change your life?

- Uma ungenawo ugesi, kungayishintsa kanjani impilo yakho ukuba nogesi?

--

3. Please tick where appropriate:
- Sicela uthike la kufanele khona:

I do not have any vehicle, I walk to wherever I am going - Anginayo imoto, ngihamba ngezinyawo yonke indawo la ngiya khona	
I have a vehicle and I drive to where I am going - Nginayo imoto futhi ngiyashayela uma ngiya noma ikephi	
I use public transport to go from place to place - Ngisebenzisa izimoto zomphakathi ukuya ezindaweni ezahlukene	
I share transport with my neighbours - Ngisherisha imoto nomakhelwane bami	
I own a bicycle - Nginebhayisekile	
None of the above - Akukho kulokhu okungenhla	

3.1 If yes, how does transport make a difference to your life?

--

- Uma uvuma, ukuba nezokuthutha noma imoto kwenza muphi umehluko empilweni yakho?

3.2 If you don't have any transport, how would having transport make a difference to your life?

- Uma ungenayo into yokuthutha, ukuba nento yokuthutha kungenza muphi umehluko empilweni yakho

--

4. What does the “environment” mean to you?

- Ichaza ukuthi kuwena “imvelo”?

--

4.1 Do you think the environment is important? Yes (Yebo) ☐ No(Cha) ☐ (Please tick)

Ngabe ucabanga ukuthi imvelo ibalulekile

4.2 How does the environment affect your daily life, if at all?

Imvelo ngabe ikuthinta kanjani empilweni yakho, uma kwenzeka ikuthitha?

## Section 2: Project intervention questions

- Isigaba 2: Imibuzo yekungenelela kwi-Project

1. Have you ever heard of Climate change? Yes (Yebo) ☐ No (Cha) ☐ (Please tick)

- Useke wezwa ngokushintsha-shintsha kwesimo sezulu (Climate Change)

•

1.1 If yes, what does Climate change mean to you?

- Uma uvuma, kuchaza ukuthi ukuthintsha-shintsha kwesimo sezulu?

•

2. Have you ever heard of Wildlands? Yes (Yebo) ☐ No (Cha) ☐ (Please tick)

- Useke wezwa ngenkampani yaka-Wildlands?

•

2.1 If yes, what do you think of Wildlands and their community projects?

- Uma uvuma, ingabe ucabangani ngenkampani u-Wildlands nema-project akhe

asemphakathini?

•

☐☐

3. Have you ever heard of CEBA? Yes (Yebo) No (Cha)  
(Please tick)
- Useke wenza nge-CEBA?

3.1 If yes, what does CEBA mean to you?

- Uma uvuma, uchaza ukuthi u-CEBA kuwena?

- 
4. What problems is the project you are involved in trying to solve/fix?
- Iziphi izinkinga le-project okuyona ezama ukuzilungisa?

5. Do you enjoy participating in this project? Yes (Yebo) ☐ No (Cha) ☐  
(Please tick)

- Uyakujabulela ukuba yingxenye yale-project?
- 

5.1 Why?

- Kungani?
- 

6. How often does the project team visit?
- Ngabe ikuvakashela kangaki iqembu le-project/abantu be-project?

Every week - Njalo ngesonto	
Every 2 weeks - Njalo emasontweni amabili	
Every month - Njalo ngenyanga	
Hardly ever - Akuvamisile	

6.1 What do you think about how often the project team visits?

- Ucabangani ngendlela abantu be-project abakuvakashela ngayo?

--

7. Can you list a few positives (advantages) and negatives (disadvantages) of the project?
- Ungangibalela okuhle (izinzuzo ezinhle) kanye nokungekuhle (izinzuzo ezingezinhle) mayelana ne-project?

• ADVANTAGES - OKUHLE	• DISADVANTAGES OKUNGEKUHLE -

8. What would you do to make this project better?
- Ikuphi ongakwenza ukuze wenze le-project ibe ngcono?

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## APPENDIX 4: CEBA Review Management Questionnaire

CEBA Title:

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Date: \_\_\_\_\_

Name of Respondent: \_\_\_\_\_

Respondent Organisation/Company:

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Do you wish to remain anonymous? Yes ☐ or NO ☐ (Please tick)

1) What would you like to see as outputs/ outcomes in this CEBA review?

2) In your opinion what elements of this CEBA review are working?

3) In your opinion what elements of this CEBA review are missing?

4) Was this CEBA Review useful, did it meet your initial output expectations?

Yes ☐ or No ☐ (Please tick)

Why?

## APPENDIX 5: Site visit plans for data collection

### PhD Data Collection Fieldwork Itinerary

Dates: 8 – 13 September and 14 – 21 September 2016

Locations:

- Richards Bay (Esikhawini and Ongoye)
- eThekweni (Buffelsdraai)

DATE	TIME/ LOGISTICS	TASKS TO BE ACHIEVED	NOTES
8 September 2016 Thursday	Pick Zanele and Nduh at <b>4am</b>  Depart PMB at <b>4:30am</b> and arrive at Esikhawini activation day at <b>9-10am</b>  Check-in to Amble Inn – <b>afternoon/evening</b>	50 Interviews need to be carried out in each community.  Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.	Zanele and Nduh to be ready at 3:45am. Please carry limited luggage as we will be carrying equipment with and travelling in 1 car.
9 September 2016 Friday	Depart the Amble Inn at <b>8:30am</b> headed to the Wildlands Empangeni Office  Arrange with Zanele Dube and Team regarding logistics + fieldwork and to check if we can visit Ongoye CEBA project as well.	50 Interviews need to be carried out in each community.  Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.	Team to please take observational notes where possible.
10 September 2016 Saturday	Team to get together and go through the data from <b>8:30am – 1pm.</b>  Lunch and then the afternoon for planning Monday and Tuesday's fieldwork in Ongoye. Rest.	Need to consolidate all the data and have a team chat about the fieldwork, logistics, what can be done better, any changes etc. Rest period from afternoon onwards.	Please be safe at all times if you are going to leave the vicinity of the team. Your safety is also your own responsibility on this field trip, keep



			in touch with your team.
11 September 2016 Sunday	DAY OFF	DAY OFF	DAY OFF
12 September 2016 Monday	<p>Depart the Amble Inn at <b>8:30am</b> headed to the Wildlands Empangeni Office</p> <p>Arrange with Zanele Dube and Team regarding logistics + fieldwork to Ongoye CEBA project.</p>	<p>50 Interviews need to be carried out in each community.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	Team to please take observational notes where possible.
13 September 2016 Tuesday	<p>Depart the Amble Inn at <b>8:30am</b> headed to the Wildlands Empangeni Office</p> <p>Arrange with Zanele Dube and Team regarding logistics + fieldwork to Ongoye CEBA project.</p> <p>DEPARTURE FROM RICHARDS BAY back to PMB after fieldwork is complete</p>	<p>50 Interviews need to be carried out in each community.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	<p>Team to please take observational notes where possible.</p> <p>ALL LUGGAGE TO BE PACKED AND IN THE CAR AT 08:30am</p>
14 September 2016 Wednesday	<p>Sarisha to meet Zanele and Nduh at Hilton Officee/PMB at <b>8:30am</b>— we travel to Durban at <b>9:30am</b></p> <p>Meet with Nondomiso/ Sihle and Team and arrange the day out.</p>	<p>50 Interviews need to be carried out in each community.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	Team to please take observational notes where possible.

15 September 2016 Thursday– NO FIELDWORK	SARISHA LECTURING AT UKZN	SARISHA LECTURING AT UKZN	SARISHA LECTURING AT UKZN
16 September 2016 Friday – NO FIELDWORK	ZANELE AND NDUH AT TREE IDENTIFICATION TRAINING	ZANELE AND NDUH AT TREE IDENTIFICATION TRAINING	ZANELE AND NDUH AT TREE IDENTIFICATION TRAINING
17 September 2016 Saturday	DAY OFF	DAY OFF	DAY OFF
18 September 2016 Sunday	DAY OFF	DAY OFF	DAY OFF
19 September 2016 Monday	<p>Sarisha to meet Zanele and Nduh at Hilton Office/PMB at <b>8:30am</b>– we travel to Durban at <b>9:30am</b></p> <p>Meet with Nondomiso/ Sihle and Team and arrange the day out.</p>	<p>Remainder of 50 Interviews need to be carried out in Buffelsdraai.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	Team to please take observational notes where possible.
20 September 2016 Tuesday	<p>Sarisha to meet Zanele and Nduh at Hilton Office/PMB at <b>8:30am</b>– we travel to Durban at <b>9:30am</b></p> <p>Meet with Nondomiso/ Sihle and Team and arrange the day out.</p>	<p>Remainder of 50 Interviews need to be carried out in Buffelsdraai.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	Team to please take observational notes where possible.
21 September 2016 Wednesday	<p>Sarisha to meet Zanele and Nduh at Hilton Office/PMB at <b>8:30am</b>– we travel to Durban at <b>9:30am</b></p>	Need to consolidate all the data and have a team chat about the fieldwork and data analysis.	End of fieldwork

	<p>Meet with Nondomiso/Sihle and Team and arrange the day out.</p> <p>Lunch meeting. Rest.</p>	<p>Remainder of 50 Interviews need to be carried out in Buffelsdraai.</p> <p>Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.</p>	
--	--	--	--

Dates: 10 – 14 October 2016

Locations:

- uMgungundlovu District Municipality (Edendale, Swapo, Haniville and Sweetwaters)

DATE	TIME/ LOGISTICS	TASKS TO BE ACHIEVED	NOTES
10 – 14 October 2016 Monday - Friday	The Research Assistants began their fieldwork at 8am until 3pm daily, including a break. A daily stipend was given to research assistants for food and transport arrangements. The researcher will join either of the research assistants on different site visits as per the daily plan discussed for that day of sampling.	50 Interviews need to be carried out in each community.  Dictaphone interviews with Key Informant community members where possible with Research assistant as interpreter.	Please carry limited luggage as we will be carrying equipment with and travelling in 1 car.

#### **GENERAL TEAM NOTES AND INSTRUCTIONS:**

- An indemnity form must be signed by all before fieldwork commences.
- All equipment, questionnaires and fieldwork material to be kept safe and in good condition at all times.
- Breakfast is included in the accommodation costs, and we will have lunch and supper together every evening as a team which will be paid for as well – we are on a tight travel budget.
- On your days off/ Time off during any of the days you are out, please be safe at all times and let each other know where you are on the “PhD Group Chat” (whatsapp).
- Bring along field backpacks, stationery, comfortable clothing, a pair of good walking shoes/boots, sunscreen, hat, light jacket, any snacks you prefer. Food stuffs/drinks for the field, outdoor equipment, tabard, medical kit etc. will be bought on the fieldwork budget and packed in the car before departure. Pack light LUGGAGE bags.

## APPENDIX 6: Ethical Clearance approval from UKZN-PMB



18 October 2016

Ms Sarisha Ramanand 203504138  
School of Agricultural, Earth & Environmental Science  
Pietermaritzburg Campus

Dear Ms Ramanand

Protocol reference number: HSS/1659/0160

Project Title: Engaging with uncertainty and incomplete knowledge in climate change adaptation interventions: The case of CEBA, KwaZulu-Natal, South Africa

Full Approval – Expedited Application

In response to your application received 4 October 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shamilla Naidoo (Deputy Chair)  
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor: Dr Adrian Nel & Ms Dayle Trotter  
cc Academic Leader Research: Professor Qhuliso Mutanga  
cc School Administrator: Ms Marsha Manjoo

Humanities & Social Sciences Research Ethics Committee

Dr Shanika Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X64001, Pietermaritzburg 6000

Telephone: +27 (0) 31 280 3589/316314657 Facsimile: +27 (0) 31 280 4822 Email: [smtsingh@ukzn.ac.za](mailto:smtsingh@ukzn.ac.za) / [enayman@ukzn.ac.za](mailto:enayman@ukzn.ac.za) / [csibanda@ukzn.ac.za](mailto:csibanda@ukzn.ac.za)

Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)



Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

**APPENDIX 7: Informed consent letter for Key Informants  
(Climate/Sustainability/Environmental Expert & Wildlands Field  
staff)**

Social Sciences, College of Humanities,  
University of KwaZulu-Natal,  
Pietermaritzburg Campus,

Dear Participant

**INFORMED CONSENT LETTER**

My name is Sarisha Ramanand, I am a Geography PhD candidate studying at the University of KwaZulu-Natal, Pietermaritzburg campus, South Africa. I am exploring a Climate Change Adaptation Intervention called CEBA. My study populations are from Esikhawini, Ongoye, Buffelsdraai, Msunduzi (KwaZulu-Natal) – South Africa. To gather the required information, I am interested in asking you a few questions.

Please note that:

- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member opinion.
- The interview may last for about 20 minutes.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- Data will be stored in secure storage and destroyed after 5 years.
- You have a choice to participate, not participate or stop participating in the research. You will not be penalized for taking such an action.
- The research aims to investigate the relationship between man and his ever-changing environment in a climate sensitive world, with the hope of shedding more light on strategic high-level thinking, uncertainty, incomplete knowledge and actual climate change intervention impacts at grassroots level.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- If you are willing to be interviewed, please indicate (by ticking as applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	<b>Willing</b>	<b>Not willing</b>
Audio equipment		
Photographic equipment		
Video equipment		

I can be contacted at:

Email: Sarisha.ramanand@gmail.com

Cell: +27 81 329 9216

My supervisor is Dr. Adrian Nel who is located at School of Agricultural, Earth and Environmental Sciences. University of KwaZulu Natal.

Contact details: email: nela@ukzn.ac.za Phone number: +27 33 260 5341.

You may also contact the Research Office through:

Mr P. Mohun,

HSSREC Research Office,

Tel: 031 260 4557 E-mail: [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

## DECLARATION

I..... (Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT

DATE

.....

.....

## APPENDIX 8: Informed consent for CEBA community participants

Date/ Usuku:

Name of Interviewer(s)

Igama lobuzayo:

Name of Respondent

Igama lophendulayo:

Gender

Ubulili:

Age

Iminyaka:

CEBA project name

Igama le- CEBA:

Location

Indawo:

I \_\_\_\_\_ give my permission to participate in this research and I am aware that I can withdraw my participation at any time of the study.

Mina \_\_\_\_\_ nginika igunya lokuthi ngingaba yingxenywe yalolucwaningo kanye nokuthi ngiyazi ukuthi ngingahoxa ekubeni yingxenywe yalolucwaningo nanoma isisphi isikhathi.

Do you wish to remain anonymous? Yes (Yebo) ☐ or No (Cha) ☐ (Please tick)

Ngabe ufisa uhlale ungaziwa

Participant Signature: \_\_\_\_\_

Sayina

**Instruction: Please read this out to the participant after the interview is completed.**

Dear Participant,

Thank you so much for participating in this study. Your participation was very valuable to us. We know you are very busy and appreciate the time you devoted to participating in this study. In this study, we are interested in understanding how environmental and social projects help to improve a person's quality of life and the environment.

**Umvalelo: Sicela ufundele lowo ozobe umubuzo emuva kokugeda imibuzo.**

Siyakubingelela,

Siyabonga kakhulu ngokuthi ube yingxenywe yalolucwaningo. Ukuba yingxenywe kwakho kube usizo kakhulu kulolucwaningo. Siyazi ukuthi nimatasatasa futhi siyajabulela ukusinika kwenu isikhathi kulolucwaningo. Kulolucwaningo, sihlase ukwazi indlela oqonda ngayo ama-project ezemvelo nomphakathi ekusizeni ukuthuthukisa izinga lempilo yomuntu kanye nemvelo.

Ozithobayo,

Sarisha Ramanand (Umcwaningi)



## APPENDIX 9: Gatekeepers Letter from Wildlands



Tel: (011) 343 6480 | Fax: (011) 343 3675  
Email: info@wildlands.co.za  
P.O. Box 1138 | Hilton | 3243 | South Africa  
NPO 061-549 | VAT NO. 4566151867 | PBO 187-0121585

20<sup>th</sup> June 2016

To whom it may concern.

This letter serves to confirm that WILDLANDS will allow Ms Sarisha Ramanand to audio record the WILDLANDS CEBA review meetings, access to the WILDLANDS Dashboard data and permission to interview the WILDLANDS Green-preneurs and community stakeholders involved in the WILDLANDS CEBA activities.

Yours sincerely



Dr Andrew Venter  
CEO: Wildlands Conservation Trust

EXECUTIVE BOARD MEMBERS: Prof R Fincham, Mr B Gumede, Mr G Brazier, Mr P Bode, Mrs P Ellis, Mrs P Dlamini, Mr A Nkomo  
NON EXECUTIVE MEMBERS: Mr P Cowan, Mr J Dixon, Dr J Harris, Mr M Havings, Mrs H Newton-King, Mr A Patel, Mr P Rutsch, Mr I Hing  
PATRONS: Dr George Hughes, Dr Mangosuthu Buthelesi, Mr Pal Goss  
EXECUTIVE DIRECTOR: Dr Roelle Klappers | CEO: Dr Andrew Venter



**APPENDIX 10: Buffelsdraai Ward Councillor Letter of permission**



September 14, 2016

Councillor Bongani Majola  
Ward Councillor of Ward 59  
EThekweni Metropolitan Municipality

&

Mr Sihle Madonsela  
Wildlands

Dear Social Sciences, College of Humanities,  
University of KwaZulu-Natal,  
Pietermaritzburg Campus,

On behalf of Mr Bongani Majola and Wildlands, I am writing to formally indicate our awareness of the research proposed by Sarisha Ramanand, a PhD student at UKZN, Pietermaritzburg. We are aware that Sarisha Ramanand intends to conduct her research by administering a written survey to community members of the Buffelsdraai CEBA project in Ward 59 of the EThekweni Metropolitan Municipality.

As Social Facilitator of the Buffelsdraai CEBA project, I am aware of Ward Councillor Mr B. Majola granting Sarisha Ramanand permission on 14 September 2015 at the Durban City Hall, to conduct her research at the Buffelsdraai CEBA project for the period of her PhD study. I am also aware that Wildlands has granted Sarisha Ramanand permission to conduct this research for the duration of her PhD with the provision of a 'gate-keeper' letter dated 20 June 2016.

If you have any questions or concerns, please feel free to contact my office at 033-343-6380 or SihleM@Wildlands.co.za.

Sincerely,

A black rectangular redaction box covering the signature of Sihle Madonsela.

Sihle Madonsela  
Wildlands

**APPENDIX 11:      Permission to use WILDTRUST, Dr A. Venter's, Dr R. Kloppers,  
Professor D. Roberts and Dr. J. Glenday's names in the research**

Sarisha Ramanand <sarisha.ramanand@gmail.com>

Sun, Jan 27, 4:53 PM (21  
hours ago)

To: Andrew

Hi Andrew,

Thank you for this confirmation, I appreciate it.

Kind regards

Sarisha

On Sun, Jan 27, 2019 at 4:47 PM Andrew Venter <[AndrewV@wildtrust.co.za](mailto:AndrewV@wildtrust.co.za)> wrote:

Hi

I have no problem with you using my name and the Trust's name.

Kindest

A

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: Sarisha Ramanand <[sarisha.ramanand@gmail.com](mailto:sarisha.ramanand@gmail.com)>

Date: 2019/01/27 16:02 (GMT+02:00)

To: Andrew Venter <[AndrewV@wildtrust.co.za](mailto:AndrewV@wildtrust.co.za)>

Subject: PhD Query: Names or Pseudonyms?

Hi Andrew,

Best of 2019 and hope you are well, apologies about a Sunday email.

I want to confirm whether WILDTRUST, the organisation's name is permitted for use in the research or not? The same goes for my personal communication with you

Your name is mentioned in a chapter explaining 'climate champions' and I have listed you as one these by name in the inception phases of CEBA; and it's used in other areas of the research.

The research has a balance of both positive and negative results which was expected.

I will understand if the organisation's name and yours should be kept out of it. In which case I will use a pseudonym.

These are final checks as I edit accordingly, please let me know, Thank you.

Kind regards

Sarisha

8/12/2021

Gmail - Informed Consent: PhD Query



Sarisha Ramanand <sarisha.ramanand@gmail.com>

---

## Informed Consent: PhD Query

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**Sarisha Ramanand** <sarisha.ramanand@gmail.com>  
To: Roelie Kloppers <RoelieK@wildtrust.co.za>

Thu, Aug 12, 2021 at 8:38 PM

Hi Roelie,

Thank you for that, much appreciated.

Kind regards,  
Sarisha

On Thu, Aug 12, 2021 at 7:38 PM Roelie Kloppers <RoelieK@wildtrust.co.za> wrote:

Hi Sarisha

Happy you use my name and designation.

All the best

Roelie

On 12 Aug 2021, at 17:07, Sarisha Ramanand <sarisha.ramanand@gmail.com> wrote:

Hi Roelie,

It has been a while, I hope you are well,

Even though you verbally gave me permission in our Feb 2020 chat - I just want to make sure again, that it is fine to use your name in the PhD research for personal communication and interview references? If not, would you permit the use of "CEO"?

Please let me know your preferences, thank you,

--

Kind Regards,  
Sarisha Ramanand

*"It is our collective and individual responsibility ... to preserve and tend to the world in which we all live." —Dalai Lama*

--

Kind Regards,  
Sarisha Ramanand

*"It is our collective and individual responsibility ... to preserve and tend to the world in which we all live." —Dalai Lama*

- JUN 30 2021

[View Sarisha's profile](#)

**Sarisha Ramanand** 7:01 PM

Hi Julia, Hope you are well, I have a request please. I am submitting my PhD, based on the CEBA concept originating from work undertaken in Durban. In my study I track the evolution of this CEBA concept. In doing so, I have a timeline mentioning a few key meetings and people involved in the early stages of the concept's development. You are one of these people. I am kindly requesting permission to use your name when describing how you introduced an introductory meeting between Debra Roberts (eThekweni) and Andrew Venter (formerly from Wildlands). Please do let me know if this request is granted. I would appreciate it. Thanks, Sarisha

- JUL 7 2021 Julia Glenday sent the following message at 11:29 PM

[View Julia's profile](#)

**Julia Glenday** 11:29 PM

Hi Sarisha, I hope this finds you well! Apologies for my delayed reply, I'm bad at checking linkedin and email notifications ended up going to spam - oops! Firstly, congrats on submitting your PhD!!!! Secondly, I'm very happy for you to use my name if its not too late to confirm. Looking forward to having a look at your thesis sometime! All the best, Julia



Sarisha Ramanand &lt;sarisha.ramanand@gmail.com&gt;

## Informed Consent: PhD Query

**Sarisha Ramanand** <sarisha.ramanand@gmail.com>  
To: Debra Roberts <Debra.Roberts@durban.gov.za>

Wed, Aug 18, 2021 at 9:37 AM

Great, thank you Debra, appreciate it.

Kind regards  
Sarisha

On Wed, 18 Aug 2021, 9:04 am Debra Roberts <Debra.Roberts@durban.gov.za> wrote:

Looks fine Sarisha.

**From:** Sarisha Ramanand <sarisha.ramanand@gmail.com>  
**Sent:** Monday, 16 August 2021 22:52  
**To:** Debra Roberts <Debra.Roberts@durban.gov.za>  
**Subject:** Re: Informed Consent: PhD Query

Hi Debra,

Thank you for looking through the material and verifying where I misquoted or may have not correctly expressed a sentiment. Could you please let me know if the edits below are now acceptable?

1. On a local level, "*vacuums around the lack of knowledge regarding adaptation were beginning to surface*" at different levels of government structures, where national government departments were more aware of climate change issues and district and local level municipalities were largely unaware (Roberts, pers comm., Durban[SR1], December 2016),

[SR1]Debra Roberts, interview, ethekwini offices

2. In the run-up to the COP17/CMP7 meetings, some political leaders advocated for climate change issues and sought tangible opportunities to get involved in CEBA. (Roberts, pers com[SR1] m., December 2016).

[SR1]Debra Roberts, interview, ethekwini offices

3. Professor Debra Roberts, Co-Chair of Working Group II of the IPCC responsible for assessing impacts, adaptation and vulnerability, echoed the following in an interview upon the release of the Special Report on Global Warming of 1.5 °C (SR15)

- a. "It's a line in the sand and what it says to our species is that this is the moment, and we must act now, this is the largest clarion bell from the science community, and I hope it mobilises people and dents the mood of complacency" (Watts, 2018: par. 4)[DR1] [SR2]

[DR1]If this is a quote from me what is this referring to?

[SR2] I have changed the text accordingly – does this sound better? The exact quote can be found at <https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>

8/18/2021

Gmail - Informed Consent: PhD Query

Kind Regards,

Sarisha

On Mon, Aug 16, 2021 at 9:50 PM Debra Roberts <[Debra.Roberts@durban.gov.za](mailto:Debra.Roberts@durban.gov.za)> wrote:

Hi Sarisha – some comments from me.

Best wishes

D

**From:** Sarisha Ramanand <[sarisha.ramanand@gmail.com](mailto:sarisha.ramanand@gmail.com)>

**Sent:** Thursday, 12 August 2021 20:49

**To:** Debra Roberts <[Debra.Roberts@durban.gov.za](mailto:Debra.Roberts@durban.gov.za)>

**Subject:** Re: Informed Consent: PhD Query

Hi Debra,

Please see attached for your approval.

These direct quotations and paraphrased pieces have been taken from the 2 face-to-face interviews we had over the course of the research in 2016 and 2018.

You have been an influential actor in my thesis regarding:

- The evolution of CEBA &
- Governance arrangements and Mainstreaming Adaptation in eThekweni

Thank you for looking through these, look forward to your response.

Kind regards,

Sarisha

On Thu, Aug 12, 2021 at 7:35 PM Sarisha Ramanand <[sarisha.ramanand@gmail.com](mailto:sarisha.ramanand@gmail.com)> wrote:

Hi Debra,

Thank you for the response,

Sure... I will just crop them out send it through this evening.

Kind regards

Sarisha

On Thu, 12 Aug 2021, 7:33 pm Debra Roberts <[Debra.Roberts@durban.gov.za](mailto:Debra.Roberts@durban.gov.za)> wrote:

<https://mail.google.com/mail/u/0?ik=77062ede11&view=pt&search=all&permmsgid=msg-a%3Ar-8630732940476491237&dsqt=1&simpl=msg-a%...> 2/3



8/18/2021

Gmail - Informed Consent: PhD Query

Hi Sarisha – I always ask to see where I am quoted before finalisation – could you send through the relevant parts of the draft so I can do a read through?

Many thanks

D

**From:** Sarisha Ramanand <sarisha.ramanand@gmail.com>

**Sent:** Thursday, 12 August 2021 17:35

**To:** Debra Roberts <Debra.Roberts@durban.gov.za>

**Subject:** Informed Consent: PhD Query

Hi Debra,

It's been a while, I hope you are well,

It has been years since our initial conversations and verbally recorded permissions etc. but I have to make sure one last time, that it is fine to use your name in the PhD research for personal communication and interview references?

If not, do you have a designation that you would prefer instead?

Please let me know, thank you,

--

Kind Regards,

Sarisha Ramanand

*"It is our collective and individual responsibility ... to preserve and tend to the world in which we all live." —Dalai Lama*

--

Kind Regards,

Sarisha Ramanand

*"It is our collective and individual responsibility ... to preserve and tend to the world in which we all live." —Dalai Lama*

--

Kind Regards,

Sarisha Ramanand

*"It is our collective and individual responsibility ... to preserve and tend to the world in which we all live." —Dalai Lama*

<https://mail.google.com/mail/u/0?ik=77062ede11&view=pt&search=all&permmsgid=msg-a%3Ar-8630732940476491237&dsqt=1&simpl=msg-a%...> 3/3



## APPENDIX 12: Derived Themes from Community Resource Questions

### DERIVED THEMES: Section 1

THEME	CATEGORY	SUB-CATEGORY
1. Water availability and lifestyle change	Access	Positive feedback: <ul style="list-style-type: none"> <li>- No longer go to stream/mountains/river</li> <li>- Can get water from Jojo tank</li> <li>- We now have water for everything</li> </ul>
	Emotions	Negative feedback: <ul style="list-style-type: none"> <li>- Water is still scarce/far</li> <li>- Still use public tanker</li> </ul> Positive emotions: <ul style="list-style-type: none"> <li>- Changed life for the better</li> <li>- Makes me happy and healthy</li> </ul> Negative emotions: <ul style="list-style-type: none"> <li>- Not much change</li> </ul>
2. Transport availability and lifestyle change	Access (A)	Positive feedback: <ul style="list-style-type: none"> <li>- Changed my life</li> <li>- Helps save money</li> <li>- Transport is close</li> <li>- No longer walk long distances</li> </ul> Negative feedback: <ul style="list-style-type: none"> <li>- Steep terrain</li> </ul>
	No Access (B)	Positive feedback:
3. Significance of the environment	Spiritual meaning of the environment	- Natural things from God
		- In the Zulu culture we grew up knowing we have to look after the environment
		- Reminds me where I come from

	Physical meaning of the environment	<ul style="list-style-type: none"> <li>- Provides air/ shelter and used by humans</li> <li>- Making a livelihood</li> <li>- Without the environment there is no life</li> </ul>
	Personal meaning of the environment	<ul style="list-style-type: none"> <li>- It is like a human being, we have to look after it</li> </ul>
4. The environment and daily living	Effects of the environment on daily living	<p>Positive effects:</p> <ul style="list-style-type: none"> <li>- Keeps me healthy</li> <li>- Changes life for the better</li> <li>- Make a livelihood</li> <li>- Get resources</li> <li>- Makes me happy</li> </ul> <p>*Please note that only positive effects were obtained</p>

# APPENDIX 13:      Derived themes from CEBA Project implementation Questions

## DERIVED THEMES:                      Section 2

THEME	CATEGORY	SUB-CATEGORY
1. Meaning of climate change	Personal meaning of climate change	<p>change Negative feedback:</p> <ul style="list-style-type: none"> <li>- No actual idea</li> <li>- Do not understand</li> <li>- Caused by humans</li> <li>- Breaks my heart</li> <li>- Frightens me to see people suffer</li> </ul> <p>*Please note that only negative feedback was obtained</p>
	Physical meaning of climate	<ul style="list-style-type: none"> <li>- Extreme weather</li> <li>- Extreme temperature changes</li> <li>- Change in seasons</li> <li>- Rain</li> <li>- Drought</li> <li>- Floods</li> <li>- devastation</li> </ul>
2. Opinions on community project implementation	Thoughts on project Implementation	<p>Positive thoughts:</p> <ul style="list-style-type: none"> <li>- Played a huge role in my life</li> <li>- Makes me happy</li> <li>- Opportunity to work</li> <li>- Earned an income</li> <li>- Received training and awareness</li> <li>- Business opportunities</li> <li>- Changed the lives of poor people</li> </ul> <p>Negative feedback:</p> <ul style="list-style-type: none"> <li>- Needs more collaboration with government</li> </ul>

		<ul style="list-style-type: none"> <li>- We were happy but project is falling apart</li> <li>- Delays</li> <li>- Started good but no longer makes an impact</li> <li>- Discouraged as project process keeps changing</li> </ul>
3. Intention of the project	<p>Social Improvement</p> <p>Financial Improvement</p> <p>Physical Improvement</p>	<ul style="list-style-type: none"> <li>- Uplifts us as a community</li> <li>- Fights unemployment</li> <li>- Poverty alleviation</li> <li>- Education</li> <li>- Helps people to be independent</li> <li>- Financial support</li> <li>- Business grants</li> <li>- Keep environment clean</li> <li>- Fight climate change</li> <li>- Waste management</li> </ul>
4. Reasons for project participation	<p>Social needs</p> <p>Personal needs</p>	<ul style="list-style-type: none"> <li>- Able to secure employment</li> <li>- Able to support family</li> <li>- Develop community</li> <li>- Makes me happy</li> <li>- Feels good to work</li> <li>- Empowers us</li> <li>- Creates independence</li> <li>- Start my own business</li> </ul> <p>*Report of the 11% that are not happy</p>
5. Views on project team visits	Feelings	<ul style="list-style-type: none"> <li>- Would like to see them more often</li> <li>- Lack of encouragement and motivation</li> </ul>

		<ul style="list-style-type: none"> <li>- Many visits do not mean impact</li> <li>- Poor interaction</li> <li>- Nobody comes anymore</li> <li>- We have no guidance</li> <li>- Breaks my spirit</li> <li>- I want to quit</li> <li>- It hurts</li> </ul> <p>*note the 16% who don't think it's a problem</p>
6. Positive Outcomes of the project	<p>Personal benefits</p> <p>Financial benefits</p> <p>Social benefits</p> <p>Physical benefits</p>	<ul style="list-style-type: none"> <li>- We live through the project</li> <li>- Gained skills</li> <li>- Love planting</li> <li>- Business support</li> <li>- Making a living</li> <li>- Household contribution</li> <li>- Improved lives</li> <li>- Educational support and training</li> <li>- Barter items and hampers</li> <li>- Able to grow food</li> <li>- bicycles</li> </ul>
7. Negative outcomes of the project	<p>Personal concerns</p> <p>Social concerns</p>	<ul style="list-style-type: none"> <li>- Makes me worried</li> <li>- They bring what they think is right and not what we need</li> <li>- Losing interest</li> <li>- Empty promises</li> <li>- Lack of communication</li> <li>- Less employment opportunities</li> </ul>

	Concerns relating to Project implementation	<ul style="list-style-type: none"> <li>- Receiving bicycles we do not need</li> <li>- Hampers don't always help</li> <li>- No medical attention</li> <li>- Not aware of progress</li> <li>- Corruption from the project team</li> <li>- Is the project coming to an end?</li> <li>- No facilitators</li> <li>- Waste slips not attended to</li> <li>- Waste scale is not good</li> </ul> <p>*note the 19% who did not come across challenges</p>
8. Proposed project improvements	Growth and development opportunities	<ul style="list-style-type: none"> <li>- Understand needs of people</li> <li>- Speak the truth</li> <li>- Keep promises</li> <li>- Good communication</li> <li>- Frequent visits</li> <li>- Less delays</li> <li>- Expand business opportunities</li> <li>- Seek more international and local funding</li> <li>- Continuation/expansion of project</li> <li>- Equal work opportunities for all to sustain livelihoods</li> </ul>