

**ACCESS AND CONTROL OF BIODIVERSITY IN THE
CONTEXT OF BIOPIRACY: THE CASE OF PELARGONIUM
SIDOIDES IN THE RAYMOND MHLABA LOCAL
MUNICIPALITY**

A thesis submitted in fulfilment of the requirements for the degree of
MASTER OF SOCIAL SCIENCE
of
RHODES UNIVERSITY

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ABSTRACT

The purpose of this research is to explore access and control of biodiversity in the context of biopiracy with specific reference to the case of pelargonium sidoides in the Raymond Mhlaba Local Municipality. The research is informed by the increased appropriation of local biodiversity and indigenous knowledge by industry as well as global debates on promoting sustainable resource utilisation and sustainable rural livelihoods.

This study adopts a two-pronged conceptual approach mainly, Marx's Ecology and the Sustainable Rural Livelihoods Framework (SRLF). The former provides useful insights into the processes and dynamics of power asymmetries between developed and developing countries, capital accumulation, inherent displacement and the predatory nature of capitalism. Whilst the latter addresses how livelihoods are fashioned in a holistic way. As a significant starting point the South African political economy is examined through the lens of the two-economies debate.

This research is primarily qualitative using in-depth interviews, observations and archival research as the primary data collection techniques. Preliminary site visits were conducted to negotiate access. Key informants of the study were representatives of the core groups (interested and affected stakeholders) involved in the case of pelargonium sidoides. Specifically, participants included representatives from the Imingcangathelo Community Development Trust and the Masakhane Community Property Association, local harvesters, local community members, monitoring and enforcement environmental officers, plant breeders (cultivators), scientists, local businessmen involved in natural resource trade, academics, legal representatives and non-governmental organisations. The Rhodes University research ethical guidelines were followed accordingly.

The findings of the study suggest that trade in pelargonium sidoides is influenced by a complex and dynamic interplay between the state-industry-rural elite coalitions. Moreover, that this activity is largely centralised and exclusionary. This process is depicted in the unsustainable utilisation of pelargonium sidoides and other natural resources, the dismantling of local livelihoods, exploitation of harvesters and an incoherent environmental governance structure. At the core of this unequal system of exchange is industry, which effectively functions to generate profits whilst dispossessing peripheral communities such as the Masakhane community. The study therefore, argues that in order for local communities to access the trade there needs to be a shift in this system of unequal exchange. Not only regarding beneficiation, but in building community capacity and becoming involved as critical stakeholders in the governance of resources in the study area. The study found that there are competing narratives that inform the status and sustainability of pelargonium sidoides. Furthermore, given the current trajectory of the Masakhane community's struggle for land, access to natural resources and exclusion from decision-making regarding pelargonium sidoides, the area will continue to be underdeveloped with concomitant poverty, inequality and comprised rural livelihoods.

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DEDICATION

I dedicate this thesis to my grandparents Constance and Graham Doyle that have passed on, let this be a living testament of their encouragement to pursue my education. To my mother Carmel Doyle who has been the driving force behind all my achievements and my greatest motivator. To the Bennett, Frazer, Doyle and Burton families – that have stood by me throughout this process, motivating me to do my utmost in achieving my goal of attaining my Master of Social Science Degree. Thanks to God as he alone knows the depths of my perseverance and that has been a guide on the completion of my journey.

TABLE OF CONTENTS

Abstract.....	i
Plagiarism Declaration.....	ii
Acknowledgements.....	iii
Dedication	iv
Table of Contents	v
Acronyms	ix
List of Tables and Figures.....	xi

1. CHAPTER ONE INTRODUCTION

1.1. The Context of Research	1
1.2. Research Objectives	8
1.3. Research Methodology.....	8
1.4. Limitations of the Study	10
1.5. Thesis Outline	11

2. CHAPTER TWO THE FOUNDATIONS OF RESOURCE APPROPRIATION: DISCOURSE, POWER AND JUSTICE

2.1. Introduction	14
2.2. The Politics of Knowledge	15
2.2.1. Knowledge Systems: Science and the West	15
2.2.2. Indigenous Knowledge and its Significance	19
2.2.3. Reaching a Consensus?	21
2.3. The Political Economy of Biodiversity.....	22
2.4. The Biopiracy-Bioprospecting Discourse	24
2.4.1. Bioprospecting: A Win-Win Discourse?	24
2.4.2. Biopiracy: A Global Justice Perspective	27
2.4.2.1. Biopiracy Scholarship	28
2.4.2.1.1. Pro-Biopiracy Arguments	28
2.4.2.1.2. Critics of the Biopiracy Narrative	31
2.5. Conclusion.....	34

3. CHAPTER THREE THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

3.1. Introduction	35
3.2. Global Environmental Governance.....	36
3.2.1. An Overview of Global Environmental Governance	36
3.3. The United Nations Convention on Biological Diversity.....	38
3.3.1. A General Overview	38
3.3.2. The Transition from Common Heritage to Common Concern	39
3.3.3. Addressing the Rights of Indigenous Communities	41
3.4. The Regime on Access and Benefit-Sharing.....	44
3.4.1. The CBD Provisions on Access and Equitable Sharing of Benefits.....	44
3.4.2. The Bonn Guidelines	47

3.4.3. The Nagoya Protocol	48
3.5. Intellectual Property Rights and the Agreement on Trade Related Aspects of Intellectual Property (TRIPS)	50
3.6. Conclusion.....	52

4. CHAPTER FOUR

INTERNATIONAL AND NATIONAL CASES OF BIOPIRACY

4.1. Introduction	54
4.2. International Cases.....	54
4.2.1. India: Neem Tree	54
4.2.2. Ethiopia: Endod Berry	56
4.3. South African Cases	59
4.3.1. San-Hoodia Case	59
4.3.2. Rooibos and Honeybush.....	63
4.4. Significant Lessons from the Cases.....	67
4.4.1. The North/South Divide: Politics of Knowledge	67
4.4.2. Patents: A Contravention of the CBD.....	68
4.4.3. The Convention on Biological Diversity: Access and Benefit-Sharing	69
4.5. Conclusion.....	71

5. CHAPTER FIVE

ENVIRONMENTAL GOVERNANCE IN SOUTH AFRICA WITH SPECIFIC EMPHASIS ON BIOPROSPECTING ACCESS AND BENEFIT-SHARING

5.1. Introduction	73
5.2. Environmental Governance in South Africa.....	74
5.2.1. An Historical Overview	74
5.2.2. Sustainable Development and Environmental Justice in South Africa	75
5.3. Managing Biodiversity in South Africa: Policy and Legislation.....	77
5.3.1. The South African Constitution	77
5.3.2. The White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity	78
5.3.3. The National Environmental Management Act	82
5.4. Bioprospecting Access and Benefit-Sharing.....	84
5.4.1. The National Environmental Management: Biodiversity Act	84
5.4.2. Regulations on Bioprospecting Access and Benefit-Sharing	85
5.4.3. The Phases of Bioprospecting	87
5.4.4. The Permit System	88
5.4.5. Patents in South Africa: A Brief Overview	92
5.5. Conclusion.....	93

6. CHAPTER SIX

THE CASE OF PELARGONIUM SIDOIDES IN THE RAYMOND MHLABA LOCAL MUNICIPALITY

6.1. Introduction	94
6.2. The Eastern Cape Province: History, Land and Chieftaincy.....	95
6.2.1. The Landscape and Governance.....	95

6.3. Pelargonium Sidoides: A History of Utilisation and Trade	98
6.3.1. Pelargonium Sidoides: Description and Properties.....	98
6.3.2. The International Trade of Pelargonium Sidoides	99
6.3.3. The Moratorium of Pelargonium Sidoides Harvesting: A Case of Illegal Appropriation	103
6.4. The Masakhane Community: Land and Resources	106
6.4.1. The Contestation of Land and the Community Property Association	106
6.4.2. The Patent Hearing	108
6.4.3. Access and Benefit-Sharing: The Case of Industry and the Rural Elite	110
6.5. National Protection of Pelargonium Sidoides	112
6.5.1. The Biodiversity Management Plan for Pelargonium Sidoides	112
6.6. Conclusion	117

7. CHAPTER SEVEN

THE CONCEPTUAL FRAMEWORK

7.1. Introduction	118
7.2. South Africa and the Two-Economies Debate	119
7.2.1. The Two-Economies Approach.....	120
7.3. Unpacking Marx's Ecology: An Overview	125
7.3.1. The Treadmill of Production and Interrelated Concepts	129
7.4. Sustainable Rural Livelihoods Framework	131
7.4.1. The Development of the Sustainable Rural Livelihoods Framework.....	131
7.4.2. The Components of the Sustainable Rural Livelihoods Framework	132
7.5. Conclusion	135

8. CHAPTER EIGHT

RESEARCH METHODOLOGY

8.1. Introduction	136
8.2. Research Design	136
8.2.1. The Literature Review.....	137
8.2.2. The Conceptual Framework	139
8.3. Research Methodology	140
8.3.1. Sampling.....	140
8.3.2. Fieldwork	141
8.3.3. In-Depth Interviews.....	142
8.3.4. Observation and Archival Research	143
8.3.5. Ethical Considerations	144
8.4. Data Analysis	145
8.4.1. Transcription	145
8.4.2. Developing Themes and Coding	145
8.5. Limitations of the Research	146
8.6. Conclusion	147

9. CHAPTER NINE

DATA PRESENTATION AND ANALYSIS

9.1. Introduction	148
9.2. Pelargonium Sidoides: Unregulated Access and Exploitation	148

9.2.1. Pelargonium Sidoides: A Free for All	148
9.2.2. Rural Livelihoods and Resource Appropriation.....	150
9.2.3. The Period of Rampant Harvesting.....	153
9.2.4. The Issue of Indigenous and Traditional Knowledge	154
9.2.5. Harvesting Practices and the Status of Pelargonium Sidoides	158
9.3. The Masakhane Community Property Association:	
Expectations, Patents and Land.....	161
9.3.1. The Role of Civil Society and the Masakhane Patent Case.....	161
9.3.2. The Masakhane Community Property Association, Land Rights and Chieftaincy	164
9.4. An Evolving Political Climate: Regulating the Trade.....	166
9.4.1. Policy and Legislative Reform Processes and Practices.....	166
9.4.2. Bioprospecting Access and Benefit-Sharing.....	169
9.5. Chieftaincy and the Process of Access and Benefit-Sharing.....	171
9.5.1. Chieftaincy, Community Representation and Development.....	171
9.5.2. Pelargonium Sidoides Trade: The Rural Elite and Industry	175
9.5.3. Harvesting and Cultivation of Pelargonium Sidoides	177
9.6. Conclusion	178
 10. CHAPTER TEN	
CONCLUDING DISCUSSION	
 10.1. Introduction.....	180
10.2. The Review of Literature and Empirical Findings.....	181
10.3. Theoretical Implications and Recommendations.....	187
 REFERENCE LIST	193

ACRONYMS

ABS	Access and Benefit Sharing
AbD	Accumulation by Dispossession
ACB	African Centre for Biosafety
ANC	African National Congress
ANSCA	African National Soil Conservation Association
ARC	Agricultural Research Council
ARIPO	African Regional Intellectual Property Association
BABS	Bio-prospecting, Access and Benefit Sharing Regulations
BSA	Benefit-Sharing Agreement
CAB	Convention against Biopiracy
CAF	Cancun Adaptation Framework
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CONEPP	Consultative National Environmental Policy Process
COP	Conference of the Parties
CPA	Communal Property Association
CSD	Commission on Sustainable Development
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DST	Department of Science and Technology
EIA	Environmental Impact Assessment
EJNF	Environmental Justice Framework
EPA	Environmental Protection Agency
EPC	European Patent Convention
ETC	Erosion, Technology and Concentration Group
FAO	Food and Agriculture Organisation
GATT	General Agreement on Tariffs and Trade
GEAR	Growth Equity and Redistribution Programme
GEF	Global Environmental Facility
GEG	Global Environment Governance
GRAIN	Genetic Resources International
HGDP	Human Genome Diversity Project
IARCs	International Agricultural Research Centres
IBR	Indigenous Biological Resources
IEB	Integrated Export and Bioprospecting Permit
IK	Indigenous Knowledge
ILC	Indigenous and Local Communities
IP	Indigenous People
IPCC	Intergovernmental Panel on Climate Change
IPM	Indigenous Peoples Movements
IPR	Intellectual Property Rights
ITK	Indigenous Traditional Knowledge
ITPGRFA	International Treaty on Plant and Genetic Resources for Food and Agriculture
JPOI	Johannesburg Plan of Implementation
LRC	Legal Resources Centre
MAT	Mutually Agreed Terms
MCPA	Masakhane Communal Property Association

MEC	Minerals Energy Complex
MTA	Material Transfer Agreement
NGO	Non-Governmental Organisation
NFA	Native Farmers Association
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEPAD	New Partnership for Africa's Development
NVT	National Veld Trust
NYBG	New York Botanical Garden
OECD	Organisation for Economic Cooperation and Development
PCT	Patent Cooperation Treaty
PES	Payment for Ecosystem Services
PIC	Prior Informed Consent
RAFI	Rural Advancement Foundation International
RDP	Reconstruction and Development Programme
SANBI	South African National Biodiversity Institute
SANAC	South African Native Affairs Commission
SARC	South African Rooibos Council
SBTTA	Subsidiary body on Scientific, Technical and Technological Advice
SEARICE	Southeast Asia Regional Institute for Community Education
SIDR	Strathclyde Institute for Drug Research
SRLF	Sustainable Rural Livelihoods Framework
SRI	Stanford Research Institute
TIAs	Transfer of Information
TK	Traditional Knowledge
TLC	Traditional Local Councils
TM	Trademark
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Development and Trade
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UPVO	International Union for the Protection of New Varieties of Plants
US	United States
USPTO	U.S Patent and Trademark Office
UK	United Kingdom
WCED	World Commission on Environment and Development
WCMC	World Convention Monitoring Centre
WHO	World Health Organisation
WIMSA	Working Group of Indigenous Minorities in Southern Africa
WIPO	World Intellectual Property Rights Organisation
WTO	World Trade Organization

LIST OF TABLES AND FIGURES

Table 1. Distinctions between Western and Indigenous Knowledge Systems

Table 2. Various International Cases of Biopiracy

Table 3. Articles on Access and Benefit-Sharing

Table 4. Guiding Principles of the Biodiversity White Paper

Table 5. Goals of the Biodiversity White Paper

Table 6. Mechanisms of Access and Control

Table 7. Requirements of a Permit Application

Table 8. Permits Issued for *Pelargonium Sidoides* in South Africa

Figure 1. Map of the Eastern Cape showing the Amathole District

Figure 2. Images of *Pelargonium Sidoides* Root and Leaves

Figure 3. The *Pelargonium* Trade in South Africa

Figure 4. A History of the Regulation of *Pelargonium Sidoides*

Figure 5. The Elementary Triangle of Ecology

Figure 6. The Sustainable Livelihoods Framework

CHAPTER 1

INTRODUCTION

1.1. THE CONTEXT OF RESEARCH

The primary objective of this study is to explore access and control¹ of biodiversity in the context of biopiracy with specific reference to the case of pelargonium sidoides within the Raymond Mhlaba Local Municipality². This research underscores the geo-political significance of developing countries as prime centres of biodiversity juxtaposed with the resource-poor developed countries. The research is informed by the increased appropriation of local biodiversity and indigenous knowledge by outside commercial interests. At a broader level, this study is informed by global debates on promoting sustainable resource utilisation and sustainable livelihoods amidst an environmental crisis. In light of technological advancements there has been a renewed interest by pharmaceutical and agricultural companies in the biological resources of developing countries (Hamilton, 2006; Hayden, 2003; Zerbe, 2002; Agyeman *et al.*, 2003; Juma, 1989).

According to Masango (2010: 75) it is estimated that the global market for herbal remedies could be approximately \$5 trillion by the year 2020. In 2006 alone there was a 7% increase grossing \$643 billion. Herein the United States and Europe dominate the market and all major pharmaceutical industries (Laird and Wynberg, 2008: 11). More significantly, of the 1119 drugs now produced globally from higher plants, almost 74%, have been discovered through interaction with traditional medicinal practices (Masango, 2010: 75). In the South African context, Dold and Cocks (2002: 589) and Victor and Dold (2003: 437) it is argued that:

“South Africa’s traditional medicine is big business - 525 tonnes of medicinal plants per annum were traded from the Eastern Cape. In monetary terms this is valued at \$ 60 million, with 97% of the traded plants having been harvested unsustainably... at least six endemic species have been driven into extinction and a further 126 taxa threatened to extinction”.

The appropriation of indigenous knowledge systems and biodiversity forms part of current debates about natural resource rights and livelihoods, the politics of knowledge, global environmental governance and questions the development discourse itself. This is topical and

¹ Access and control is a phrase used throughout the thesis as adopted from Roht-Arriaza’s (1996) *Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities*.

² Previously known as the Nkonkobe District Municipality, the Raymond MLM was established in 2016 through combining the Nkonkobe Local Municipality and Nxuba Local Municipality (Municipalities of South Africa, 2017).

debates on this are polarised. Sachs *et al.* (2002: 6) “calls for enlarging the rights of the poor to their habitats, whilst cutting back the claims of the rich to resources”. This is based on the recognition that “power determines who occupies how much of the environmental space. Neither all nations nor all citizens use equal shares. On the contrary, the environmental space is divided in a highly unfair manner” (Sachs *et al.*, 2002: 20).

This is where the biopiracy discourse comes into play. As a rights-based justice perspective it advocates for the interests of developing countries against systematic exclusion, marginalisation and proletarianisation. Biopiracy was developed as a counter argument by developing countries by labelling developed countries “intellectual pirates” or “biopirates” - the people who use intellectual property rights³ to gain private proprietorship and control over the natural resources and indigenous knowledge of local communities (Mgbeoji, 2005: 1; Svarstad, 2002: 73; RAFI, 1997: 5). Studies on biopiracy emphasise its parasitic and exploitative nature characterising it as a recolonization of the communities and their resources (Shiva, 1998; Shiva, 2001; Shiva, 2007; Roht-Arriaza, 1996; Hamilton, 2006; Smallwood, 2011; Sentmen, 2012). What biopiracy entails is the re-appropriation and use of biological resources, products and processes that are commonly used and acknowledged in developing countries (Shiva, 2001: 49). Moreover, these resources, products and processes have formed the fabric of life in developing countries (Shiva, 2001: 49). Biopiracy enables these resources to be re-appropriated into western knowledge systems and corporations through their integration with western intellectual property rights (IPRs) regimes under patent, trademark and other laws (Roht-Arriaza, 1996: 929). The fundamental aspects of biopiracy mean that these resources and processes are reclaimed as western innovation and invention and being protected by IPRs ensures the monopoly and exclusivity of these resources that the third parties involved had no initial right to claim (Shiva, 2001; Shiva, 2007; Roht-Arriaza, 1996).

In contrast to the biopiracy narrative, the bioprospecting discourse is presented as a win-win scenario in which western technologies can be used to harness largely ‘untapped’ indigenous biological resources and then share the benefits arising out of such projects, boosting local economies and increasing the standard of living of indigenous people (Shiva, 2001: 64). Bioprospecting was developed as a response to the polarisation between the interests of corporate capital and local communities from which biodiversity is sourced and indigenous

³ Further discussed in Chapter 3.

knowledge collectively developed (Shiva, 2007: 307). More pertinently, it was a response to the intellectual property law governing exclusive ownership of natural resources. The term bioprospecting was first advanced by Reid *et al.* (1993: 1) as, “the exploration of biodiversity for commercially valuable genetic and biochemical resources”.

Local communities still remain largely marginalised as unequal stakeholders of the entire bioprospecting process. Within local communities bioprospecting “is seen as an expropriation of their collective and cumulative innovation which they have utilised, protected and conserved since time immemorial” (Shiva, 2007: 307). Shiva (1998: 77) argues that the idea that bioprospecting adds value to biodiversity is questionable and ignorant of the impacts it has on the ecological system where the knowledge and resources of local communities become expendable. Shiva (1998: 77) notes that within this context the prospectors “displace economies based on alternative values and knowledge systems in order to expand their markets”. Bioprospecting is just a new form of “empire building” (Seini, 2003: 38) in which biodiversity and knowledge of its use is seen as common heritage and thus subjected to “legitimate appropriation” (Seini, 2003: 28; Shiva, 2001: 63; Svarstad, 2002: 7). Benefits are offered to local communities for their resources, however, these agreements are subject to hierarchies of power both within local communities and the corporations. Often these agreements prove to be futile for local development (Seini, 2003: 38). The argument raised here is that bioprospecting should be understood as the complete unwillingness of the west to recognise the sources of innovation and creation within nature and indigenous knowledge systems (IKS), and therefore considered an act of biopiracy. This is in line with Shiva’s (2001: 63) understanding that bioprospecting is the complete legalisation and normalisation of biopiracy, in which third parties can legitimately “prospect” for usefulness in biodiversity and biological resources (Shiva, 2001: 63).

Essentially, biopiracy drives destitution and alienation within the local communities through the commodification of biological resources and indigenous knowledge. The local community becomes displaced from interacting with the natural resources as they once did. These biological resources form an innate part of the foundation of local livelihoods, yet have been refashioned into western knowledge systems. There exists a dichotomy within the intellectual commons where formal knowledge of the north, imperially-based, has taken precedence over the informal knowledge of the south (Amankwah, 2007; Arewa, 2006). The narrative of the south as comprehended by the reductionist logic of the west has remained a

paradigm subservient and undermined due to its traditional accounts of social organisation (Amankwah, 2007: 20).

Renowned intellectual property cases of biopiracy of indigenous knowledge and biodiversity include the Peruvian cinchona tree, the periwinkle in Madagascar, the Neem tree and turmeric in India, the endod berry in Ethiopia, and the katempfe and serendipity berry in Africa (Roht-Arriaza, 1996: 921; Finetti, 2011: 59). Several notable cases within South Africa include hoodia, aloe ferox, Proteas, the African potato, honeybush tea, rooibos tea, Marula, buchu and pelargonium reniforme. More pertinent to the purposes of this research is the case of pelargonium sidoides (Crouch *et al.*, 2008: 355).

Indigenous knowledge and biological resources⁴ are governed by the Convention of Biological Diversity (CBD) adopted at the Rio Summit in 1992. The CBD is “the world’s first legal instrument on biodiversity and its conservation” (Amankwah, 2007: 22). Prior to the institutionalisation of the CBD, there was no global regulation of biodiversity within the market (Richerzagen, 2011: 2245; Merson, 2000: 284). The CBD Preamble highlights the “intrinsic value of biological diversity” and its “ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values” (CBD, 1992). The CBD’s principal objectives are: the conservation of biological diversity; sustainable use of its components and fair and equitable sharing of the benefits resulting from the commercial use of genetic resources. Fundamentally, the CBD mandates countries through Article 8(j) by obliging signatories to protect sovereignty over natural resources, stating that:

“Subject to national legislation, to respect, preserve and maintain knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge innovations and practices” (CBD, 1992:8).

Principle 22 of the Rio Declaration informs the basis of Article 8(j) acknowledging that “indigenous people and their communities and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices...” (Amankwah, 2007: 22). Furthermore, The United Nations Declaration on the Rights of Indigenous People gives further impetus stating that “indigenous people are entitled

⁴ According to NEMBA (2004: 61) the term indigenous biological resource refers to any material existing for exploitation thus the term indigenous biological resource is explained as any “indigenous animals, plants, organisms, derivatives, chemical compounds and products gathered in the wild, accessed by other means or altered through use of biotechnology”.

to the recognition of the full ownership, control and protection of their culture and intellectual property...” (Finetti, 2011: 59). The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (2010) is the instrument for the realisation of the CBD requirements on access and benefit-sharing (van Niekerk and Wynberg, 2012).

Both the CBD and the Nagoya Protocol have achieved a mixed performance record. “Overall, almost two decades after the CBD came into force indigenous peoples are still waiting for legal protection of the genetic resources that underlie their traditional knowledge and to share in the benefits therefrom” (Koutouki and von Bieberstein, 2012: 515). Furthermore, the CBD has not had much influence within trade and scientific inquisition into indigenous knowledge and biodiversity which is inherently informed by intellectual property systems, in particular the Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement (Merson, 2000: 294). The TRIPS agreement “represents a significant step in the globalisation of intellectual property” (Arewa, 2006: 156). It imposes a legitimisation of biopiracy by privatising ownership through claims of innovation using patent laws. The TRIPS agreement in essence distorts the foundational basis of the CDB discrediting the innovation innately founded in indigenous knowledge (Arewa, 2006; Dutfield, 2002).

South Africa has been a signatory of the CBD since 1995. It is within this context that South Africa embarked on an expansive policy formulation process which informs bioprospecting, access and benefit-sharing (BABS). The White Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity (1997) emphasises “...the need for policies and formal structures to govern access to indigenous genetic resources...acknowledges that benefits arising from ‘bioresources’ serves the nation and that access to these resources should not be overtly limited and should fuel economic activity” (Crouch *et al.*, 2008). In addition, Chapter 6 of the National Environmental Management Act: Biodiversity (NEMBA), No.10 of 2004, regulates BABS. In terms of NEMBA bioprospecting is defined as, “...any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation...” (Crouch *et al.*, Rumsy, 2009: 358). It is exactly this formulation that critics view bioprospecting as a euphemism to legalise, expose, access, collect and exploit indigenous knowledge and biodiversity (Hamilton, 2006: 159; Hayden, 2003: 27; Ostergard *et al.*, 2001: 644; Shiva, 2001: 64). Despite the legislation it is evident that bioprospecting industries within South Africa are generally not compliant (Crouch *et al.*, 2008; van Niekerk and Wynberg, 2012).

The case of *pelargonium sidoides* (hereafter *p.sidoides*) illustrates the disparities and power dynamics that exist within access and benefit-sharing. Within the Raymond Mhlaba Local Municipality two groups of communities have emerged with competing claims on BABS in relation to *p.sidoides*, namely the Imingcangathelo Community Development Trust and Masakhane Community Property Association⁵ (CPA). Due to its properties *p.sidoides* has attracted both a local and international audience generating an increasing demand of the resource. However, unrestricted patterns of wild harvesting suggest that the plant may not be able to regenerate naturally hindering its sustainability for future generations (van Niekerk and Wynberg, 2012: 531; Mayet, 2010: 5; Lewu *et al.*, 2007: 380; Brendler, 2009: 299).

Schwabe is a German pharmaceutical multinational corporation that “almost exclusively manufactures *pelargonium* to cure respiratory ailments, accumulating a surplus of millions of euros” (van Niekerk and Wynberg, 2012: 535). Herein, there exists a disparity in compensation received by local harvesters who are often coerced. The exploitation of *p.sidoides* is further legitimised through permit systems employed by the South African government - the harvesting permits were required in the Ciskei in 1987 whilst BABS requirements have been a prerequisite since 2008 (Wynberg *et al.*, 2015: 568). Between 2008 and 2010 after the institutionalisation of BABS Schwabe faced international litigation against their patents on *p.sidoides* by the African Centre for Biosafety, the Masakhane CPA and the Berne Declaration (Wynberg *et al.*, 2015: 568). The patent was revoked in 2010. However, the community has yet to receive reparations. The value chain is further aggravated by industry preferring to set up networks with structurally organised and established groups such as the Imingcangathelo Community Development Trust presided over by the elite and chieftaincy. Ribot (2001: 77) drives an important point that chiefs may not be partial to the entire population. These existing arrangements have led to community division, conflict and uncertainty (Sishuta and Doyle, 2017: 70).

Internationally, there exists a growing amount of research questioning the empirical and conceptual underpinnings of the international trade regime with regards to BABS. Other studies question intellectual property rights and international policy, its protection of indigenous knowledge, biodiversity, rural livelihoods and local economic development (Christian, 2007; Merson, 2000; Hamilton, 2007). Biopiracy, bioprospecting, access and

⁵ The 1996 Communal Property Associations Act no. 849 of 1996 (CPA Act) advances the idea of the common ownership of property by groups. The CPA allows “communities to form juristic persons...in order to acquire, hold and manage property on a basis agreed to by members of a community” (CPA Act, 1996).

benefit-sharing is a relatively new area of social inquiry in South Africa. Research studies range from predominantly scientific (White, 2006), law (Bastuck, 2006; Wynberg *et al.*, 2009), economic (Jordaan, 2001), anthropological and sociological (van Niekerk, 2009). Few studies provide a localised understanding of BABS. Wynberg *et al.* (2009) develop an in-depth analysis of the San-Hoodia case study by providing an international and interdisciplinary comparative overview. In this study Wynberg introduces a compulsory requirement of prior informed consent and social justice as a basis for BABS. Consistent with Wynberg *et al.* (2009), van Niekerk (2009) continues the theme of social justice by conducting a comparative study of the pelargonium trade within the Eastern Cape and Lesotho. Central to van Niekerk's study is the notion of rural livelihoods and local economic development. These studies provide a useful foundational framework for the current study. However, none of these studies specifically examines in-depth issues related to access and benefit-sharing from the community's perspective.

This study adopts a two-pronged approach mainly, Marx's Ecology and the Sustainable Rural Livelihoods Framework (SRLF). Drawing on Marx's ecological and historical materialism (Benton, 1989; O'Connor, 1999; Martinez-Alier, 2003) Marx's analysis of political economy provides a systematic analysis of the relation between "human production and its natural conditions" (Foster, 1999: 370). Marx's ecological materialism then provides the foundation to analyse "the main limitation of contemporary ecological thought: its inability to develop a dialectical ecological materialism that relates the problem of nature back to the problem of society" (Foster and Clark, 2009: 143). This view is further grounded in the interrelated concepts of the treadmill of production and accumulation (Schnaiberg *et al.*, 2000; Foster, 2000; Schnaiberg and Gould, 1994; Foster and Clark, 2009), accumulation by dispossession (Luxemburg, 2003; Hallows, 2011), transnational organisation of production (Bunker, 2005) and ecological unequal exchange (Rice, 2009). These concepts are illustrative of the manner in which capital accumulates through the dispossession of the poverty-stricken (Harvey, 2003: 147). Thus, combined these provide useful insights into the processes and dynamics of power asymmetries between developed and developing countries, capital accumulation, inherent displacement and the predatory nature of capitalism.

The SRLF is necessary in addressing how livelihoods are fashioned in a holistic sense within local communities, addressing issues such as access to resources and livelihood strategies (Dorward *et al.*, 2001; Krantz, 2001; Scoones, 1998). The SRLF thus examines the way in

which people organise their livelihoods analysing both physical mechanisms and the activities they govern. More specifically through the analysis of resources, social, economic and symbolic capital the SRLF addressed the ways in which people react in relation to economic vulnerability (Chirau, 2012: 10).

The contextualisation of the South African political economy is significant in providing a useful foundation for the implementation and understanding of the conceptual frameworks that are being utilised in this thesis. This section provides a critical overview of the various components of the two-economies approach.

1.2. RESEARCH OBJECTIVES

The primary goal of this study is to explore access and control of biodiversity in the context of biopiracy with specific reference to the case of pelargonium sidoides within the Raymond Mhlaba Local Municipality.

The following interrelated objectives inform the study:

- I.** To explore the impact and implications of the politicisation and commodification of local knowledge and biodiversity in terms of local economy and rural livelihoods.
- II.** To gain insight into and assess the community's perceptions and experiences on benefit-sharing and biopiracy.

1.3. RESEARCH METHODOLOGY

This research is primarily qualitative. The qualitative research paradigm refers to a broad research approach which is rooted within “the insider perspective on social action” (Babbie, 2002: 53) more specifically looking at the subjective experiences of people (Terre Blanche *et al.*, 2006: 273). Terms used interchangeably with qualitative research include ethnography, field research and naturalistic research (Babbie, 2002: 53). As a means of incorporating various data collection techniques triangulation was used to increase the validity and reliability of the research, taking “multiple perspectives into account and attempting to understand the influences of multilateral social systems and subjects’ perspective and behaviours” (Babbie and Mouton, 1998: 275). This study uses in-depth interviews, systematic observation and archival research as data collection methods. These provide rich, in-depth

(“thick”) description and understanding of social actions and events (Babbie and Mouton, 1998: 270).

A preliminary site visit was carried out in 2014 to negotiate access, this was important for the researcher to get familiar with the study area and establish a relationship with the local community and key gatekeepers (Babbie and Mouton, 1998; Terre Blanche *et al.*, 2006). These key gatekeepers included members of the Masakhane Community Property Association as well as representatives of Imingcangathelo Community Development Trust. The key informants were identified through the literature addressing the pelargonium sidoides case study. Access was gained through explaining the research topic to all parties in order for them to make informed decisions as to whether they would like to engage in the study or not. Based on the outcome of the preliminary visit, the interviews with the participants were conducted. These interviews spanned over a two-year period. The research was also heavily reliant on documentaries, government gazettes, unpublished legal documents, email correspondence, newspaper articles and literature documenting the pelargonium sidoides case.

Sampling involves the selection of participants that will be involved in the research study (Terre Blanche *et al.*, 2006: 49; Babbie, 2007: 180). In social research researchers most often rely on nonprobability sampling as the researcher is dependent on the participants (Babbie, 2007: 183). Key informants of the current study were representatives of the core groups involved in the case of pelargonium sidoides. Specifically, participants included representatives from the Imingcangathelo Community Development Trust and community, the Masakhane Community Property Association, local harvesters the Provincial Department of Economic Development and Environmental Affairs (DEDEA), plant breeders (cultivators), scientists, local businessmen involved in natural resource trade, academics, legal representatives and non-governmental organisations. The study required a diversity of viewpoints in relation to the case of pelargonium sidoides to unpack and examine the various tensions at play in relation to the objectives of the study and the broader topic of access and control of biodiversity in the context of biopiracy.

Babbie (2007: 71) argues that ethics in social research are both significant to address but can also be ambiguous. The term ethical has been broadly defined as “conforming to the standards of conduct of a given profession or group” (Webster’s New World Dictionary cited

in Babbie, 2007: 62). There are several issues that need to be taken into account in relation to ethical research. These include full disclosure and transparency, informed consent, non-maleficence, voluntary participation, unobligated withdrawal, anonymity⁶ and confidentiality⁷ (Terre Blanche *et al.*, 2006; Babbie and Mouton, 1998). The study adhered to Rhodes University ethical guidelines which include the ones listed above. Language barriers were addressed with the aid of a fieldworker.

For a detailed discussion on the research methodology refer to Chapter Eight.

1.4. LIMITATIONS OF THE STUDY

The scope of the research proved advantageous however also restrictive. Due to the various themes of the research being so broad covering a number of pertinent issues in-depth and detailed accounts of these certain areas was not possible. Firstly, one of the sub-goals of the research was understand the traditional and contemporary land-use patterns, dynamics and natural resource management practices within the community. However, due to time, cost and the depth of historical research that had to be conducted addressing this goal was not feasible. Secondly, even though the Masakhane Community Property Association patent case has been extensively covered by the African Centre of Biosafety there is a need for more critical literature on the outcomes of the case and whether the resolutions of the case have been implemented. There is also a lack of literature on the case of the Masakhane Community Property Association in relation to their struggle for land. More inherently, through the review of literature even though cases of the appropriation of natural resources and indigenous knowledge of its utilisation have been covered internationally there remains a lack of research on resources expropriated from South Africa. The lack of literature is similar to other research conducted in the study area for instance, Msomi (2013: 7) places emphasis on the “limited availability” of literature.

During the data collection stage the language barrier was a problem even though the researcher understood some of what was being said ultimately the use of a translator was needed. Another limitation was that key informants preferred to send representatives instead of being personally interviewed, hindering the process of collecting in-depth information. It

⁶ Anonymity ensures that the intended reader of the research and the researcher is unable to link a response to a specific participant (Babbie, 2007: 64).

⁷ Confidentiality allows the research to disclose the participants but the researcher can choose not to do so (Babbie, 2007: 65).

was also difficult to gain access to vital information pertaining to the study such as the gazetted benefit-sharing agreements related to pelargonium sidoides trade. In relation to accessing the research area transport costs were also a limitation as the researcher at times did not have the sufficient funds to get to the research area.

1.5. THESIS OUTLINE

Chapter One

Introduction

This Chapter introduces the research topic. This includes a discussion on the context of the study including the conceptual framework, the objectives of the study and the research methodology. Furthermore, this Chapter gives a brief overview of the relevant Chapters of the thesis as outlined below.

Chapter Two

The Foundations of Resource Appropriation: Discourse, Power and Justice

This Chapter demonstrates how power dynamics manifest within knowledge production, the utilisation of biodiversity and the advent of the biopiracy-bioprospecting discourse. These thematic areas play a pivotal role in the hierarchical depiction of knowledge production and the advent of natural resource appropriation.

Chapter Three

The United Nations Convention on Biological Diversity

Chapter Three examines the international policy framework that governs biodiversity placing a critical focus on the Convention on Biological Diversity and its subsequent policy outcomes. This examination is significant in understanding the international regime on access and benefit-sharing - a central focus area of this research.

Chapter Four

International and National Cases of Biopiracy

With Chapter Two and Three laying the foundation, this Chapter illustrates how biopiracy manifests itself within various international and national contexts. Specifically, it provides an account of the Neem Tree in India, the Endod Berry in Ethiopia and in South Africa the San-Hoodia, Rooibos and Honeybush cases and a critical analysis of their outcomes.

Chapter Five

Environmental Governance in South Africa with specific emphasis on Bioprospecting Access and Benefit-Sharing

The crux of this Chapter is to highlight the expansive biodiversity policy formulation in South Africa since the advent of democracy in 1994. The first part examines the history of environmental governance. This is followed by a comprehensive discussion on post-apartheid environmental policy reform. Of significance here is the biodiversity legislation with emphasis on the regime of access and benefit-sharing in light of NEMBA's 2008 BABS Regulations, its objectives and implications. South Africa as signatory to the CBD is influenced by the international agenda on access and benefit-sharing.

Chapter Six

The Case of *Pelargonium Sidoides* in the Raymond Mhlaba Local Municipality

This Chapter introduces the case of *p.sidoides* in the Raymond Mhlaba Local Municipality. It demonstrates the dynamic interplay between industry, the state and rural elite in an attempt to centralise the trade on *p.sidoides*. Subsequently, giving rise to local community division, exploitation, marginalisation, concerns of unsustainable resource utilisation and government accountability. This section questions the development of an environmental narrative regarding the status of *p.sidoides* amid unsustainable harvesting practices.

Chapter Seven

The Conceptual Framework

This Chapter focuses on the theoretical frameworks that underpin this study. Adopting a two-pronged approach the conceptual framework firstly addresses Marx's Ecology informed by the interrelated concepts of the treadmill of production, accumulation by dispossession and ecological unequal exchange. These concepts provide a valuable understanding of the power dynamics, displacement and predatory nature inherent within capital accumulation, specifically the commodification of nature. Secondly, the Sustainable Rural Livelihoods Framework (SRLF) examines how livelihoods are fashioned in a holistic way in local communities, addressing issues such as access to resources and livelihood strategies. As a useful starting point this Chapter examines South Africa's political economy through the lens of the two-economies approach.

Chapter Eight

Research Methodology

This chapter gives a more in-depth account of the research methodology. It unpacks the qualitative method, ethics and techniques used to collect data for the study. It also describes the thematic analysis used to code and generate the required sequencing of the data presentation.

Chapter Nine

Data Presentation and Analysis

This Chapter presents the data analysis based on the fieldwork conducted. It illustrates the unsustainable patterns that have permeated the trade in p.sidoides. It addresses government reform in the sustainability, management and regulation of p.sidoides. Specifically, it locates these issues within the debate on access and control of biodiversity. Herein, impetus is placed on the centralisation of the p.sidoides trade at the expense of the resource itself, local livelihoods and the continued marginalisation and exclusion of key interested and affected stakeholders such as the Masakhane Communal Property Association.

Chapter Ten

Concluding Discussion

The concluding discussion provides a critical engagement of the prominent outcomes, contributions and future research within this field of inquiry. Herein, the main research objective and subsequent goals are restated as a foundation to unpacking the central arguments of the study. The conceptual framework is also discussed as central to locating the concerns of access and control within the political economy of the capitalist mode of production. As a result several recommendations are advanced.

CHAPTER 2

THE FOUNDATIONS OF RESOURCE APPROPRIATION: DISCOURSE, POWER AND JUSTICE

“Knowledge linked to power, not only assumes the authority of ‘the truth’ but has the ability to make it-self true. All knowledge, once applied in the real world, has effects, and in that sense at least, ‘becomes true.’ Knowledge once, used to regulate the conduct of others, entails constraint, regulation and the disciplining of practice. Thus, there is no power relation without the correlative construction of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations”

(Foucault, 1977: 27).

2.1. INTRODUCTION

The above quote by Foucault captures the central theme of the discussion within this chapter. This debate is founded on the unresolved contestation of power asymmetries between the north and south. The dynamics of power play a fundamental role in knowledge production and are predominantly prevalent within the regime of biopiracy⁸. Furthermore, scholarship has struggled to find resonance between western scientific knowledge and local indigenous knowledge. Through the articulate control of knowledge, the west has gained access to and legitimised not only the appropriation of the lucrative biodiversity of the south but also cultural and indigenous artefacts and knowledge thereof (Nakashima *et al.*, 2012: 31). The “crisis of narratives” (Lyotard, 1987) depicts this appropriation as the epitome of the suppression of indigenous knowledge whereby western science’s rigorous process of exclusion characterises indigenous knowledge as hierarchically inferior and in need of improvement (Dods, 2004: 548). Given this broad debate, this chapter demonstrates how these power dynamics manifest within knowledge production, the utilisation of biodiversity and the advent of biopiracy. The premise of this chapter is to acknowledge that even though the two knowledge systems have unique epistemological and ontological underpinnings, they need not necessarily be in contention with one another.

Given the above, the chapter addresses the long unresolved debate on the value of biodiversity and indigenous communities within the global politics of the environment. The first part of the chapter examines in-depth the politics of knowledge. The second part addresses the conception that biodiversity-rich developing countries are at the centre of the

⁸ Biopiracy means the unlawful appropriation and commercialisation of biodiversity and the indigenous knowledge associated with it (DeGeer, 2002: 179, Amankwah, 2007: 19). See Section 2.4 for a more detailed discussion.

global scramble by multinational corporations for the exploitation of their resources. This discussion is grounded on the controversial and irreconcilable bioprospecting and biopiracy discourse. Biopiracy has emerged as a combative concept that locates the appropriation of the natural resources of the south by the west (Hamilton, 2006: 159). Thus, a detailed discussion on the scholarship surrounding biopiracy will be presented. This last section argues that unless the people of the south are protected from the predatory practices of the west their resources will continue to be pillaged.

2.2. THE POLITICS OF KNOWLEDGE

2.2.1. Knowledge Systems: Science and the West

Any discussion relating to discourses of development is inevitably rooted within the dualistic paradigm of western and eastern⁹, northern and southern¹⁰ countries. Development is characterised by an exclusionary social hierarchy of unjust social relations and conceptualisations of dominance and inferiority (Weiss and Wallner, 2005: 48). It is within this context the politics of knowledge and resource appropriation find resonance. This has given rise to a perpetual separation between western science knowledge and indigenous knowledge (Roht-Arriaza, 1996: 926; Nakashima *et al.*, 2012: 30). However, it needs to be understood that these divisions are artificial as each system of knowledge arises out of specific social contexts and thus subjecting them to a hierarchy is highly dubious (Agrawal, 1995a: 425). The argument here is that science is one system of knowledge entrenched in a “diverse intellectual heritage” of knowledge systems (Nakashima, 2000: 2).

The discussion on the politics of knowledge rests on the notion of the “crisis of narratives” developed by Jean-Francois Lyotard (1984: 1). The “crisis of narratives” refers to the condition of knowledge within developed societies acknowledged as postmodern, and the way in which it has fundamentally altered ways of knowing. Western knowledge has become recognised universally as a “global knowledge” (Lyotard, 1984: 2). This questionable representation is due to the power dynamics prevalent within knowledge production. Briggs (2005: 16) suggests that the “crisis of narratives” has been maintained within academia to preserve the significance and superiority of western science. Here knowledge is seen as an “informational commodity essential to productive power” and will continuously play a

⁹ “western” refers to colonial or post-colonial industrial societies in their relation to indigenous, traditional, and local communities (Roht-Arriaza, 1996: 921).

¹⁰ “northern” and “southern” refer respectively to the industrialized but gene-poor countries, often called “developed”, and the gene-rich but non industrialized countries, often called “developing” (Roht-Arriaza, 1996: 921).

pivotal role in the dynamics of power (Lyotard, 1984: 5). Lyotard places emphasis on the prominence of science and technology, and the control of knowledge and information in today's society (Lyotard, 1984: viii). He examines the "totalising philosophical tradition" perpetuated through the universal progression of science. Science is presented as a structured legitimisation process (Briggs, 2005: 103) arising out of a "verificationist model" intrinsic to a "specialised community of scientists" (Shiva, 1998: 9) that already have presuppositions about their object of inquiry. Their methods are reductionist and fragmented due to fact that their experiments are considered void of contextual bounds (Agrawal, 1995a: 425). Thus, there is a need to contextualise science and essentially critic its discourse historically and politically (Lyotard, 1984: xii; Briggs, 2005: 16).

Science has been highly influenced by the positivist tradition both advancing the search for various versions of "truthful, valid, plausible or empirical knowledge" to describe certain phenomenon (Babbie and Mouton, 1998: 4). Positivism has arisen as the orthodox condition of scholarship where science is viewed as the highest standard of knowledge that any discipline should aim for (Montuschi, 2003: 1; Odora-Hoppers, 2002: 6). It is suggested within this perspective that all sciences (natural and social) should aim for the ideal of society as "founded on scientific principles...in both domains the aim is to establish universally valid, causal laws of human behaviour" (Babbie and Mouton, 1998: 22). Positivism is based on hypothesised scientific claims of observed evidence (Babbie and Mouton, 1998: 22). Thus, the positivist philosophy justified and legitimised science through arguably noting the superior nature of science in the progression of society and in comparison with other methods of studying phenomenon (Halfpenny, 1992: 114).

In light of the previous discussion, science is considered universal and objective always looking for rules and laws "that are valid under all possible conditions, in all possible worlds" (Weiss and Wallner, 2005: 47) and those who accept it reify its dominance (Warren, cited in Agrawal, 1995a: 417). Science has predominantly been adopted by western institutions where Anthropological studies have shown that emphasis is placed on western nations as more developed advancing the idea of a "formal identity between the savage mind and scientific thought" (Banerjee, 2003: 147-48; Agrawal, 1995a: 416). Since the indoctrination of science in the west its foundations has come to control the "intellectual landscape" manipulating ways of knowing (Selvadurai *et al.*, 2013: 97). This reductionist and mechanistic way of observing the world allows science to become "a gaze of surveillance" essentially claiming

control over the world (Visvanathan, 2002: 4). The continual representation of indigenous knowledge as inferior is “a function of a power play that is substantially sustained through patronising academism and dubious empathy” (Akpan, 2011: 116). Thus, science proves to be an exclusionary process, wherein “scientific objectivity is the epitome of estrangement...science began as an act of alienation” (Visvanathan, 2002: 40). In this context, western science and western knowledge will be used interchangeably.

The compulsion towards drawing the divide between the two knowledge systems has arguably developed from their epistemological and methodological foundations where scholarship still struggles to find the relationship between the two knowledge systems (Wenning, 2009: 3).

Table 1. Distinctions between Western and Indigenous Knowledge Systems.

Domain of Analysis	Indigenous Knowledge	Western Knowledge
Epistemology	Empathetic subjective observation	Objective, impartial observer
Philosophical Underpinnings	Interpretive, qualitative, concrete	Positivist, quantitative, abstract
Method of Acquisition/Inquiry	Passed down from generation to generation. Perceptual engagement and experience	Identification with science, isolated conditions of observation, based on validation and fallibility of narrative statements
Social Role of Knowledge	Constitutes the culture of a people, conservative, local, communal	Hegemonic control, exclusive, economically orientated, advocates power, progressive, universal,
Problem Solving Expertise	Collective, subjective	Individualistic, objective
Knowledge Organisation/Rationale	Holistic, interpretive, ritualistic, moral, cannot be separated from the natural and social environment, diachronic, qualitative, spiritual, contextually bound	Narrow, positivist/empirical, deductive, mechanistic, quantitative, reductionist, focus placed on the physical.
Method of Dissemination	Oral tradition	Written documentation and centralisation

(Adapted from Dods, 2004; Amankwah, 2007; Agrawal, 1995a)

Western science plays a key role in the colonial character of self-imposed supremacy over indigenous knowledge systems viewed as object (Nel, 2005: 6). The western knowledge system is detrimental in constructing the “colonial mentality of dominance and denial of indigenous knowledge systems” (Nel, 2005: 6). Nakashima *et al.* (2012: 31-32) argue that colonialism was not an attempt to comprehend other knowledge systems but rather to collect

information from them for the expansion of western science without acknowledging their “borrowed discoveries”. The “colonial mentality of dominance” denied traditional knowledge in light of Eurocentric¹¹, modern knowledge (Nel, 2005: 6; Battiste, 2005: 2; Ntsoane, 2005: 91). The quote given by Nakashima *et al.* (2012: 31) is the epitome of the entire discussion on how western science exists as an appropriation of other indigenous knowledge systems:

“Traditional knowledge is as ancient as humankind, and it is in traditional knowledge that the origins of science are rooted. In the seventeenth and eighteenth centuries, with European colonial expansion, the newly established scientific disciplines of ethnobotany and ethnozoology thrived on an influx of new knowledge from traditional knowledge holders across the globe. Their primary mission, however, was not to understand these other knowledge systems per se, but rather to glean from them information for the development of colonial science. Their efforts focused on compiling lists of ‘useful’ plants and animals unknown to European science. However, scientists during the colonial period did not limit their reliance on local experts to the simple identification of species of interest. They adopted from indigenous peoples entire classification schemes that order and interpret ecological systems according to an indigenous logic...” (Nakashima *et al.*, 2012: 31).

With regards to the above quote it is evident that biopiracy predates contemporary society. It is largely entrenched in the upsurge and dismantlement of African identities and knowledge through colonialism (Amankwah, 2007: 19). This complete disregard of indigenous contributions is a central characteristic of biopiracy. Conklins (1954) *The Relations of Hanunoo Culture to the Plant World*, argues that it is important to question the superior nature of scientific intellect as proposed by the west. As the indigenous way of conceptualising their environment is very intricate and detailed, however this knowledge become treated as a raw input to reify the dominance of science (Nakashima *et al.*, 2012: 32). The contextualisation of this inferiority depicts both the objectification of nature as well as the local inhabitants within Africa through the colonial gaze much like the scientific gaze (Roht-Arriaza, 1996: 926; Weiss and Wallner, 2005: 48).

For Juma (1989: 3) the scramble for African colonies was a strategy of economic expansion by western countries “to loot and dispossess the colonised” (Mgbeoji, 2005: 3). “Colonisation would have been meaningless without access to genetic resources” (Juma, 1989: 3), thus indigenous natural resources have been integral in the history of accumulation, dispossession and unequal access to resources. The experiences of indigenous cultures during colonialism

¹¹ “Eurocentrism refers to the idea that people, places and events of western European cultures are superior and a standard against which other cultures should be judged” (Lewis and Aikenhead, 2000: 3).

maintain that western interests took precedence in light of contestation with indigenous people (Amankwah, 2007: 180).

2.2.2. Indigenous Knowledge and its Significance

For the purposes of this research the terms traditional and indigenous will reflect the process of knowledge production, acquisition and use within communities and will therefore be used interchangeably (Nakashima, 2000: 2). At the risk of any contradictions it should be made clear that the researcher understands the negative connotations of these terms. However, these terms will be used interchangeably throughout. Indigenous knowledge (IK) can be used interchangeably with terms like, 'traditional knowledge,' 'folk knowledge,' 'local knowledge,' 'traditional environmental knowledge,' 'farmers knowledge' and 'indigenous science' (Nakashima *et al.*, 2012: 30). It encompasses the rationality of science, as well as a "community know-how, practices and technology, social organisation and institutions, spirituality, rituals, rites and worldview" (Nakashima *et al.*, 2012: 30). This knowledge is based on the holistic relation local communities have with their land (Nakashima *et al.*, 2012: 30). Furthermore, IK is considered the basis for decision making regarding social organisation and natural resource management (Agrawal, 1995a: 416). IK sustains "a broad spectrum of ways-of-life...these 'other systems' are the sophisticated sets of information, understandings and interpretations that guide human societies" (Nakashima, 2000: 2).

There exists no universally accepted definition of indigenous people; however it needs to be noted that they are not a homogenous entity - whilst there exists diversity amongst them, they identify with a history of subjugation (Nakashima *et al.*, 2012: 28). There are different derogatory terms used to acknowledge indigenous people namely native, aboriginal or tribal people, hill tribes, scheduled tribes, sea gypsies, Indians, bushmen, subalterns, First Nations/peoples or ethnic (Nakashima *et al.*, 2012: 29). Other offensive terms include savages, primitives or indigenes (Nakashima *et al.*, 2012: 29; Ross *et al.*, 2011: 22). Indigenous people inhabit a vast majority of the world and are representative of the diversity of cultures.

Nakashima *et al.* (2012: 27) argue that 22% of the world's land is inhabited by local communities and they are the holders of 80% of the world's biodiversity. Roht-Arriaza (1996: 928) argues that "Indigenous and local communities have long excelled at identifying and classifying the names, properties and uses of the biodiversity found on their lands, and

they have often known how to take better advantage of that biodiversity than western scientists”. Hence, Nakashima’s *et al.* (2012: 31) argument that it is evident that western taxonomic knowledge and practice were significantly transformed by their encounter with traditional systems of knowledge and meaning”. IK unfortunately has not managed to shed the negativity associated with “low prestige rural life”, as dubbed through the western rhetoric (Agrawal, 1995a: 416). Many scholars who theorise about IK argue for its potential in development placing focus on the local livelihoods of communities (Agrawal, 1995a: 416). The Indigenous Peoples’ Biodiversity Network suggests that IK and biodiversity are integral to cultural identity thus are inseparable forming the sustenance base of two-thirds of the world (Shiva, 2007: 307).

IK also recognises the gendered-nature of knowledge where in certain contexts there are women-to-men transfer of knowledge but also women-to-women transfer. Roht-Arriaza (1996: 932) argues that women are often involved in “seed selection, vegetative propagation and livestock management-all central to preserving and fomenting diversity”. Shiva (1988: xv) notes that “Indian women have been in the forefront of ecological struggles to conserve forests, land and water”. For example, the Chipko Movement which began in the 1970’s in the Himalayan Mountains involved local women in the fight against deforestation and ecological degradation in the area. The “tree hugging” initiative also played a role in protecting the livelihoods of the community (Chakraborty, 2012: 1). In Thailand there is a Female Fisher folk Network whose livelihoods are sustained by their natural resources. The Network is involved in the protection and conservation of their natural environment (Taguiwalo, 2009: 40). This involves the “right to manage marine and coastal resources as well as make plans to recover the fertility and richness of the natural resource” (Taguiwalo, 2009: 40).

Western logic argues that indigenous people and their knowledge are subject to spatial and temporal limitations embedded in unchanging traditions (Battiste, 2005: 1; Lyotard, 1984: xii; Weiss and Wallner, 2005: 76). However, local stewardship of the environment is innovative and continually adapts and builds on their ever-changing environmental conditions (Ross *et al.*, 2011: 25; Agrawal, 1995a: 425). Thus, “there can be no single, ‘traditional’ response to the physical and spiritual world that surrounds a particular group... It comprises a pastiche of transmitted knowledge and recent invention...” (Ross *et al.*, 2011: 25). It is the connotations of indigenous that make IK seem stagnant (Agrawal, 1995a: 425). Even though

indigenous is local, indigenous knowledge systems are of global interest, - it sustains livelihoods and “compliments existing knowledge systems and even competes to provide better alternatives” (Nel, 2005: 3). The argument pursued here is consistent with Loubser (2005: 8) who states that “all people originate from an indigenous culture, even that of sophisticated modern, global culture with its scientific tendencies”.

Shiva (1998: 1) corroborates this, “the dominant system is also a local system, with its social basis in a particular culture, class and gender. It is not universal in an epistemological sense. It is merely the globalised version of a very local and parochial tradition”. Emerging from a dominating and colonising culture, modern knowledge systems are themselves colonising (Shiva, 1998: 75). Within this context, the hierarchical depiction of these knowledge systems also falls away as both are contextually bound and the status of either scientific or IK depends on who advances the knowledge (Nakashima *et al.*, 2012: 32).

The Intergovernmental Panel on Climate Change (IPCC) has acknowledged IK “as an invaluable basis for developing adaptation and natural resource management strategies in response to environmental and other forms of change” (IPCC, 2007). In 2010, this acknowledgement was integrated as a guiding principle for the Cancun Adaptation Framework (CAF) established under the United Nations Framework Convention on Climate Change (UNFCCC) (Nakashima *et al.*, 2012: 6). Thus, it is argued that there is a need to shift away from the derogatory conceptualisation of IK to what IK can yield about the land as pivotal in formulating conservation strategies (Roht-Arriaza, 1996: 928; Agrawal, 1995a: 413).

2.2.3. Reaching a Consensus?

Given the discussion outlined above it is the contention here that the two knowledge systems can be reconciled for the betterment of society. This argument is evident in the emerging studies and debates about the value of IK as significant in conservation strategies and sustainable livelihoods.

Thus, emphasis is placed on the increasing re-evaluation of the potential benefits indigenous communities yield in both their cultural and biodiversity in an era of exploitation and pillage (Roht-Arriaza, 1996: 929). Roht-Arriaza (1996: 921-929) cautions, IK “remains unrecognized and unvalued until appropriated from those communities by western

corporations or institutions...thus the shaman is no longer a witchdoctor but a healer with knowledge worthy of a new respect from western science”. Similarly, Akpan (2011: 118) argues that IK that has been sourced from local communities has gained use value only in light of being improved by western global knowledge and incorporated into the agenda of industry.

The question is no longer about the usefulness of IK but how it becomes utilised, disseminated and understood within society. As IK remains repressed and exploited by dominant western knowledge. Akpan (2011: 124) elaborates:

“The entire value chain from the sourcing of this knowledge by researchers and academics, to its documentation and storage –is very much a throwback to colonial era resource mining and resource scramble. The prime beneficiary is not the community. Local knowledge remains within its ‘socially and historically constructed space’”.

The process of decolonisation then demands a power shift readdressing the relations of knowledge, power and human development through informed participation (Odora-Hoppers, 2002: 16-17). Essentially, this shift in power has to take on three levels “individuals and organisations in civil society, the scientific, especially the academic community and policy makers” (Odora-Hoppers, 2002: 17). Agrawal (1995a: 433) notes that, it seems more applicable to address numerous kinds of knowledge that embody different ways of knowing; the classification of the interests it serves, its purpose and how it is formulated. In conclusion, it needs to be understood that no system of knowledge can develop without the other - they are intricate systems of information that form the foundation of society, no society is complete without the interaction with another (Akpan, 2011: 121).

2.3. THE POLITICAL ECONOMY OF BIODIVERSITY

The power dynamics present in the production and politics of knowledge play a pivotal role in defining biodiversity as the dominant conceptualisation of biodiversity has been scientifically formulated void of its social significance. Biodiversity cannot be removed from its significance in the cultures of local communities and needs to be contextualised within its colonial history of exploitation (Roht-Arriaza, 1996: 921). The objective of this section is to historically and politically critique the conceptualisation of biodiversity contextualising its social implications in relation to local communities. Through discussing various definitions of biodiversity this section argues for a more holistic perspective to show the significance of

these resources within local stewardship and sustainability of local livelihoods.

The dominant definitions of biodiversity are reliant on scientific analogies as many prescribed definitions are advanced from a similar or generic formulation (Potvin *et al.*, 2002: 164; Vromans *et al.*, 2012: 1; Gaston and Spicer, 2004: 3). Generally, biodiversity is perceived as a collective of life forms “at all levels of biological organisation” (Gaston and Spicer, 2004: 3), “all aspects of variability evident within the living world” (Robbins, 2007: 118), “the diversity of all living things” (Vromans *et al.*, 2012: 1), “an array of existing living organisms and life supporting systems” (Ambrose *et al.*, 2000: 1), broadly as “a synonym of Life on Earth” (World Conservation Monitoring Centre, 1992: xiii) and as “the variety of life on Earth” (UNEP, 2010: 1).

However, Gaston and Spicer (2004: 9) argue that these definitions provide a “shorthand expression for what is a very complex phenomenon”. Gaston and Spicer (2004: 3) argue that the most “important and far reaching” definition is contained within the formal text of the UN Convention on Biological Diversity (CBD) (1992) explained as “the variability among living organisms from all sources, including, inter alia, terrestrial marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems”. This definition is considered unbiased and objective - it has taken on the generic formulation and the scientific perspective of conceptualising biodiversity (Gaston and Spicer, 2004: 3). However, the CBD itself is not an impartial document given its objectives it recognises the significance and value of biodiversity within spheres of conservation and beneficial appropriation (Gaston and Spicer, 2004: 4). The definition of biodiversity in the CBD lacks the input of local communities, is much more technical and generic lacking applicability and depth (Gaston and Spicer, 2004: 4).

In defining and conceptualising biodiversity there is a need to link environmental and social justice. Shiva (1998: 69) acknowledges that biodiversity has always been a “local common resource”, as indigenous knowledge has a long history of using biological resources specifically plants for common medicinal remedies for ailments. The value of biodiversity is rooted within it being a sustenance base on which ‘two-thirds of humanity’ depends for their daily needs. The Department of Environmental Affairs and Tourism (DEAT) (2005: 12) emphasises an intrinsic relation between local communities in South Africa and their

dependence on these resources for “jobs, food, shelter, medicines and spiritual well-being”. The idea of protecting biodiversity does not only stem from the fact that resources are limited and need to be used sustainably but that resources are needed to sustain the livelihoods of local communities and not enrich the elite alone (Cock, 2012: 1).

In line with these arguments Shiva (2007: 307) defines biodiversity as a “practical natural resource”. Shiva (1998: 120) argues that “for local communities, conserving biodiversity means conserving their rights to their resources, knowledge and production systems. For commercial interests...biodiversity itself has no value, it is merely raw material”, ultimately transformed into a commodity. For commercial interests (including industry) it is about capital accumulation whereas for local communities it is about sustaining their livelihoods (Robbins, 2007: 119). However, biodiversity also has intrinsic value, free from the value man places on it and manifests itself within many cultures with socio-ecological significance (Gaston and Spicer, 2004: 104; CBD, 1992; Robbins, 2007: 118; Shiva *et al.*, 1991: 43).

In the South African context, the political nature of biodiversity is historically embedded within environmental governance preconditioned as a “white-middle-class” issue where the environment has been politically constructed and used as a tool of dispossessing and alienating local communities (Butler and Hallows, 2002: 4; Hallows, 2011: 1). Degradation narratives¹² provide the generalised idea that the African population are incapable of maintaining their environment resulting in severe restrictions with regards to land-use. Conservation strategies that were promoted during this time advocated for the removal of African people from their land and the “extinction of African use-rights to the resources” (Maddox, 2003: 253).

2.4. THE BIOPIRACY-BIOPROSPECTING DISCOURSE

2.4.1. Bioprospecting: A Win-Win Discourse?

Historically, hunter-gatherer societies collected biodiversity for numerous reasons, most specifically, for their medicinal properties. These early societies formulated the foundations for the preferred practices of biodiversity appropriation in comparison to the objectification and commodification of nature we see in today’s society (Juma, 1989: 37-38). Records of seed and plant collection and documentation have been closely linked with the state rather

¹² Degradation narratives emerged as a justification for industrial pillaging of biodiversity. These narratives explain how power is legitimised in the society-environment debate through the marginalisation and prejudice against impoverished rural livelihoods (Hajdu, 2009:134; Maddox, 2003:253).

than individuals as plant collection expeditions supported by the state received more recognition (Juma, 1989: 37). Early expeditions “had economic motives and focused on a particular plant” (Juma, 1989: 38). From the onset of plant collection it was already an exclusionary process linked to authoritative power, economic and political development (Juma, 1989: 38). Biodiversity only gained “real economic significance” through colonial trade whilst building the European empire leading to widespread and brutal dispossession and subjugation of local populations (Merson, 2000: 285; Seini, 2003: 50).

One of the outcomes of this rampant harvesting of biodiversity in developing countries was the establishment of ex-situ collections and specialist disciplines such as ethnobotany and ethnozoology. These represent forms of early bioprospecting which later culminated in the multibillion-dollar pharmaceutical and biotechnology industries we see today. This forms the foundational basis of resource appropriation without beneficiation and acknowledgement of the original holders of IK. This is where the argument by Nakashima *et al.* (2012: 31) gains salience:

“Throughout the colonial period western scientific understandings expanded through the appropriation of traditional ecological knowledge, with little acknowledgment of the intellectual origins of their borrowed discoveries”.

The term bioprospecting arose as a response to the polarisation between the interests of corporate capital and local communities from which biodiversity is sourced and indigenous knowledge collectively developed (Shiva, 2001: 307). More pertinently, it was a response to the intellectual property law governing exclusive ownership of biological resources. The term bioprospecting was first advanced by Reid *et al.* (1993) in the book *Bioprospecting: Using Genetic Resources for Sustainable Development*. Reid *et al.* (1993: 1) describes the process of bioprospecting very narrowly as “the exploration of biodiversity for commercially valuable genetic and biochemical resources”.

A more expansive definition is provided under South African biodiversity law as governed by the National Environmental Management Biodiversity Act (NEMBA) No. 10 of 2004 conceptualising bioprospecting as “any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation”. The African Centre for Biosafety (2009: 6) notes that the NEMBA definition “extends to any traditional knowledge or use of traditional knowledge that is researched, modified or used for

commercial or industrial exploitation”. In this regard bioprospecting is argued to contribute to nature conservation as well as seek remunerations for the original stewards of the genetic resources (Svarstad, 2002: 72). Advocated as a win-win discourse, bioprospecting is positioned as providing opportunities for community development, biodiversity conservation, providing new medicines and industry growth subject to technological development in source countries (Svarstad, 2002: 72). Driven by corporate capital, biotechnology¹³ and research institutions bioprospecting is constructed as a core component of economic development (Hayden, 2003: 361).

Research evidence and scholarly literature based on the lived experiences of local communities has emerged questioning the win-win narrative on bioprospecting. According to Shiva (2007: 309) and Shiva (1998: 75) bioprospecting arises from the commercial value placed on biodiversity suggesting that before bioprospecting resources “lie buried unknown, unused and without value” thus are open to “access, collect and exploit” (Hamilton, 2006:159). However, local communities remain largely marginalised as unequal stakeholders of the entire bioprospecting process. This legitimises natural resource appropriation whilst systematically displacing and alienating local communities for capital accumulation, including concomitant widespread environmental degradation (Seini, 2003: 38). Within local communities bioprospecting “is seen as an expropriation of their collective and cumulative innovation which they have utilised, protected and conserved since time immemorial” (Shiva, 2001: 307).

Hamilton (2006: 164) refers to bioprospecting as an old form of appropriation but that is only conditioned with the obligation to share benefits. In modern society it is characterised by the fight for indigenous people’s rights, industrial responsibility and the ethics of scientific research (Hayden, cited in Hamilton, 2006: 164). For Shiva (1998: 75) bioprospecting is increasingly used to describe a “new form of enclosure” wherein natural resources and knowledge of its use are collected from biologically-rich southern countries (DeGeer, 2002: 180; Hamilton, 2006: 159). Shiva (2007: 307) and DeGeer (2002: 182) argue that bioprospecting is an inappropriate term and practice. Herein, bioprospecting is a euphemism that depicts a “sophisticated form of biopiracy” (Shiva, 2007: 308). It is a new form of colonialism that seeks to establish dominion within the interior realm of plants and in the

¹³ Biotechnology in the CBD has been described as “any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use” (CBD, 1992: 3).

minds of the indigenous peoples” (DeGeer, 2002: 180). Warner (2006: 670-71) argues that only when indigenous people, their culture and knowledge are acknowledged “fundamental contributions to resolving local social justice concerns will we be engaged in anything we can genuinely call a dialogue”.

2.4.2. Biopiracy: A Global Justice Perspective

Biopiracy is a recent concept introduced in the 1990s. Biopiracy has no accepted legal meaning (Lemeire, 2012/13: 7). The term biopiracy was coined by Pat Mooney, the director of Erosion, Technology and Concentration group (ETC) formerly known as the Rural Advancement Foundation International (RAFI). RAFI was established as a non-governmental organisation in Canada founded on the basis of “the conservation and sustainable use of agricultural biodiversity and concerned about the impact of intellectual property rights on agriculture, food security and rural communities” (RAFI, 1997: i). Furthermore, the development of the term biopiracy can be accredited to the seed wars that occurred during the 1970’s (Hamilton, 2006: 161). The seed wars involved the international debate on the ownership and control of genetic resources and the hindrance of free trade amongst farmers by the intellectual property regime (Hamilton, 2006: 161).

RAFI coined the term as a response to the positive presentation of bioprospecting in the book by Reid *et al.* (1993) (Svarstad, 2002: 72). In response to Reid *et al.* (1993) Pat Mooney (cited in Robinson, 2010: 77) acknowledges that “...there is no bioprospecting. There is only biopiracy”. Biopiracy was, thus, developed as a counter argument by developing countries deeming developed countries “intellectual pirates” or “biopirates” the people who use intellectual property rights¹⁴ to gain private proprietorship and control over the natural resources and indigenous knowledge of these local communities (Mgbeoji, 2005: 1; Svarstad, 2002: 73; RAFI, 1997: 5). It indicates an action with adverse associations of ‘plundering’ of the local communities within the Third World societies (Svarstad, 2002: 72).

The biopiracy discourse is embedded within issues of social and environmental justice (Shiva, 2010: 233). Hence, activists within this discourse place emphasis on the notion of rights and equity for local communities as they do not think that bioprospecting will yield the significant benefits owed to local communities (Svarstad, 2002: 74). Consistent with Shiva’s

¹⁴ For a detailed discussion on intellectual property refer to Chapter Three Section 3.5.2. *The Scope of Intellectual Property Rights: Patents*

(2001: 62) argument biopiracy should be understood as multidimensional, characterised by the innate negation and dispossession of local and indigenous groups from their cultural and natural heritage through the intellectual property regime. The discussion on biopiracy is further explored below under the sub-heading ‘Biopiracy Scholarship’.

Table 2. Various International Cases of Biopiracy¹⁵

ORIGIN	RESOURCE	APPROPRIATED BY	USE
Madagascar	Rosy Periwinkle	Eli Lilly	Drug treatment for Cancer and Hodgkin’s’
India	Neem Tree	W.R Grace	Insecticide
Africa	Katempfe and Serendipity Berries	Sugar Trade traced back to slavery	Calorie free natural sweeteners
Ethiopia	Endod Berry	University of Toledo	Fish intoxicant and laundry soap
South Africa	Hoodia	South African Council for Scientific and Industrial Research (CSIR), Phytopharm, Pfizer and Unilever	Appetite and thirst suppressant
South Africa	Rooibos and Honeybush	Burke International, Compagnie de Trucy, Forever Young, Nestlè.	Anti-inflammatory properties, allergies, stomach ailments

(Roht-Arriaza, 1996: 922; Ostergard *et al.*, 2001: 651; Wynberg *et al.*, 2009: 95; Amusan, 2014a: 70; Bavikatte *et al.*, 2010: 1)

2.4.2.1 Biopiracy Scholarship

The scholarship on biopiracy is diverse. There are the leading advocates - scholars and activists including Pat Mooney, Vandana Shiva, Ikechi Mgbeoji, Alejandro Argumendo and organisations such as the African Centre for Biosafety, RAFI and GRAIN. At the core of the advocates of biopiracy is the intellectual property regime. However, there are also those who advocate its non-existence and those who remain neutral or provide alternative perspectives (Argumendo and Pimbert, 2006: 2). These various perspectives will be addressed in this section.

2.4.2.1.1. Pro-Biopiracy Arguments

One of the most well-known advocates on issues of biopiracy in contemporary society is **Vandana Shiva**. Shiva’s work critiques issues of social rights and justice in relation to

¹⁵ For a more detailed discussion on comparative case studies of biopiracy both international and national refer to Chapter Four.

capitalism, neoliberalism, globalisation and intellectual property law. Central to her argument is the exploitation of developing countries by the west. These sentiments are echoed in Shiva's (2000), *Stolen Harvest: The Hijacking of the Global Food Supply*. Whilst not necessarily concerned with biopiracy the text links the international trade regime and the exploitation that developing countries face within the age of globalisation. In this regard, she argues that the transformation of "nature into a resource goes hand in hand with alienating the ancient rights of people to nature as a source of sustenance" (Shiva, 2010: 236). In relation to biopiracy Shiva has published various books and articles amongst them: *Biopiracy: The Plunder of Nature and Knowledge* (1998) and *Protect or Plunder: Understanding Intellectual Property Rights* (2001). Herein, capital undermines the sustainability of natural resources and its regeneration capacity (Shiva, 1998: 16).

Shiva characterises biopiracy as "an organised system of exploitation dominated by the west", (Shiva, 1998: 16) as 'double theft' (Shiva, 2001: 61) firstly on the basis of intellectual creativity and secondly through patents on "stolen knowledge". Within this context Shiva (2001: 62) acknowledges three forms of piracy namely, resource piracy of plants and animals, intellectual and cultural piracy, and economic piracy through negating local economies based on self-reliance and free exchange (Shiva, 2001: 91). She places emphasis on the need for countries to implement sovereign patent systems, making an example of the Indian patent system which has excluded patents on medicine and food in order to prevent exploitation (Shiva, 2001: 88).

Shiva (2001) in *Protect or Plunder: Understanding Intellectual Property Rights*, argues that "through intellectual property rights and patents, the minds and bodies of indigenous people are being pirated; life itself is being colonized". Shiva (1998: 15) argues that contemporary systems of intellectual property are designed to emit a monoculture through a universalistic mode of knowledge where other diverse ways of knowing and invention are becoming dismantled and "the mind becomes a corporate monopoly" (Shiva, 1998: 15). The capacity for human innovation is thought dormant and only inspired by protection for profit. She argues that the prevailing intellectual property regime is driving the "enclosure of the intellectual commons" essentially by the private harvesting of public knowledge and weakening of local knowledge (Shiva, 1998: 22). In this regard it is important to note that the rights of indigenous people are undermined by the commodification of nature through private property laws and the literal deprivation of the former (Shiva, 2010: 234).

Similarly, **The African Centre for Biosafety (ACB)** is a non-government organisation (NGO) based in South Africa. The ACB advocates for the fight against biopiracy through the industrial appropriation of biodiversity and knowledge of its use. In their 2009 paper, *Pirating African Heritage: The Pillaging Continues*, the ACB reiterates that biopiracy is theft. Like Shiva (2001: 49) the ACB argues that “a biopiracy patent denies the innovation embodied in indigenous knowledge...the patent claims are not only economically unjust but are a moral affront to the many generations of Africans who have cared for and created the continent’s rich genetic and cultural diversity” (ACB, 2009: 5). Through the examination of specific case studies the ACB concludes that biopiracy remains an impediment in Africa (ACB, 2009: 17).

Mgbeoji (2006) *Global Biopiracy: Plants, Patents and Indigenous Knowledge*, contextualises biopiracy in the globalisation of the patent system, by placing emphasis on the fact that “European legal concepts” have influenced globalisation and “emerging norms on legal control of knowledge” (Mgbeoji, 2006: 1). Mgbeoji (2006) makes a similar argument to Shiva (2007) contextualising biopiracy within the regulatory frameworks, socio-economic complexities and political climate. Both focus on the intellectual significance of communities and farmers, the dispossession of southern countries by northern and the international regime on intellectual property. Mgbeoji (2005: 9-10) provides a rich description of the socio-political context of biopiracy in which western ideology has dispossessed local communities and their knowledge. Mgbeoji (2006: 3) maps out the Eurocentric character of the patent system, whilst also examining the “westernizing” of the Third World arguing that biopiracy is operated in three ways, socio-culturally, institutionally and legally. Mgbeoji (2006: 2) argues that essentially the patent system fosters national and international advances, stating that “it serves the instrumentalist goals of states, especially powerful multinational corporations capable of influencing and using the machinery of their parent state to influence the domestic patent regimes of other states”.

A review by Genetic Resources International (GRAIN)¹⁶ (2007: 1) notes that Mgbeoji argues that the aim of the west is not just to take resources from the south but more significantly to “build their own stores of genetic material so that they can usurp the developing world’s position as the genetic centres of the world”. Mgbeoji (2006: 6) argues that the first

¹⁶ Genetic Resources International (GRAIN) is a “small non-profit organisation that works to support small-scale farmers”. (GRAIN, 2017). They started off as a predominantly European – based ‘information and lobbying group’ but has shifted to become more orientated in providing support for social movements with the majority of their projects conducted in Africa, Asia and Latin America (GRAIN, 2017).

instrument of biopiracy is based on the establishment of the International Agricultural Research Centres (IARCs) which enabled the appropriation of biodiversity from the Third World to industrialised nations. Herein, Roht-Arriaza (1996: 944) notes that sixteen IARCs “collect wild crop germplasm, including varieties of wheat, corn, rice, potatoes, millet, sorghum, barely and livestock”. In this regard, northern countries largely benefit from natural resources systematically removed from resource-rich southern countries (Roht-Arriaza, 1996: 944). Mgbeoji (2006: 8) argues that biopiracy is characterised by the ‘intentional theft’ of biodiversity and knowledge of its use.

Smallwood (2011) examines biopiracy in the context of the natural product market. Her aim was to “discover how the exporters choose to understand the question of biopiracy, how their business may be affected, and how they understand and utilize the term biopiracy” (Smallwood, 2011: 2). Much like Shiva (2001: 61) Smallwood acknowledges different levels of biopiracy specifically, resource piracy, intellectual and cultural piracy, and economic piracy. Smallwood argues that biopiracy is subjective thus its meaning becomes associated with various consequences and connotations. Smallwood (2011: 1) notes that it is vital to understand biopiracy in the context of the intellectual property regime which embodies the notion of ownership and control of biodiversity and knowledge of its use. Herein she notes that “biopiracy has its roots in intellectual property, the convention for individual ownership of the plant resource or the traditional knowledge of that resource” (Smallwood, 2011: 1). She argues that through understanding the historical context of the intellectual property regime as well as its contemporary function biopiracy becomes a more concrete concept (Smallwood, 2011: 1).

2.4.2.1.2 Critics of the Biopiracy Narrative

Svarstad (2002: 79) in *Analysing Conservation – Development Discourses: The Story of a Biopiracy Narrative* conceptualises biopiracy as a counter narrative in response to the win-win discourse advanced by bioprospecting. He argues that the bioprospecting narrative has been reified through formal academic scholarship and although biopiracy is also documented in this manner it is most often “disseminated in the NGO newsletter and on electronic list servers. Thus, the biopiracy narrative tends to get the broadcast and most effective dissemination” (Svarstad, 2002: 79). He characterises the biopiracy narrative as a sensationalist or ‘populist discourse’ depicting an “antagonistic relationship between villains and victims” thus providing a conflict necessary for a good story (Svarstad, 2002: 82). For

instance the INBio/Merck agreement has been advocated as a win-win agreement however it was argued that the benefits Costa Rica received were insufficient and no compensation was paid to the local community (Svarstad, 2002: 79). Nygren (1998: 207) however, argues in favour of the biopiracy narrative noting that the INBio/Merck case resulted in Merck receiving exclusive ownership rights and Costa Rica being limited in their use of monetary benefits and the local community receiving nothing. Moreover, Nygren (1998: 208) notes that “the matter has been presented as if Costa Rican biodiversity and US biotechnology were two naturally reciprocal matters, where the southern ecosystems serve as an irreplaceable resource for northern biotechnology”, leaving their resources free for exploitation.

Bastuck’s (2006) law study, *Biopiracy and Patents- Developing Countries’ Fears are Exaggerated*, refutes the notion of biopiracy. He examines biopiracy in relation to the regime of intellectual property. Bastuck (2006: 1) argues that biopiracy has been used as an accusatory word, more significantly, a slogan for developing countries. Through examining the various aspects of intellectual property he notes that there are two forms of patents. Instead of stating that it is biopiracy Bastuck refers to “bad patents” which are premised on the lack of fulfilling patent requirements. These overlook the provisions of prior informed consent and benefits due to the community (Bastuck, 2006: 11). Bastuck (2006: 2) notes that these narratives of biopiracy are an organised affair in which developing countries have tried to gain a share in the billion dollar industry. For Bastuck (2006: 56) patents do not affect local livelihoods. In closing Bastuck argues that biopiracy is just an age old debate of unequal opportunities and contestation of trade between developed and developing countries (Bastuck, 2006: 59).

Alternative literature suggests that biopiracy is non-existent. Herein, critics of biopiracy such as **Chen** (cited in Hamilton, 2006: 160) suggest that these understandings are merely ‘alarmist exaggerations’ or ‘a misguided reading’ of the Intellectual Property Regime. Chen (2006) in, *There’s no such thing as Biopiracy...and it’s a Good thing Too*, acknowledges that “most allegations of biopiracy are so riddled with inconsistencies and outright lies that the entire genre, pending further clarification, must be consigned to the realm of “rural legend”. Herein, biopiracy is described as an ‘accusatory word’ which has been interchangeably used with phrases such as “biological colonialism”, “genetic imperialism”, as well as “plunder” (Chen, 2006: 4). Through the dissemination of the ‘rhetorical power’ that biopiracy holds in the post-colonial era Chen (2006: 5) notes that the west has been subjugated to the ‘political

grievances' of the south that has been embedded within the polarity of the north/ south divide. According to Chen (2006: 26) "the real point of the biopiracy narrative is that the global south wants its largest possible share of the world's wealth. As matters stand, it is quite simple: The north is rich, and the south is not". Furthermore, Chen (2006: 3) argues that the biopiracy narrative has become so recurrent and acquainted that it "follows a predictable script". The main contention that the south holds in this regard is the 'mandate to give back' to the original holders of the natural resources and the indigenous knowledge that accompanies it (Chen, 2006: 26; Hamilton, 2006: 164). Chen (2006: 7) argues that "biopiracy narratives often fail to identify where episodes of alleged theft take place". It is evident from this discussion that Chen's argument is completely dismissive of the pro-biopiracy narrative. A more neutral view on the issue of biopiracy is presented by Graham Dutfield (2006: 6). In Dutfield (2006: 6) *Protecting Traditional Knowledge: Pathways to the Future*, it is noted that intellectual piracy or biopiracy is a term that has been advanced within a political context wherein the Convention on Biological Diversity was developed to prevent biopiracy. Dutfield (2006: 6) argues that biopiracy is an innate feature of the industrial appropriation of resources from the Third World. However, on the question of the conceptualisation and definition of biopiracy Dutfield (2006: 6) notes that biopiracy is a vague concept and "the lack of clarity is becoming counterproductive...the problem with the "biopiracy" rhetoric and the "strategic vagueness" behind its usage is that if you cannot agree on what it is, you cannot measure it". Effectively, it is not clear how much biopiracy there is. As a result, Dutfield (2006: 9) argues that:

"if unauthorised access, use, ownership claiming and commercialisation of TK conflicts with the customary laws of the source communities, then biopiracy is occurring as far as those communities are concerned whether or not "biopiracy" is the word the communities themselves would use to describe such acts. And if genetic resources are being accessed, used, "owned" and commercialised in ways that conflict with international law, particularly the CBD, and the laws of provider countries, then we should be able to accept that this is biopiracy too".

Christian (2007) *From Biopiracy to Bioprospecting: An Historical Sociology of the Search for Biological Resources* addresses the evolution of biopiracy arguing that the Convention on Biological Diversity is a Convention against Biopiracy (CAB) (Christian, 2007: 33). He argues that the Convention itself is a contradictory policy "condoning what it condemns" (Christian, 2007: 33). Furthermore, even though the Convention was designed for the benefit of the international community it fails to be fair and equitable amounting to piracy (Christian,

2007: 10-38). Herein, biopiracy discourse should be understood as the shift to globalisation and the technical and managerial aspects of biodiversity regulation (Christian, 2007: 10).

2.5. CONCLUSION

In conclusion three main arguments have been posited within this chapter. Firstly, the chapter addressed the politics of knowledge and contextualised the debate in its historical, philosophical and epistemological foundations wherein justifications have been given for the superiority of western science over indigenous knowledge that has been perpetuated in post-colonial society. However, there has been a reappraisal of indigenous knowledge advocating for a process of decolonialisation and a renewed interest of the significance of indigenous knowledge in biodiversity conservation. The second section addressed the concept of biodiversity and its significance in sustaining local livelihoods. Herein, the conception of biodiversity-rich developing countries was expanded upon and explored as being at the centre of the global resource-scrabble by multinational corporations.

This discussion is grounded on the controversial and irreconcilable bioprospecting and biopiracy discourse. The former is rooted in the market paradigm. A core feature of the understandings of biopiracy is an exclusive and illegal activity to gain control and ownership of resources and traditional knowledge. More significantly, the affected communities do not receive any benefits further complicating legal prescripts of misappropriation. In essence, biopiracy remains central to the further impoverishment and alienation of local communities through the commodification of biological resources and indigenous knowledge. The local community becomes displaced from interacting with the natural resources as they once did. These biological resources form an innate part of the foundation of local livelihoods, yet have been refashioned into western knowledge systems (Amankwah, 2007; Arewa, 2006).

CHAPTER 3

THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

3.1 INTRODUCTION

The discussion in Chapter Two highlighted the long unresolved debate on the value of biodiversity and indigenous communities within the global politics of the environment. The reoccurring theme throughout this Chapter is the power dynamics which ultimately manifest themselves in the appropriation of natural resources and local knowledge, dubbed by environmentalist activists as biopiracy. Given this background and overview, Chapter Three examines the international policy framework that governs biodiversity in the form of the Convention on Biological Diversity (CBD), the Bonn Guidelines and Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (NP). More importantly, access and benefit-sharing (ABS) remains a pivotal objective to establishing fair and equitable trade relations of biodiversity between developed and developing countries.

The 1992 United Nations Conference on Environment and Development (UNCED) conference is presented as a watershed moment for biodiversity, its conservation and utilisation. Its actual performance record is questioned and remains controversial. Crucial in this discussion is the acknowledgement and recognition that the CBD proves to be a weak and insufficient instrument in the context of the international trade regime as is evident in the institutionalisation of the agreement on Trade Related Aspects of Intellectual Property (TRIPS). Essentially, the TRIPS agreement systematically dismantles and undermines the objectives set out in the CBD. It is clear that within the international trade regime the commodification of natural resources continues unabated whilst resource-rich developing countries continue to be marginalised as they remain at the periphery excluded from decision-making processes that foster a skewed trend in capital accumulation. Until ABS allows for active participation of developing countries as equal partners, indigenous communities will remain vulnerable and subjugated. The first part of this Chapter provides a general overview of Global Environmental Governance (GEG) as a crucial context for fostering the goals of environmental protection, particularly biodiversity conservation and its utilisation. This is a

foundational context for the CBD/TRIPS discussion, which is the central theme for this Chapter.

3.2. GLOBAL ENVIRONMENTAL GOVERNANCE

3.2.1 An Overview of Global Environmental Governance

It is important to understand the significance of biodiversity conservation within its historical socio-political context. Herein, the rise in environmental consciousness and political action from the 1960's was embedded within the concern over the degradation of the environment addressed through the organisation of a multilateral system of environmental regulation referred to as Global Environmental Governance (GEG) (Najam *et al.*, 2006: 17; Stoddart *et al.*, 2011: 6). GEG is an umbrella concept used to define the process and evolution of environmental reform, it is considered a crucial steering activity – understood “as the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environmental protection” (Najam *et al.*, 2006: 1). The GEG discourse spans over a four-decade period and is continuously evolving. Critical landmarks that have emerged from this discourse include sustainable development, the green economy approach and sustainable development goals. The United Nations Conference on the Human Environment in 1972 marks a seminal moment in introducing the official discourse of GEG.

The notion of sustainable development remains one of the key landmarks of GEG. The concept initially defined in 1987, when the Brundtland Commission¹⁷ produced the *Our Common Future Report*. The report played a central role in placing sustainable development in the “global environment lexicon” gaining political significance as a new strategy for growth (Drexhage and Murphy, 2010: 2; Elliott, 1998: 16; Morrow, 2012: 281). Banerjee (2003: 150-151) argues that it was central in the reorientation of the development agenda specifically in relation to the environment. Hence, the Commission states that:

“Our report, Our Common Future, is not a prediction of ever increasing environmental decay, poverty, and hardship in an ever more polluted world among ever decreasing resources. We see instead the possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base. And we believe such growth to be absolutely essential to relieve the great poverty that is deepening in much of the developing world” (WCED, 1987: 11).

¹⁷ Officially known as the World Commission on Environment and Development (WCED).

Sustainable development was marked as a “revolutionary principle” and a “visionary development paradigm” altering the way in which society interacted with the environment (Morrow, 2012: 281; Drexhage and Murphy, 2010: 2). Ultimately, it was advanced to bridge the gap between northern and southern countries (Morrow, 2012: 281; Drexhage and Murphy, 2010: 2). In this context, the WCED (1987: 1) defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. It is further informed by three pillars: economic development, environmental protection and social equality – as informed by the principles of economic growth, providing employment and access to resources, controlling population growth, conserving the environment as a resource base, using technology to mitigate threats and reconciling the environment and economies in the political realm (WCED, 1987: 49).

Three central arguments inform the critic of sustainable development. Firstly, it is argued that in alignment with the three pillars of sustainable development – the concept places emphasis on the economic and conflates the other two, whilst subsuming them into the economic agenda (Shiva, 2010: 240). As a result there is a complete disregard of the environment (Hart, 1997: 67; Sachs, 1994: 9; Cock, 2011: 48; Shiva *et al.*, 1991: 153). It is worth considering the argument by Morrow (2012: 281) that “the Brundtland model of sustainable development conveniently ignores the fact that the environment does not in fact, nor should it in theory, enjoy co-equal status with social and economic concerns; rather it represents the foundation upon which they must rest”. Secondly, a paradox arises wherein sustainable development advances the ideal of continued economic expansion whilst exploiting the resource base on which it depends – offering itself as the solution to the environmental crisis when it is the problem (Morrow, 2012: 281; Cock, 2011: 47). More specifically, sustainable development embodies the colonial impediment of the hegemonic position of the developed world in relation to governance, resources and trade (Sachs, 1994: 8; Drexhage and Murphy, 2010: 13; Morrow, 2012: 282).

This critique of sustainable development lays the foundation in addressing one of the outcomes of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, specifically the UN Convention on Biological Diversity (CBD). In line with the economic growth narrative the UNCED was seminal in cementing sustainable development in the development agenda of growth and trade (Sachs *et al.*, 2002: 13).

3.3 THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

3.3.1. A General Overview

This section addresses the objectives and principles of the Convention on Biological Diversity (CBD). The sections that follow contextualises the Convention on Biological Diversity (CBD) within the history of biodiversity utilisation examining various terminologies playing a pivotal role in conceptualising and implementing conservation efforts, acknowledging indigenous people's rights and the inefficiency of the CBD in addressing these. The CBD similar to the sustainable development agenda has been advanced as a market-based instrument (Escobar, 1998: 58). It is significant to note that the CBD is an evolving policy framework, regulated through various protocols and non-binding agreements constituting of 168 signatories (UNCTAD, 2014: 8-9). Entering into force in 1993 the CBD is recognised as the world's first legal instrument and treaty on biodiversity, its conservation and the recognition of indigenous communities (CBD, 1992; Amankwah, 2007: 23). These themes are reflected in the introductory articles of the CBD.

Firstly, the Preamble places emphasis on the “intrinsic value of biological diversity¹⁸” across social, economic, and ecological spheres (CBD, 1992: 1). Article 2 of the CBD defines biological diversity as including “the variability among living organisms from all sources, including, inter alia, terrestrial marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems” (CBD, 1992: 1-2). Secondly, the principle objectives of the CBD (1992: 3) aims for the conservation of biological diversity; sustainable use of its components and fair and equitable sharing of the benefits resulting from the commercial use of genetic resources. Lastly, on a national level Article 3 of the CBD (1992) emphasizes the sovereignty of states over their resources. It is in this regard that Mgbeoji (2006: 821) and Roht-Arriaza (1996: 942) pose the question of whether national sovereignty takes precedence over global issues. Koutouki and von Bieberstein (2012: 20) argue that, “giving all control over natural resources to the State severs the all-important connection between the community and biodiversity. This results in a lack of control for indigenous peoples over the ecosystems that they have developed and maintained since time immemorial”.

¹⁸ See Chapter Two Section 2.3 for a detailed discussion on the definitions of biological diversity.

The CBD also advocates for the establishment of a Conference of the Parties¹⁹ (COP) and has established the subsidiary body on scientific, technical and technological advice (SBSTTA) (Elliott, 1998: 78; Jeffery, 2002: 760, ten Kate and Laird, 2000: 13-33). The CBD implements a Clearing House Mechanism that obliges parties to share information in relation to scientific and technological advancement and a financial mechanism that aids funding through multiple organisations to aid the implementation of the CBD in developing countries governed by the Global Environmental Facility²⁰ (Jeffery, 2002: 760; ten Kate and Laird, 2000: 13-33; Elliott, 1998: 78). Overseeing all these mechanisms of implementation is the Secretariat of the CBD, it is a focal point under which all meetings in relation to the CBD are conducted (Secretariat of the CBD, 2005: xxvii).

3.3.2. The Transition from Common Heritage to Common Concern

The significance of this discussion is that it addresses some of the core debates prior to the institutionalisation of the CBD. At the core of this discussion is the north-south divide, where the appropriation of biodiversity is rooted within the dominance of northern science and subordination of developing countries (Mgbeoji, 2006: 823).

Prior to the institutionalisation of the CBD, there was no global regulation of biodiversity within the market (Richerzagen, 2011: 2245; Merson, 2000: 284). In this context, resources were considered as freely available where the stewards of these resources were not granted benefits (Merson, 2000: 284; Richerzagen, 2011: 2245). Indigenous knowledge as a resource was also denied validity and intellectual protection (Roht-Arriaza, 1996: 942). This was exacerbated in the 70's and 80's where no financial mechanisms were put in place to fund conservation efforts in developing countries, similarly conservation was not recognised as a major concern globally (Richerzagen and Holm-Mueller, 2005: 446).

According to Roht-Arriaza (1996: 943) and Elliot (1998: 76) the draft of the CBD was prompted by the view of developed countries that natural resources and related indigenous knowledge were common heritage – “used to describe areas where no one State has jurisdiction”. This assumption allowed developed nations unfettered access to the biodiversity of developing nations without compensation (Elliott, 1998: 76). This advanced

¹⁹ The Conference of the Parties (COP) is the “governing body of the Convention and advances implementation of the Convention through the decisions it takes at its periodic meetings” (Secretariat of the CBD, 2016: 1)

²⁰ The Global Environmental Facility (GEF) established at the Rio Earth Summit in 1992 “serves as a financial mechanism” for the CBD as well as various other Conventions (GEF, 2013: 1).

the idea that freely accessed biodiversity becomes private property only when utilised and modified by the science of developed nations (Roht-Arriaza, 1996: 942).

As a result, a critical concern is raised with regards to the existence of biological resources extracted from the south and held in ex-situ collections in the form of seed and gene banks as opposed to in-situ conservation. According to Roht-Arriaza (1996: 945) “eighty percent of all crop seed, eighty five percent of all livestock breeds and eighty-six percent of microbial culture collections” have been collected from southern countries and stored in the north in ex-situ collections. The Preamble of the CBD emphasises in-situ conservation noting:

“the fundamental requirement for the conservation of biological diversity is the in-situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings...further that ex-situ measures, preferably in the country of origin, also, have an important role to play” (1992: 1).

In-situ (within borders) conservation refers to the conservation of biological resources within their local habitat. Whereas, ex-situ conservation refers to the conservation of natural resources from outside their natural borders for example seed or gene banks (Posey, 1996: 9; Jeffery, 2002: 754). In-situ conservation endorses the “support for and empowerment of indigenous, traditional and local communities to manage and conserve their biodiversity in socially appropriate ways” (Posey, 1996: 9). A great number of these resources can, also, be found in ex-situ collections internationally. Normally access is granted to these resources for academic and scientific purposes and for the establishment of gene banks that facilitate the growth of agricultural and pharmaceutical industry (Jeffery, 2002: 781; Roht-Arriaza, 1996: 944).

The contention of these methods of conservation is that under the CBD the rights of states only extend to resources collected after its institutionalisation (Secretariat of the CBD, 2016: 12). Due to this omission access and control of resources collected prior to the CBD is given to the states of ex-situ collections, which are predominantly developed nations (Roht-Arriaza, 1996: 946). A counter argument is advanced by industry and northern countries noting that, most of the commercialised products are predicated on derivatives of the resource material that has been manipulated – these extractive processes are costly, thus requiring legal provisions (Elliott, 1998: 76). This has made it impossible for indigenous communities to gain access.

It is in this regard that the Preamble of the CBD advances a shift in environmental thinking where biodiversity is referred to as a “common concern” and not “common heritage” (Elliott, 1998: 77). This principle derives from state sovereignty over its resources “recognising an obligation on the part of all states to protect and restore the global environment, resources, and areas beyond the limit of national jurisdiction...is the concept of equitable utilisation, an idea developed for the law governing the use and allocation of shared resources” (Schoenbaum, 2006: 208). Even though the CBD moves away from the notion of common heritage what is vital to reiterate is that its provisions of state sovereignty are restricted to resources “collected after the Convention’s entry into force” (Jeffery, 2002: 762).

Evidently, the CBD proves to be a late instrument with regard to prior appropriations of natural resources by the north. In this regard, it proves to be ineffective in terms of access and benefit-sharing wherein from the onset trade in natural resources is skewed (Richerzagen, 2011: 2245). Moreover, there continues to be non-recognition of indigenous people and their knowledge. Even though the CBD places great emphasis on state sovereignty, through excluding ex-situ collections from its provisions, the CBD contradicts its premise of state ownership and control. Herein, ex-situ ownership of resources and genetic material makes it increasingly difficult not only for local communities to access but states end up importing materials that originate from their countries at a surplus cost – keeping “the status quo intact” (Roht-Arriaza, 1996: 945). This then raises critical debates on the disclosure of origin, more specifically, the issue of ownership, questioning exactly who should provide prior informed consent, regulate access and receive benefits from this process (Jeffery, 2002: 783).

3.3.3. Addressing the Rights of Indigenous Communities

The position of indigenous/local communities in the governance of natural resources remains ambiguous. Even though there are proponents that advance their relevance, they continuously remain in a state of marginalisation from the politics of their environment. Several programs advocate for the realisation of indigenous peoples’ rights as central to resource conservation. Chapter 26 of Agenda 21 (1992: 280) argues that there is a need to strengthen the positions of indigenous communities through suitable policies and legislations. These would advance the protection of indigenous knowledge systems, products and processes thereof.

The Preamble of the CBD (1992: 1) recognises:

“the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components”.

In addition Article 8(j) mandates states to:

“...respect, preserve and maintain knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge innovations and practices” (CBD, 1992: 6).

This positive acknowledgement of indigenous communities realises their significance as evolving systems of innovation and resource management. This is a substantial shift in characterising indigenous communities as “backward” or “primitive” societies (Roht-Arriaza, 1996: 928). Even though the CBD recognises the dependence of indigenous communities on genetic resources and the need for equitable sharing of benefits in its preamble, the CBD still subjects the achievement of these objectives to the signatories of the Convention (UNCTAD, 2014: 19). This leaves indigenous communities at a disadvantage in terms of negotiating power, even though they are recognised in Article 8(j) of the CBD (UNCTAD, 2014: 19).

However, Srinivas (2012: 403) significantly argues that even though indigenous community rights are recognised by the CBD, they do not supersede the sovereign rights of the state. This leaves indigenous communities at a disadvantage in terms of negotiating power (UNCTAD, 2014: 19). National sovereignty over natural resources “may simply reinforce past patterns of appropriation and dispossession...while the Convention specifically states that indigenous interest and rights are to be taken into account, these have yet to be recognised in state legislation” (Merson, 2000: 293).

Critical in this discussion is to recognise that, “negotiations and debates on protecting TK and rights of indigenous communities are being conducted at different forums” (Srinivas, 2012: 403). This has resulted in a fragmented regime where there needs to be a harmonisation of policies and strategies on these various platforms (Srinivas, 2012: 403). For example, Article

29 of the 2007 United Nations Declaration on the Rights of Indigenous People acknowledges that “indigenous people are entitled to the recognition of the full ownership, control and protection of their culture and intellectual property” (Finetti, 2011: 59). Similarly, the Intergovernmental Panel on Climate Change (IPCC) in their Fourth Assessment Report recognised indigenous knowledge as “an invaluable basis for developing adaptation and natural resource management strategies in response to environmental and other forms of change” (Parry, cited in Nakashima *et al.*, 2012: 24). Principle 22 of the Rio Declaration acknowledges that, “indigenous people and their communities and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices...” (Amankwah, 2007: 22).

3.4. THE REGIME ON ACCESS AND BENEFIT-SHARING

3.4.1. The CBD Provisions on Access and Equitable Sharing of Benefits

The Preamble of the CBD (1992: 1-2) places emphasis on the equitable sharing of benefits arising from the appropriation of natural resources and indigenous knowledge. The provisions in relation to benefit-sharing are found in Articles 8(j), 15(6), 16 and 19(1)(2) further expanded on in **Table 3**²¹ :

Table 3: Articles on Access and Benefit-Sharing

Article 3	States have the sovereign right to utilise their own resources in line with their environmental legislation and are obliged to ensure no environmental degradation occurs in other States and beyond their borders.
Article 8(j)	Mandates signatories to acknowledge the traditional lifestyles of local communities and their knowledge, innovations and practices and the involvement of indigenous communities in the equitable sharing of benefits resulting from these knowledge, innovations and practices.
Article 15.1	Recognises the sovereign rights of States over their natural resources.
Article 15.2	Obligates signatories to develop regulations on access in line with the provisions of the CBD.
Article 15.3	In line with Articles 16 and 19, access to resources granted by the country of origin must be in accordance with the provisions of the CBD.
Article 15.4	Access to resources must be granted on mutually agreed terms.
Article 15.5	Access to resources is subject to prior informed consent
Article 15.6	Obliges the involvement of all stakeholders in scientific research based on the resources accessed.
Article 15.7	In line with Articles 16 and 19 the State is obligated to enact legislative, administrative or policy measures, and in line with Articles 20 and 21 in the fair and equitable sharing of benefits that arise from the research, utilisation, development and commercialisation of resources with all contracting parties on mutually agreed terms.
Article 16.1	All parties should acknowledge that technology includes biotechnology, and that access to this technology is central to the objectives of the CBD. Herein technology is vital to the conservation and sustainable use of biodiversity and the utilisation of genetic resources without environmental destruction.
Article 16.3	Each contracting party will enact policy measures to ensure the transfer and access to technology on mutually agreed terms especially to developing countries supplying resources. This includes technology protected by IPRs and patents. As well as in accordance with Articles 20 and 21.
Article 19.1	Each Contracting Party shall take policy measures to ensure effective participation in biotechnological research especially developing countries supplying resources.
Article 19.2	Each Contracting Party will ensure the advancement of priority access on fair and equitable sharing of benefits arising from biotechnologies based on genetic resources based on mutually agreed terms.
Article 20	Each signatory is obliged to provide financial support and incentive to achieve the objectives of the CBD in line with their individual policies and programs.
Article 21	Under the authority of the Conference of the parties' an allocation of financial resources needs to be made for signatories of developing countries in the forms of grants or concessions.

(The Convention on Biological Diversity, 1992: 6-12)

In light of these Articles, the provision of fair and equitable sharing of benefits is contingent on access agreements. Articles 15(4)(5) of the CBD note that access to natural resources is

²¹ Even though the table highlights several prominent issues this discussion will be limited predominantly to the concerns over prior informed consent and mutually agreed terms.

granted to user countries on the basis of prior informed consent (PIC) and mutually agreed terms (MAT) among states. Prior informed consent (PIC) stipulates that the provider country has the right to subject the user country to full disclosure with regards to the resources accessed. Furthermore, PIC is to be granted on the basis of benefit-sharing negotiations between interested and affected stakeholders. In this regard, PIC should be extended to “all individuals and/or communities whose consent or permission may be required, including indigenous communities” (Jeffery, 2002: 785-786). Legally, the PIC requirement is controversial and subject to contestation. PIC is considered an ambiguous concept largely open to multiple interpretations and manipulation. Jeffery (2002: 763) argues that in requiring PIC from indigenous communities based on the provisions of Article 8(j) surely “implies an ownership right that could be afforded legal protection”. Koutouki and von Bieberstein (2012: 518) further argue that “the text of the CBD has never been amended to require such consent, and thus the debate continues as to whether this is a suggestion or a requirement under international law” (Koutouki and von Bieberstein, 2012: 518). Additionally, the debate on whether access to traditional knowledge required provisions of PIC and benefit-sharing were further addressed at the 5th Conference of the Parties (COP5) (Koutouki and von Bieberstein, 2012: 518). At COP5, Access to Genetic Resources, emphasis was placed on the notion of prior informed consent (Koutouki and von Bieberstein, 2012: 518).

Mutually agreed terms (MAT) is premised on the negotiation process wherein parties reach a general consensus of contractual obligations (Jeffery, 2002: 786). It is significant within this process that “the relative positions of parties involved, in terms of negotiating power” are taken into account (Jeffery, 2002: 787). In Chapter 26 of Agenda 21, there is a guideline for states to build up the participation of local communities in decision-making with regard to national legislation, resource management and the development of declaration on indigenous rights (UNCTAD, 2014: 19). However, Jeffery (2002: 749), ten Kate and Laird (2000: 4) argue that the idea of equitable exchange on mutually agreed terms is inherent of the “grand bargain” that the CBD is centred on.

More significantly, these provisions mandate Contracting Parties to facilitate access to genetic resources in return for a fair and equitable share of benefits derived from their use represents a negotiated resolution between the technology rich north and biodiversity rich south (Jeffery, 2002: 749). Article 16 is subject to PIC and MAT and requires user countries to grant provider countries with access to and transfer of technology and active participation

in the development of biotechnological research (Morgera and Tsoumani, 2010: 4). This Article is viewed as “one of the critical elements in access and benefit-sharing arrangements” (Secretariat of the CBD, 2005: 201). This includes technology that has been patented or protected by IPRs. However, in practice evidence suggests that this transfer of technology has not materialised as found in this study. Elliot’s (1998: 77) critic is significant in highlighting the ironic nature of Article 16 arguing that “the loss of biodiversity has often come as a result of new technologies and forms of exploitation provided by the north at the expense of indigenous practices that helped sustain genetic diversity” (Elliott, 1998: 77).

The Johannesburg Plan of Implementation (JPOI) of the World Summit on Sustainable Development (2002) notes that this process of access and benefit-sharing should also be subject to “communities approval and involvement” (Morgera and Tsoumani, 2010: 9). In light of access and benefit-sharing regulations Article 8(j) refers to ABS in relation to traditional knowledge it “encourages” the equitable sharing of benefits arising out of the use of traditional knowledge with the holders (Koutouki and von Bieberstein, 2012: 517). However, does not subject access to traditional knowledge to prior informed consent (Koutouki and von Bieberstein, 2012: 517).

Another prominent concern that arises in access and benefit-sharing under the CBD provisions is the issue of intermediaries – whose activities range from sourcing natural resources to interacting with local communities, thus the larger industries often do not interact with the provider country (Jeffery, 2002: 788). Intermediaries range from botanical gardens, gene banks and “brokers working for profit” that have collected large amounts of genetic resources and allow access to industry (Afreen and Abraham, 2009: 6). Intermediaries are, also, sometimes responsible for establishing ties for access and benefit-sharing with the provider country either acting as representatives of the user country or on their own accord (Afreen and Abraham, 2009: 6). Other than providing access to genetic material and technological resources intermediaries may, also, be a part of the bioprospecting phase up until the commercialisation of the natural resource (Afreen and Abraham, 2009: 6). In this regard, the intermediaries often act as “brokers” of the ABS agreements with the government of the provider country in accordance with their policies and legislation (Afreen and Abraham, 2009: 6). This creates ambiguity on part of the CBD as intermediaries act as independent agents – their role in the entire process of bioprospecting, access and benefit-sharing (ABS) needs to be problematized. Their elusiveness as the “middleman” needs to be

addressed – as they often further fragment the process of access and control as they interact directly with industry and government, subsequently marginalising local communities. There is therefore a need to regulate the activities of these intermediaries to ensure grounds of fair negotiations of ABS as their actions may “impede the sharing of benefits in the manner envisaged by the CBD” (Jeffery, 2002: 788).

3.4.2. The Bonn Guidelines

In 2000 the 4th Conference of the Parties (COP) developed a working group to establish guidelines to help signatories deal with issues of PIC and MAT (Jeffery, 2002: 779; Koutouki and von Bieberstein, 2012: 522). This was a response to concerns of the inefficient implementation of the provisions the CBD. Subsequently, the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing Arising out of Their Utilisation (hereafter Bonn Guidelines) were developed at the 6th COP in The Hague, Netherlands, in April 2002 as a non-legally binding agreement (Secretariat of the CBD, 2002). The Secretariat of the CBD (2002: III) notes that the Bonn Guidelines act as a guide:

- i. For governments to form national administrative strategies, legislation, policies and measures to assist access and benefit-sharing negotiations;*
- ii. To address transfer of resources and technologies and the fair sharing of economic and non-economic benefits – for use in conservation strategies;*
- iii. To recognise that access to genetic resources does not mean access to indigenous knowledge;*
- iv. Oblige the co-operative involvement of all relevant stakeholders including indigenous and local communities.*

Major criticisms have been advanced as far as the Bonn Guidelines are concerned. Herein, Morgera and Tsioumani (2010: 5) argue that the Bonn Guidelines have proven to be fragmented, as a voluntary document there is no obligation to adhere to “specific requirements”. In this regard, it is noted that, ABS, specifically, benefit-sharing will be different in relation to the type of benefits and the relationship between the provider country and the various stakeholders (Morgera and Tsioumani, 2010: 5). The benefit-sharing obligations between government and private stakeholders such as universities or industry are highlighted within the Bonn Guidelines, however, the emphasis and explanation on benefit-sharing obligations within the State where “access benefits would be shared with the providing country and/or the community concerned” have been insufficient (Morgera and Tsioumani, 2010: 5). Furthermore arguing that the Bonn Guidelines do not adequately take

into account the fact that “access legislation in providing countries is not sufficient to achieve fair and equitable benefit-sharing” (Morgera and Tsioumani, 2010: 5).

Even though the Bonn Guidelines make specific reference to indigenous communities as stakeholders and beneficiaries, especially with regards to the utilisation of traditional knowledge – Morgera and Tsioumani (2010: 7) argue that the CBD seems “unwilling (and/or legally unable) to implement benefit-sharing as an inter-State²² obligation”. As a result, too much focus has been placed on access provisions not paying attention to national legislation within the user countries (Morgera and Tsioumani, 2010: 5). Furthermore, “whereas access and the agreement to share benefits take place in the country providing the genetic resources, the actual utilization of the genetic resources and thus the benefits-triggering moment usually happens in another jurisdiction—the one of the user country” (Koutouki and von Bieberstein, 2012: 522). Thus, there also remains a need for user-countries to enforce and comply with the provisions of provider countries.

3.4.3. The Nagoya Protocol

The Bonn Guidelines have been fundamental in laying the foundations for the Nagoya Protocol (UNCTAD, 2014: 11). The 10th Conference of the Parties (COP) of the CBD held in Nagoya 2010 presented the forum in which “a new protocol on access and benefit-sharing (ABS) of genetic resources was adopted” (Richerzhagen, 2014: 36). The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (NP) (2010) is considered the instrument for the realisation of the CBD, the fair and equitable sharing of benefits arising from the use of genetic resources (UNCTAD, 2014: 11).

The enforcement of ABS provisions since their enforcement in 1993 through the CBD has been “generally slow” where compliance and enforcement on part of user countries has been fragmented especially with regards to the adherence to legislation of PIC and MAT in provider countries (UNCTAD, 2014: 11). Even though the concern over access is emphasised in various state legislation there is an insufficient acknowledgement of provisions that user countries have to be subjected to (UNCTAD, 2014: 11).

²² Inter-State refers to the process of benefit-sharing between the provider country and the concerned local/ indigenous community (Morgera and Tsioumani, 2010: 5).

Authors such as Srinivas (2012: 403), Morse (2011: 3), Buck and Hamilton (2011: 51) note that the key objectives of the Nagoya Protocol are:

- ii. *Equitable sharing of benefits with indigenous people;*
- ii. *The fairness and equity of negotiations of mutually agreed terms; and*
- iii. *The mandate that nations have to develop mechanisms to ensure that the above provisions are implemented.*

However, it is argued here, that the Nagoya Protocol is nothing but the reiteration and overemphasis of what is provisioned in the CBD – presenting nothing innovative. This is consistent with the argument by Srinivas (2012: 403) that both the Bonn Guidelines and Nagoya Protocol reinforce the provisions of the CBD, they do not provide any concrete solutions to the concerns of access and benefit-sharing. Whilst the CBD has made great strides as a mechanism of environmental protection and recognition of indigenous knowledge, it remains a fragmented convention (Srinivas, 2012: 403).

The Nagoya Protocol has received much criticism in this regard on behalf of indigenous people (Koutouki and von Bieberstein, 2012: 533). Firstly, the Nagoya Protocol negates the rights of indigenous people much like the CBD, state sovereignty impedes upon the participation of indigenous people within decision-making, conservation, and sustainable resource utilisation (Koutouki and von Bieberstein, 2012: 533). Boyle (cited in Elliott, 1998: 79) argues that the convention is “driven by human use rather than preservationist principle”. Also, the CBD remains an economic tool of resource exploitation based on the promise of technological innovation, placing too much emphasis on access and control rather than the main causes of environmental degradation (Chetterjee and Finger, cited in Elliott, 1998: 79). It perpetuates the ideal of scientific and (bio) technological developments for increased economic growth (Elliott, 1998: 79). The implementation of ABS regulations internationally has been slow placing more impetus on agreements of access rather than benefit-sharing (UNCTAD, 2014: 12).

Additionally, the Nagoya Protocol also does not provision for intellectual property rights in relation to indigenous peoples’ knowledge (Koutouki and von Bieberstein, 2012: 533). This is a vital component as patent law does not recognise the collective rights and innovation of indigenous people acknowledging that it is not “property-type knowledge” (Koutouki and von Bieberstein, 2012: 533). Article 16 of the CBD acknowledges that intellectual property

has an effect on the effective implementation of the CBD noting that signatories to the CBD “shall cooperate in the regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives” (CBD, 1992: 12). In this same instance, there has also been a great demand on part of developing countries for the disclosure of origin of genetic resources – “ensuring that genetic resources or associated knowledge held by indigenous peoples are accessed in accordance with their customary law” (Joseph, 2010: 82-88).

Joseph (2010: 78) argues that the Nagoya Protocol was more a reaction to the insufficient realisation of ABS since the establishment of the CBD. Furthermore, UNCTAD (2014: 4) suggests that due to the divisive nature of the discussions surrounding the draft of the Nagoya Protocol, there is a lack of its effective implementation and reaching a consensus within multilateral agreements. Even though the Nagoya protocol provides significant provisions – “many important issues were left out of the final text” (UNCTAD, 2014: 4). For instance the concern over derivatives where it is argued that profits generated do not come from the extracted material itself but the actual process of research and development – which has been largely contested (Aubertin and Filoche, 2011: 55). The CBD is an evolving convention and presents a number of issues that still need to be addressed in terms of ABS. However, these issues need to be addressed in line with the regime on intellectual property. In light of intellectual property the CBDs performance record over the past years in relation to ABS has been flawed. Herein, it is argued that, “it is not possible to derive an understanding of the interface between intellectual property and ABS from the CBD and the Nagoya Protocol alone” (UNCTAD, 2014: 12). All the above-mentioned concerns are further implicated in the establishment of the Trade Related Aspects of Intellectual Property Rights Agreement addressed below.

3.5. INTELLECTUAL PROPERTY RIGHTS AND THE AGREEMENT ON TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY (TRIPS)

The agreement on TRIPS is a legally binding framework established in 1995. It is considered, “the most comprehensive multilateral agreement on intellectual property”, and is governed by the World Trade Organisation (WTO) through nations that are signatories of the General

Agreement on Tariffs and Trade²³ (GATT) (Carr, 2008: 135; Jeffery, 2002: 771). Even though it was drafted without the CBD, in hindsight it is the most prominent treaty that affects the ABS provisions (UNCTAD, 2014: 30). Herein, the Agreement on TRIPs runs counter to the provisions of the Nagoya Protocol and the CBD specifically Article 8(j) – undermining the integrity of national sovereignty, eroding the significance of indigenous knowledge, negating benefit-sharing and problematizing the conception of ownership (Amankwah, 2007: 25).

IPRs contain the obligations and provisions wherein exclusive rights may be granted and decides which resources or knowledge should remain in the public domain (UNCTAD, 2014: 30). The scope of IPRs protected under the TRIPS Agreement are: copyrights, patents, including plant variety protection, industrial designs, geographical names, industrial projects and designs of integrated circuits and undisclosed information such as trade secrets (WTO, 2017; Jeffery, 2002: 771).

Of specific interest to this thesis are patents. Article 28.1. of the Agreement on TRIPs notes that “patents are a public authorisation that grants to the owner the right to preclude others from the acts of making, using, offering for sale, selling or importing a protected product or process for at least 20 years” (UNCTAD, 2014: 31). The provisions of products, processes, flora and fauna that are considered patentable or excluded from patentability are addressed in Article 27 (1)(2) and (3). Under the Agreement on TRIPS (1994: 331) Article 27.1 patent applicants are subject to the provisions of novelty, newness, non-obviousness and industrial applicability (Roht-Arriaza, 1996: 935-936; Amankwah, 2007: 27; Jeffery, 2002: 772).

Novelty and newness are premised on the notion of prior art; herein the invention must not be known, used, described by others and the patent applicant must be the inventor (Roht-Arriaza, 1996: 936). The non-obviousness/inventive step requires that the final innovation is not obvious based on any prior art. Herein, the methods of the “improved” material must not be already evident (Roht-Arriaza, 1996: 937-978). In relation to the subject matter the discovery may not be a natural process or occurrence – if a scientist “isolates the plant's active substance in a way that does not occur in nature, it becomes patentable” (Roht-Arriaza, 1996: 938). Industrial applicability requires that the invention must be useful in terms of

²³ GATT is a framework for the management of international trade. Founded on the notion that trade should not be biased and that there should be a fair relation between local governments and multilateral agreements (McRobert, 2012:1). The WTO replaced the 1948 GATT in 1995 through the Marrakech Agreement (Carr, 2008: 135; Jeffery, 2002: 771; Arewa, 2006: 156; McManis, 2003: 548; Amankwah, 2007: 24).

generating profit (Roht-Arriaza, 1996: 939). Reproducibility requires the inventor to describe the process or product so that others in the industry can reproduce it (Roht-Arriaza, 1996: 940).

This discussion then revives the biopiracy-bioprospecting debate in particular indigenous knowledge as advanced in Chapter Two Section 2.4. Due to the collective nature and inter-generational dissemination of indigenous knowledge it is not considered patentable (Koutouki and von Bieberstein, 2012: 534; Roht-Arriaza, 1996: 936). This is where the marginalisation and exclusion of communities starts. As a market-based instrument the commodification of biodiversity takes precedence. It is for this reason Amankwah (2007: 24) argues that patents are just another form of upholding the interests of industry whilst the legality of patents undermines the resilience and self-sufficiency of local communities.

Furthermore, it is argued that local communities do not have the capacity or reason to transform materials for the requirement of an inventive step (Roht-Arriaza, 1996: 937). This raises important implications for the politics of knowledge. In this context, it is interesting to note that when existing knowledge is “reinvented” it is measured as “new” only becoming novel “through its encounter with another culture’s so-called inventive step” and thus patentable (Amankwah, 2007: 27). It is in light of these provisions that the Agreement on TRIPS has been likened to the legalisation of biopiracy as an exploitative regime.

Developing countries have opposed the TRIPS agreement specifically its provisions on patents in relation to the arguments raised above. Developing countries have argued for the harmonisation of the CBD provisions on ABS, specifically PIC and MAT within the agreement on TRIPS (Jeffery, 2002: 773; Roht-Arriaza, 1996: 935).

3.6 CONCLUSION

In conclusion, there are many contradictions within the global environmental governance regime fostering the power dynamics inherent within the north/south divide. Herein, the juxtaposition of developed and developing nations is exacerbated by the misconception of the notion of sustainable development. The latter is promoted as a prominent jargon phrase to advance biodiversity conservation efforts, however, is engrained in sustaining resources to develop the economy. The 1992 UNCED Conference has played a prominent role in embedding these inconsistencies of the sustainable development discourse within the

development of its conventions specifically the Convention on Biological Diversity. In this regard, both the CBD and the Nagoya Protocol have achieved a mixed performance record in relation to biodiversity conservation, access and benefit-sharing and the protection of indigenous people's rights.

Herein, the rights of indigenous people, their knowledge and resources still remain a contentious topic. Access and control through benefit-sharing agreements has resulted in a lack of reparations received by local communities. Furthermore, local communities have little or no say in relation to the decision-making processes regarding their resources. In this regard there is a continuous disregard of social injustices. The provisions of the CBD do not sufficiently address the issues of sustainability and conservation. It has rather adopted an ideal of conservation as entrenched in the commodification of nature. The purpose of commodifying nature is to maintain the status quo of the industrialised north as the hub of economic development that southern countries aim to emulate. This rhetoric intensifies systems of exploitation and ecological unequal exchange. The CBD then is insufficient in combating systems of environmental degradation and social inequality.

Another major drawback of the CBD is that it does not cover ex-situ resources collected prior to its institutionalisation. This has detrimental effects on the processes of access control as states have no jurisdiction, ABS becomes irrelevant, and most developed nations which hold these resources have control. More significantly, overriding the provisions of the CBD is the Agreement on TRIPS wherein the regime on trade has systematically excluded indigenous communities from any form of protection through patent law. The privatisation and commodification of biodiversity and associated ITK through the Agreement on TRIPS has legitimised the system of unlawful appropriation. This has led to the over-exploitation of resources and dispossession of local and indigenous communities' livelihoods. The CBD has thus been proven to be weak and insufficient in the context of international trade consigning developing countries to a dependence on export-oriented trade. Until ABS allows for active participation of developing countries as equal partners, indigenous communities will remain vulnerable and subjugated.

CHAPTER 4

INTERNATIONAL AND NATIONAL CASES OF BIOPIRACY

4.1. INTRODUCTION

The case of pelargonium sidoides in the Raymond Mhlaba Local Municipality is not an isolated one. There are numerous other cases existing both nationally and internationally. All these cases are indicative of the appropriation of natural resources and local indigenous knowledge. This is happening without the prior informed consent of the communities concerned, with no benefits shared. Developing countries are increasingly vulnerable to this age-old practice of resource appropriation. Most of the medicinal and cosmetic applications of today have originated from rural communities of the resource-rich south prior to the influence of modernisation (Roht-Arriaza, 1996). Within contemporary society, the renewed interest of industry in these resources raises numerous debates as examined in Chapters Two and Three. These concerns are deeply fuelled by indigenous rights to land, resources and livelihoods. This Chapter highlights how biopiracy manifests itself within various contexts. The first section of this Chapter provides an overview of two international cases of biopiracy namely, the Neem Tree and the Endod Berry. The second section addresses South African cases specifically the well-renowned San-Hoodia case, the Rooibos and Honeybush.

4.2. INTERNATIONAL CASES

4.2.1. India: The Neem Tree

There are various other notable biopiracy cases in India apart from the Neem Tree. These include Turmeric and Basmati Rice. This section on the Neem Tree draws largely on the studies conducted by Vandana Shiva. The Neem Tree (*Azadirachta indica*) is a plant indigenous to India and is also found in parts of Africa and Asia. It has been documented in Indian manuscripts over centuries with its medicinal properties widely known among the population (Schuler, 2004: 161; Shiva, 2001: 58). The Neem Tree has been used for various purposes such as medicinal, agricultural, cosmetic and as an insect repellent (Shiva, 2001: 58; Arewa, 2006: 170; Roht-Arriaza, 1996: 919; DeGeer, 2002: 197; Ostergard *et al.*, 2001: 651; Hamilton, 2006: 165; Hasen, 2002: 1; Schuler, 2004: 161). Hence, the Neem Tree is referred to as the “free tree” of India with the 1970 Patent Act noting that natural resources such as the Neem Tree are not patentable (Hamilton, 2006: 166; Shiva, 2001: 58). The law was constituted in this way in order for the local population to have access to an expansive

sustenance base without affecting their livelihoods directly. However, today there are several patents on the Neem Tree held by various international companies where it is no longer a “free tree” but the “intellectual property of western scientists and corporations” (Shiva, 2001: 61).

Shiva (2001: 58) argues that during the period of colonialism the west were oblivious to the properties of the Neem Tree. According to Schuler (2004: 161) with the age of the growing pharmaceutical and agricultural industries attention was brought to the chemical properties of the Neem Tree specifically in relation to the production of more natural-based pesticides. Shiva (2001: 58) and Merson (2000: 288) note that in 1971 the properties of the Neem Tree were first imported and tested in the United States by Robert Larson. In 1985, Larson received a patent for the product derived from “a pesticidal Neem Tree extract” through the US Environmental Protection Agency (EPA) and later sold the patent to W.R. Grace (Shiva, 2001: 58). This, no doubt, provided the foundational basis for the commodification of the Neem Tree.

The appropriation of the Neem Tree by W.R. Grace has been highly contested by scientists, farmers and activists who argue that multinational corporations (MNCs) do not have the right to exploit a natural resource that has been known to Indian communities across centuries (Shiva, 2001: 60; DeGeer, 2002: 198; Ostergard *et al.*, 2001: 651). This argument is further embedded within the international regime of intellectual property in which W.R. Grace claims that their “modernised extraction methods constitute a genuine innovation” (Shiva, 2001: 60). The novelty of processing the chemical compounds and subsequent extraction method is the basis of W.R. Grace’s idea being dubbed a discovery (Shiva, 2001: 60). In this regard, Shiva (2001: 60) argues that, despite indigenous knowledge being the premise of these patented processes they have been considered novel on the basis that they are different from the natural processes of the plant and have thus transformed the knowledge pertaining to it. Similarly, Hasen (2002: 1) argues that the Neem Tree as a natural resource cannot be patentable and its subsequent natural qualities be viewed as innovation and discovery. The argument is that novelty cannot arise from traditional Indian techniques (Hasen, 2002: 1).

In 2000, two patents held by W.R. Grace in conjunction with the US government were contested and subsequently revoked by the European Patent Office²⁴ however the U.S patent still remains in place (Hamilton, 2006: 166; Shiva, 2001: 61; Schuler, 2004: 162). Viewed as a momentous event the patent was revoked on the basis of “piracy of existing knowledge and lacking in novelty and inventiveness” (Shiva, 2001: 61). Accordingly, it is acknowledged that this was the first time the European Patent Office engaged in processing an official case of biopiracy (Hamilton, 2006: 167).

The demand for Neem Tree seeds from India to developed countries has had several detrimental effects. It has become costly for the local communities to access the seeds. Herein, the seeds that were once freely accessible to farmers and indigenous healers are now owned by industry (Shiva, 2001: 59; DeGeer, 2002: 198; Merson, 2000: 288). Furthermore, the production of Neem Tree-based products in developed countries places a demand for Neem Tree seeds in India. However, profits generated do not remunerate for the acknowledgment of the indigenous knowledge used nor does access to these resources take into account the rights of these local communities (Schuler, 2004: 165). The displacement and persecution of local industries that produce Neem Tree-based products raises serious issues of local economic development and ownership. The US has been deliberately ignorant of the agency of local Indian communities and their innovation in relation to the Neem Tree (Hasen, 2002: 1). This is reflected in how the US industry in question has sued various Indian industries for producing Neem Tree-based products on the basis of ownership of patents.

4.2.2. Ethiopia: Endod Berry

The Endod Berry more well-known as the African soapberry plant is a natural resource that has been used for many years throughout Africa, South America and Asia. The Endod Berry plant is a shrubby bush with a woody foundation stemming 5–10m in length, which produces flowers and pink or red berries (Esser *et al.*, 2003: 269; Fullas, 2012: 1). The Endod Berry is the most commonly used as a laundry soap or shampoo, and also contains a property which is deadly to fish and therefore is also used for fishing purposes within African countries (RAFI, 1993: 1; Roht-Arriaza, 1996: 923). The Endod Berry is recognised as the “African wonder weed” and a “poor man’s medicine for a poor man’s disease” (Fullas, 2012: 2; Mukerjee, 1996: 1). This “poverty stigma” perpetuated by developing countries derives from the fact

²⁴ Hamilton (2006: 166) notes that the European Patent Office does not provision for patents that go against ethical and moral principles referred to as “*order publique*”. However, this provision is not recognised by the intellectual property system in the US.

that it is related to low social status placing higher status on the use of commercial soaps (Esser *et al.*, 2003: 277).

In 1964, the Endod Berry was acknowledged as a biodegradable substance used to kill snails by biologist Aklilu Lemma, a local Ethiopian. Lemma's work is most notable for the treatment of schistosomiasis in Africa spread through fresh-water snails (Mukerjee, 1996: 1). Thus, the finding of the Endod Berry properties proved to be vital in stopping the spread of this deadly disease (RAFI, 1993: 1; Roht-Arriaza, 1996: 923). Lemma's findings attracted researchers from abroad namely the Research Development Corporation in London. His research had sparked so much interest that scientists of the Stanford Research Institute (SRI) had applied for patents naming the product "lemmatoxin". The studies on the chemical compounds of the Endod Berry were done between 1970 and 1990 (Esser *et al.*, 2003: 270). These studies produced such promising results that the scientists patented rather than published the findings (Esser *et al.*, 2003: 270; Mukerjee, 1996: 2). This patent was for the extraction process of "lemmatoxin" (Mukerjee, 1996: 2). However, due to it being viewed as a "poor man's medicine" it was seen as unlikely to generate any profits.

The SRI then donated their patents to an NGO that was to be established in Ethiopia by Lemma who was motivated by the fact that farmers could cultivate the plant locally (Mukerjee, 1996: 2). Through his research, Lemma wanted to produce a cheap available strand of the Endod Berry to the local population, also stimulating the local economy by deriving locally-based molluscicide (RAFI, 1993: 2). Lemma recognised that the Endod Berry as an indigenous plant could be developed as a "capacity-building technology by and for African communities" (RAFI, 1993: 2). In 1974, the test results showed that the infection rate of schistosomiasis had decreased drastically. Here the controversial role played by the World Health Organisation (WHO) comes into question. The WHO judged the credibility of Lemma and as a result opted to endorse a commercial company arguing that scientific analysis needed to be conducted under "standardised 'Good Laboratory Practices' by internationally recognised institutions" (RAFI, 1993: 3). Herein, the Endod Berry was advanced as a chemical molluscicide, Bayluscide, that has been produced by a German Company called Bayer which makes 25, 000 – 30,000 dollars per ton (RAFI, 1993: 2; Mukerjee, 1996: 2). However, access to this chemical was costly for developing countries

and this specific molluscicide was the only recommended one by the WHO (RAFI, 1993: 2; Mukerjee, 1996: 2). The quote by Mukerjee (1996: 2) is revealing:

“The Endod patents then belonged to the Ethiopian Science Foundation, which was eventually subsumed by the Ethiopian government. Lemma attributes WHO’s animosity to a difficulty believing that good science can emanate from developing nations. The things done in Africa did not hold any weight in the U.S. or Canada, Parhurst agrees...The international Development Research Centre (IDRC) in Ottawa offered to conduct the toxicity tests required by the WHO- provided the Ethiopian government renounced the Endod patents”.

The abovementioned quote relates back to the argument in Chapter Two, where no resonance is found between western science and indigenous knowledge emanating from developing countries. The Endod Berry also presented itself as not only useful in disease prevention but the prevention of zebra-mussels from clogging water pipes in North America (RAFI, 1993: 3). Not only was Lemma undermined but ownership, benefit-sharing and national sovereignty comes into question.

Just after Lemma and his partner Lee discovered the use of the Endod Berry in marine ecosystems, a U.S patent was granted in October 1990 to the University of Toledo for the Endod Berry fish intoxicant properties and as a treatment for marine ecosystems mainly zebra-mussels (Roht-Arriaza, 1996: 923). Subsequently, in 1993 and 1994 the University worked in conjunction with Lemma and gave 10% of its profits to the Endod Foundation. However, when Lemma bid the University to donate the patents to the foundation his request was met with reservation as the University offered to sell the patents and requested compensation (Mukerjee, 1996: 3). Mott (cited in Mukerjee, 1996: 3) argues that the “Endod Berry has ended up not benefiting anybody except a few personalities who have extended their careers by presenting themselves as advocates for the Third World”. From the granted patent the University would share 50% of the profits derived from the product with the inventors - Dr H. Lee, Dr P. Fraleigh and Dr A. Lemma. RAFI (1993: 4) argues that “the application for a U.S patent on the Endod raises many questions about the true ownership of Endod and the ‘discovery’ of this traditional African plant”. There was no just reward for the “plants true proprietors” (RAFI, 1993: 4).

The patent allows for the legal ignorance of indigenous knowledge and the local people who have been stewards of the plant over many years (Roht-Arriaza, 1996: 923; RAFI, 1993: 4). Thus, when the Endod-based product becomes commercial only the University and the three scientists will reap the benefits and the source country and its local communities who first

recognised the properties of the Endod Berry will receive no monetary benefits from this venture (Roht-Arriaza, 1996: 923; RAFI, 1993: 4). The appropriation of the Endod Berry used in marine ecosystems places a huge demand on access to the berries. Researchers within the University noted that biosynthesis can be used to produce smaller amounts of the plant however this venture would be very expensive (RAFI, 1993: 4). Thus, Dr Lee noted that, an informal agreement had been made between US researchers and Ethiopian suppliers to access the Endod Berry in its raw form (RAFI, 1993: 4). Even though this presents an economically viable opportunity for Ethiopia in terms of exports the problem lies within the transparency of the “informal agreement” the objective being a positive example of sustainable technology for both developed and developing countries (RAFI, 1993: 5). In relation to the international market that has reshaped the utilisation and value of the Endod Berry the local community of Ethiopia remains at a loss.

4.3. SOUTH AFRICAN CASES

4.3.1. San-Hoodia Case

The San-Hoodia case has been documented in numerous studies, however, this section focuses primarily on the studies conducted by Rachel Wynberg, specifically the 2009 edited manuscript, *Indigenous Peoples, Consent and Benefit-Sharing: Lessons from the San-Hoodia Case*. The San-Hoodia case study addresses the patenting of this medicinal plant during the colonial - apartheid era into the current dispensation. The first known documentation of the plant occurred in 1700's (Wynberg *et al.*, 2009: 93). Found in the arid regions of Southern Africa Hoodia was recognised as having appetite and thirst suppressant properties – has also been used in cultivation practices, and other medicinal applications (Wynberg *et al.*, 2009: 93). During this period two predominant groups were recognised namely, the Khoi and the San. Due to its wide distribution Hoodia has been used by many minority indigenous groups consisting of Khoi-speaking people (Wynberg *et al.*, 2009: 92). However, the San possess an invaluable knowledge of medicinal plants not only limited to Hoodia.

In contemporary South Africa the Khoi and the San occupy a very ambivalent space. A detailed account of their history is not within the scope of this thesis, however, they have inherited distorted politics of identity from the colonial-apartheid era (Wynberg, 2010: 22; Wynberg *et al.*, 2009: 89-91). Due the appropriation of their land and dismantlement of their culture and identity the San are now one of the most marginalised and dispossessed groups in South Africa. Their limited political recognition has failed to ensure their full integration into

South African society (Wynberg, 2010: 22; Wynberg *et al.*, 2009: 89-91). This is evident in their exclusion in the South African development trajectory. A small amount of them still live on their traditional land, however, the majority live in abject poverty (Wynberg, 2010: 22; Wynberg *et al.*, 2009: 89-91). At the start of the colonial conquest in 1652 the San population was approximately 300,000 compared to the 100,000 that have been relocated in contemporary South Africa (Wynberg *et al.*, 2009: 90-91). Hence, the argument about their annihilation and extinction.

The colonial botanical accounts of the use of Hoodia led to the subsequent involvement of the South African Council for Scientific and Industrial Research (CSIR)²⁵ in 1963 (Wynberg *et al.*, 2009: 98). It is within this period that “the CSIR included the Hoodia species in a project on edible wild plants, based on the ethnobotany of the San” (Wynberg *et al.*, 2009: 98). In the 1980’s, the CSIR embarked on expansive Hoodia-related research. In 1986, the CSIR isolated the main chemical compositions of Hoodia and in 1995 “following nine years of confidential development” South African patent No. 983170 was granted for the use of Hoodia as an appetite suppressant (Wynberg *et al.*, 2009: 95). In August 1998, the CSIR and Phytopharm²⁶ embarked on the commercialisation of the product - an agreement which granted Phytopharm exclusive monopoly to process and trade Hoodia-based products (Wynberg *et al.*, 2009: 95).

Subsequently, in 1998, Phytopharm went into an agreement with Pfizer²⁷, a pharmaceutical company based in the United States. This would entail a more advanced stage of the development of Hoodia-based products, a project called P57, from which Pfizer would benefit (Wynberg, 2010: 22; Wynberg *et al.*, 2009: 95). In 1998, the CSIR also developed its own Bioprospecting Policy to share benefits with the indigenous communities that hold traditional knowledge of Hoodia. However, this beneficiation was not implemented in the P57 project (Wynberg *et al.*, 2009: 98). Whilst these developments were taking place the San were not aware that their knowledge was being developed and misappropriated by the CSIR. Moreover, that their knowledge was accessed without prior informed consent and they were not included within benefit-sharing agreements (Wynberg *et al.*, 2009: 96).

²⁵ CSIR was established in 1945 and focuses on “...direct, multidisciplinary research and technological innovation” to contribute to the overall development of South Africa (CSIR, 2017).

²⁶ Phytopharm is a Polish-based company established in 1949 producing plant-based medicines from active ingredients. They focus specifically on the productions of “tinctures, alcoholic and aqueous extracts of liquid, oily extract, extracts glycol and juices” (Phytopharm, 2017).

²⁷ Pfizer, based in the United States, is considered one of the world’s “premier innovative biopharmaceutical companies, collaborating with healthcare providers, governments and local communities, to support and expand access to reliable, affordable healthcare” (Pfizer, 2016).

In 2001, the NGO Bio Watch South Africa²⁸ in conjunction with international NGO Action Aid²⁹ brought to light the unequal nature of the agreement established by the CSIR and Phytopharm. These NGOs placed emphasis on the interrelation between benefit-sharing agreements, indigenous knowledge and patents. They linked the attainment of a patent on Rooibos with prior consultation between the San and Khoi people (Wynberg *et al.*, 2009: 101). The Working Group of Indigenous Minorities in Southern Africa (WIMSA)³⁰, The South African San Council³¹ and the South African San Institute³² aided in pursuing the case raised by Bio Watch South Africa and Action Aid. The South African San Council represented the case of benefit-sharing to the San within the Western, Eastern and Northern Cape Provinces including Namibia and Botswana (Wynberg *et al.*, 2009: 102).

In 2002, The South African San Council was instructed by WIMSA to enter into negotiations with the CSIR. Subsequently, a memorandum of understanding was signed between the two parties which included the provision of a benefit-sharing agreement (Wynberg *et al.*, 2009: 99). After intense political and media pressure the San and CSIR adopted a benefit-sharing agreement in 2003. This agreement ensured that the San would get 6% of all the profits the CSIR made from Phytopharm products and an additional 8% when the CSIR and Phytopharm reached trade goals. These monetary benefits would then be paid into the San-Hoodia Trust Fund (Wynberg, 2010: 23). The agreement also provisions for natural resource conservation.

More specifically, even though “knowledge” under the agreement refers specifically to the indigenous knowledge of the San, the San have been requested to relinquish any rights pertaining to the co-ownership of patents that are held by the CSIR (Wynberg *et al.*, 2009: 109). This was a controversial part of the agreement relating to the P57 project, stating that:

Any intellectual property arising from the traditional use of Hoodia and related to the CSIR patents for P57 remained vested exclusively with the CSIR. The South African San Council had no right to claim any co-ownership of the patents or products derived from the patents. (Wynberg *et al.*, 2009: 102).

²⁸ Bio Watch South Africa, is an environmental justice NGO established in 1999 working with local farmers, civil agents and governments to “ensure that people have control over their food, agricultural processes and resources, and other natural resources within a bio-diverse, agroecological and sustainable system” (Biowatch South Africa, 2016).

²⁹ Action Aid was established in 2006 as part of an international collective. It is an anti-poverty organisation focusing on “women’s and girls’ rights, land and food rights, children and education, communities affected by mining, and international advocacy” (ActionAid South Africa, 2017).

³⁰ The Working Group of Indigenous Minorities in Southern Africa (WIMSA) “the San networking and advocacy organization established in 1996...to lobby for San rights” (Wynberg *et al.*, 2009: 102).

³¹ The South African San Council, “a voluntary association established as part of WIMSA by the three San communities of South Africa (the Khomani, !Xun and Khwe) in November 2001” (Wynberg *et al.*, 2009: 102).

³² The South African San Institute, is “a San service NGO helping San-based organizations access funding and expertise” (Wynberg *et al.*, 2009: 102).

Interestingly, in 2003, Pfizer withdrew from the development of P57 which led to Phytopharm granting exclusive rights to Unilever in 2004. This was a very lucrative deal wherein Wynberg *et al.* (2009: 96) argue that:

“Unilever would buy exclusive rights to the product for an initial £6.5 million, rising to £21 million once it had achieved certain milestones. Phytopharm would also receive an undisclosed royalty on sales of all products containing the extract”.

These provisions further enclosed the monopoly that the CSIR have over Hoodia (Wynberg *et al.*, 2009: 107). They effectively control the market leaving the San with minimal benefits but no real rights over decision-making processes regarding their resources (Wynberg *et al.*, 2009: 107). It is important to realise that the royalties paid to the San derive from the CSIR profits and not directly from Phytopharm, Unilever nor international companies involved in Hoodia trade (Wynberg *et al.*, 2009: 109) This is where fair and equitable benefit-sharing became questioned as the agreement excluded Pfizer and Phytopharm skewing benefit-sharing arrangements (Wynberg, 2010: 23). However, this benefit-sharing agreement is still celebrated as a milestone in this multi-billion industry (Wynberg *et al.*, 2009: 99). Subsequently, in 2009, after the establishment of the BABS Regulations Unilever withdrew from the all Hoodia-related processing activities based on efficacy and safety concerns (Wynberg *et al.*, 2009: 96). This allowed Phytopharm to regain control over the Hoodia trade. The market for Hoodia-based food products at the time was estimated to be between \$65 billion globally and \$3 billion in the United States (Wynberg *et al.*, 2009: 96).

In 2004, the South African San Council drew up another benefit-sharing agreement with the Southern African Hoodia Growers. This group were aware of the South African 2004 BABS Regulations under the NEMBA. Not related to the CSIR P57 project the San were permitted to enter into agreements (Wynberg *et al.*, 2009: 113-114). Initially, benefits of R17 600 were paid to the San Council which later increased with the involvement of South African based environmental organisations which regulated the permits. The ABS agreement was concluded in 2007 with the San being paid R24 per kg for processed raw material (Wynberg *et al.*, 2009: 113-114). In 2007, all Hoodia species were listed as protected under CITES due to the proposal for more regulated trade of the species. Subsequently, the agreement between the Southern African Hoodia Growers and the South African San Council was altered. However, the Minister of Environmental Affairs did not approve the access and benefit-sharing agreement revoking it in 2008 with the inauguration of the Bioprospecting Access and

Benefit-Sharing Regulations³³. It is unclear what the current status of the case is. As Wynberg *et al.* (2009: 113-114) noted in their study that the agreement was still under revision.

It is then evident within the San-Hoodia case that from the onset benefit-sharing has been a top-down process which favours industry. In this regard, it is recognised that the San as the original holders of indigenous knowledge of Hoodia should be the primary beneficiaries (Wynberg *et al.*, 2009: 103). This agreement then systematically excludes other groups from claiming ownership, a win for industry, but still raises the question; what about indigenous groups such as the Khoi? (Wynberg *et al.*, 2009: 103). The San argue that given that they had shared their knowledge with groups such as the Khoi they remain the primary holders. From this case study questions remain: If Hoodia is such a lucrative multi-billion dollar industry why are the San still the most marginalised and poverty-stricken community in South Africa? Secondly, how should the competing interests of migratory groups such as the Khoi be addressed?

4.3.2. Rooibos and Honeybush

Bavikatte *et al.* (2010: 5), Wilson (2005: 4) and Carter (2005: 5) note that the San and Khoi people that inhabited the Cederberg area in South Africa are the original innovators of Rooibos, transforming the plant into a beverage. Rooibos was further utilised for its various medicinal properties as an anti-inflammatory, for allergies, stomach ailments and to boost the immune system (Bavikatte *et al.*, 2010: 5). Research evidence suggests that as far back as the 1700's Rooibos was commercially exported abroad. Notable scientists and industries involved in these historical accounts include Carl P. Humberg³⁴, Benjamin Ginsberg³⁵ and the Clanwilliam Tea Cooperative³⁶. Today it is one of the most well-known products in South Africa (Wilson, 2005: 4). Honeybush is located on the coastal regions of the Western and Eastern Cape and like Rooibos its properties were discovered by the San and Khoi, and became appropriated through the settler industry generating major profits. Honeybush can be used for skin-care, dye products and for the prevention of various cancers (Baikatte *et al.*, 2010: 6).

³³ Further discussed in Chapter Five Section 5.4.2.

³⁴ Carl Peter Humberg, a Swedish botanist, through interacting with the locals commercialised the plant in 1772 in Germany under the name Rooibos or Massai Tea (Amusan, 2014a: 71).

³⁵ Benjamin Ginsberg appropriated the plant in 1904 and sold the plant both within South Africa and exported the rest to Europe (Amusan, 2014a: 75).

³⁶ 1948 the Clanwilliam Tea Cooperative was established which gave rise to the South African Department of Agriculture constituting the Rooibos Control Board in 1954. The Board was responsible for Rooibos gaining international interest (Amusan, 2014a: 75).

Between 1995 and 2013, attempts were made by U.S Company Burke International and French Company Compagnie de Trucy to claim ownership rights over Rooibos (Amusan, 2014a: 70). Knowingly, these companies tried to create a market from Rooibos arguing that if South Africa was to refer to the CBD, being signatories of the WTO, trade sanctions would be applied (Amusan, 2014a: 70). It is within this regard, that the contestation between the CBD and TRIPS becomes pronounced. In the case of Rooibos concerns remain unequal exchange in relation to benefit-sharing, prior informed consent, as well as locating the original stewards of Rooibos as the San and Khoi are spread throughout the Western, Northern, Eastern Cape and Botswana (Amusan, 2014a: 77). In relation to this the South African government has made no efforts to acknowledge the Khoi and San in terms of policy and decision-making processes regarding the Rooibos case (Amusan, 2014a: 77).

In 1970 Annique Theron authored a book, *Allergies: An Amazing Discovery on Rooibos*, which further gained the plant international attention. Subsequently, Annique Theron registered her company Forever Young in America and capitalising on Rooibos-based products. In 1993 Theron applied for a trademark (TM) for Rooibos with the U.S Patent and Trademark Office (USPTO) and obtained it in 1994 (Amusan, 2014a: 71; Carter, 2005: 2). During the same period The Rooibos Control Board became Rooibos Limited in effort to create an exclusive monopoly on Rooibos in South Africa (Amusan, 2014a: 75).

Major developments concerning the commercialisation of Rooibos took place in the 2000's. Numerous commercial interests sought to establish their dominance in the trade through various legal processes. In 2001, Theron sold the patent to American Virginia Burke-Watkins of Burke International at an outrageous price of \$10 (Carter, 2005: 3). Carter (2005: 2) notes that Burke International started asking for compensation from businesses that used the name Rooibos or sold the tea within the U.S taking many of them to court for not complying to the \$5000 fee. This made traders change their labelling to "Red Tea or Red Bush" which negatively impacted sales. In 2002, a South African company, Rooibos Limited named their product "Rooibos the Red Tea" which subsequently subjected them to Burke's legal claim (Amusan, 2014a: 71). Rooibos Limited then took legal action against Burke however their legal battle was settled out of court. In 2005, South African company Rooibos Limited who also process and trade in Rooibos tea internationally reached a milestone in their case against the term Rooibos being trademarked as the court stated that it is a generic term (Carter, 2005: 2). Arguably, by allowing Rooibos to be utilised as a generic term excludes the provision

under the CBD of sovereign rights in exclusively claiming Rooibos (Amusan, 2014: 72). Both companies then registered the name Rooibos in 2006 and another trademark was granted to Rooibos Limited in 2007 (Amusan, 2014a: 71). However, this legal win raises questions regarding the exclusive monopolisation of Rooibos and the lack of representation on part of the Khoi and the San. In 2011, Rooibos Limited alone created employment and generated R500 million from international trade which is said to have increased by 2015 (Amusan, 2014a: 71). However, the exact job descriptions and demographic of the employed has not been clearly specified in this regard.

In 2007, South Africa sought to claim ownership of Rooibos through being granted geographical indicator status³⁷ as the plant is unique to South Africa (Amusan, 2014a: 72; Carter, 2005: 2). Due to international interest and demand for the plant the South African Rooibos Council (SARC)³⁸ was established (Amusan, 2014a: 73). Herein, it was realised by the SARC and Rooibos Limited that a geographical indicator would protect the Rooibos name from appropriation and prevent international legal battles. Furthermore, geographical indicator status backed by policy would allow states to have more control over their resources (Amusan, 2014a: 76).

Another case exists wherein Nestlé was challenged by the Berne Convention and Natural Justice through the use of the South Africa Biodiversity Act 10 of 2004 (Amusan, 2014a: 76; Carter, 2005: 1). According to Bavikatte *et al.* (2010: 1) in 2009 Nestec, the South African scientific body of Nestlé, was founded on the basis of accessing and disseminating information amongst the Nestlé conglomerate (Bavikatte *et al.*, 2010: 1). Nestec, applied for five patents with regards to the medicinal and cosmetic properties of Rooibos and Honeybush. However, under the South African National Environmental Management Biodiversity Act (NEMBA)³⁹ which is subject to the Convention on Biological Diversity a permit is required. A prerequisite, that Nestec did not comply with and thus were in contravention of (Bavikatte *et al.*, 2010: 1). Even though Nestle gained access to the plant through a South African exporter this did not make them an exception to the legal

³⁷ The Agreement on TRIPS notes that geographical indicators refer to "...indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin" (WTO, 1995: 328).

³⁸ South African Rooibos Council (SARC) "is an independent organization, representing Rooibos processors, packers and branders. Its mission is to responsibly promote Rooibos and its attributes, and protect the interests of the Rooibos consumer and SARC stakeholders" (SARC, 2016: 2). The SARC is currently constitutive of eight companies Annique Health and Beauty (Pty) Ltd, Cape Natural Tea Products (Pty) Ltd, Joekels Tea Packers (Pty) Ltd, N Entyce Beverages, Rooibos Ltd, Unilever South Africa (Pty) Ltd, Cape Dry Products and the Red T Company. Interestingly, there is no representation of the San and Khoi interests.

³⁹ NEMBA is further discussed in Chapter Five Section 5.4.

requirements of a permit. Additionally, the South African exporter would also have to abide by national bioprospecting legislation. “If Nestlé uses genetic resources accessed by an exporter without the necessary permit, it could be seen as receiving stolen goods” (Bavikatte *et al.*, 2010: 8). This case clearly shows the loopholes in the compliance and enforcement of the permit system in South Africa. More significantly, it is constitutive of blatant biopiracy.

Within the abovementioned case, the application of patents by Nestec was also contested both by the government and local businesses (Bavikatte *et al.*, 2010: 2). Herein, the argument was that if these patents are granted they will negatively affect other producers in South Africa (Bavikatte *et al.*, 2010: 2). Moreover, that access to Rooibos and Honeybush will become exclusive to Nestlé impacting both African businesses and local farmers. The patents that Nestlé applied for were also contested on the grounds of novelty and newness (Bavikatte *et al.*, 2010: 1). Central to the argument was that access to these resources was provided by South African suppliers and used in on-going research, the discovery phase, and that had not made any commercial prospects (Bavikatte *et al.*, 2010: 8-9). Under the CBD and the NEMBA access to these resources and associated indigenous knowledge should only be granted on the premise of prior informed consent and equitable sharing of benefits (Bavikatte *et al.*, 2010: 8). Thus, irrespective of how the resource was accessed it still remains indigenous to South Africa and thus the country’s laws should be abided by as benefit-sharing is contingent to the permit system (Bavikatte *et al.*, 2010: 8-9).

Due to adverse effects of unsustainable commercial farming of Rooibos and climatic changes local communities and farmers have been compelled to leave the business of Rooibos cultivation (Amusan, 2014b: 43). These conditions have led to the San and Khoi to cultivate wild Rooibos (Amusan, 2014b: 43). Wild Rooibos takes a longer time to grow however its properties are more resilient than its commercial counterpart (Amusan, 2014a: 74). Small-scale farmers are reliant on the cultivation of wild Rooibos as a sustenance base and a form of income (Amusan, 2014a: 74). Additionally, to ensure the development of small-scale farmers they need the assistance of the government as the land feasible for production is too small and commercial farmers remain a threat as they continue to control industry (Amusan, 2014a: 75). Another pertinent issue, concerns who exactly should benefit from the trade of Rooibos Amunsan (2014b: 46) makes the distinction between “community”, “private individuals” and the state, raising fundamental issues in relation to exactly which indigenous groups should be included in access and benefit-sharing, specifically, in relation the Khoi and San. Herein,

Amusan (2014b: 46) places emphasis on the concern if this is not resolved this will continue to be a fragmented system.

4.4. SIGNIFICANT LESSONS FROM THE CASES

4.4.1. The North/South Divide: Politics of Knowledge

The following discussion focuses on several themes namely, the politics of knowledge, patents, prior informed consent and local livelihoods. A deep running thread within each case is the perpetuation of the north/south divide. Herein, the science produced by developing countries is immensely downplayed which manifests itself in a “distrust of Third World science” (Mukerjee, 1996: 2). This is indicative of the Endod Berry case study as Lemma (1989: 1) notes in one of his speeches “surprisingly, with complete disregard to our twenty years of research and the centuries of traditional use of Endod as laundry soap, WHO required further studies to confirm the safety of Endod to humans and the environment before they would give clearance for its wide use”. A discussion on the politics of knowledge is examined in Chapter Two where it is recognised that western science exists within the complete negation of a “diverse intellectual heritage” of knowledge systems (Nakashima, 2000: 2). This has deemed other forms of knowledge inferior, however, it remains that western science is but one system of knowledge that needs to be critiqued.

It is the argument here that western science is but one system of knowledge that needs to be critiqued. In this respect, the hegemonic power of western science is recognisant of its capacity as an “informational commodity” essential to “productive power”, essentially capital (Lyotard, 1984: 5). In this regard, the goals of the CBD remain elusive as industry acknowledges the existence of indigenous knowledge however it does not recognise it as an innovative form of intellect (Jiang, 2008: 2). There is a lack of representation that assumes “that poor people may be seen as the guardians of valuable information, but not as authors of knowledge in their own right”, this is contingent to the fragmentation of the CBD (Jiang, 2008: 2). The CBD needs to place emphasis on its definitions of technical knowledge under Article 2. In its preamble, it “encourages and develops methods of cooperation for the development and use of technologies, including indigenous and traditional technologies” (CBD, 1992: 3). However, under Article 2 when it explains technology it refers to biotechnology and does not further expand on what constitutes indigenous technology or indigenous science. For example, in Article 8(j) it requires the acknowledgement of “...respect, preserve and maintain knowledge, innovations and practices of indigenous and

local communities” (CBD, 1992: 3). A negation which ultimately affects the value placed on indigenous knowledge. The CBD recognises the innovation of indigenous communities which becomes void in relation to intellectual property rights.

These issues are further compounded in instances where value is placed on a resource once “transformed” through science but becomes devalued when stigmatised by the poverty of its origins (Mukerjee, 1996: 1; Agrawal, 1995a: 416). This is evident in the case of the Endod Berry being labelled as a “poor man’s medicine” (Mukerjee, 1996: 2). In light of this, local communities are indoctrinated to think that commercialised products are of more value whilst systematically devaluing traditional practices (Esser *et al.*, 2003: 277). The devaluation of indigenous knowledge is further exacerbated by the assimilation of indigenous identities. As evident in the San-Hoodia case study between the Khoi and San people. This form of assimilation perpetuates a homogenous view of indigenous cultures which depreciates the indigenous identity and subsequently their knowledge systems (Nakashima *et al.*, 2012: 28; Wynberg, 2010: 22; Wynberg *et al.*, 2009: 89-91).

4.4.2. Patents: A Contravention of the CBD

The San-Hoodia case is a clear depiction of patents as a contravention of the CBD provisions. Herein, even though the San received acknowledgement of their ownership of indigenous knowledge this was only insofar as they did not contest the exclusive monopoly the CSIR has on their Hoodia-based projects (Wynberg *et al.*, 2009: 109). Herein, Shiva (1998: 71) argues that patents are the basis of establishing a system of exclusive rights to resources. In relation to patents, the provision of novelty under Article 27 of the TRIPS assumes that through science the knowledge and properties of resources have been transformed (Shiva, 2001: 60). If this is the premise of innovation, then indigenous groups hold novel and technical knowledge in relation to their consistent adaptation to their surrounding natural resources (Shiva, 2007: 310-311). However, the right of “transformed knowledge” is made exclusive to industrial companies and research institutions reaping the benefits of their claimed discoveries (Shiva, 2001: 11; Roht-Arriaza, 1996: 936). As Shiva (2001: 17) argues some companies operate with the idea of “ignorance as innovation” much like in the case of the San who were assumed as non-existent.

Central to this argument is that collective knowledge cannot be protected under patents because there is no single inventor (Roht-Arriaza, 1996: 936). However, this falls short of

acknowledging that even though patents are granted to individuals it is an elite collective that benefits from these exclusive rights (Shiva, 2001: 11). Patent applications granted to industrialised countries are highly fragmented with no sufficient regulations in place to assess the process (Schuler, 2004: 177). Herein, fighting patents is a very costly endeavour on part of developing countries, especially if the patent case occurs outside the provider country (Schuler, 2004: 176-177). This is indicative of the Rooibos case study. In this regard, it is significant to address patents granted internationally and patents granted locally within the country of origin like in the case of the Neem Tree. In the case of Rooibos, Amusan (2014a: 75) argues that through recognising Rooibos as a generic term makes African countries more vulnerable to access natural resources and knowledge from the public domain through the use of intellectual property law. This case still raises concerns with regards to the exclusive ownership under the WTO/IPR regime. Moreover, developed countries have an advantage over developing countries when it comes to circumventing trade barriers (Amusan, 2014a: 71).

It is evident in all the cases examined here that natural resource appropriation calls for an intensive inspection of patent applications (Schuler, 2004: 169). These cases place impetus on the realisation of biopiracy as an illegal activity specifically in light of international instruments such as the CBD. Several concerns are raised in this respect. Firstly, that multinational corporations are implicated in illegal systems of appropriation. Secondly, that the intellectual property regime has exacerbated this activity with local communities lacking the finances and knowledge to protect their resources (Schuler, 2004: 176-177). Thirdly, that this process is largely top-down. Lastly, responses to cases of biopiracy have been largely reactionary depending on whether industries are caught out. These in effect have a detrimental effect on the local livelihoods of local communities as evident in these cases. It is evident then, that there needs to be an international movement towards the protection of local communities as key stakeholders.

4.4.3. The Convention on Biological Diversity: Access and Benefit-Sharing

In the majority of the cases benefit-sharing has proven difficult or impossible to realise. More inherently, the provision of prior informed consent has been violated in all the cases. The Convention on Biological Diversity envisions equitable benefit-sharing in order to meet its objectives of conservation, sustainability and the development of local communities (CBD, 1992: 3). However, this goal remains obscured. In relation to the provision of prior informed

consent (PIC) Article 15(5) of the CBD states that “access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party” (CBD, 1992: 11). However, PIC needs to be unpacked, in the first instance what happens to PIC when the resource is harvested in an area with no local inhabitants, or is available in various other areas as in the case of *pelargonium sidoides*? Herein, it is important to note that the obligation of PIC is subjected to the Contracting Party which in this case is the state signatory to the CBD (Jeffery, 2002: 785). However, as evident in all the above-mentioned cases prior informed consent was violated. Local communities were either completely oblivious to the appropriation of their resources or negated by industry in the commercialisation of the various resources. This raises concern in relation to the resonance between national legislation and commercialisation.

Indicative of this it is then the responsibility of industry to make the state aware of bioprospecting activity (Jeffery, 2002: 785). Subsequently, the state is obliged to incorporate this provision into its legislation as applicable “to all individuals and/or communities whose permission may be required” in relation to access (Jeffery, 2002: 785). Furthermore, the Bonn Guidelines address this particular issue noting that the state may responsible for granting access and furthermore facilitate the process of relevant indigenous community making the legalities of the process accessible to them (Jeffery, 2002: 798). PIC in this regard is then not irrelevant as it does not just involve the local community’s but is a prerequisite of the state.

In this regard, benefit-sharing agreements are not just about compensation owed but securing the livelihoods of local communities (Jiang, 2008: 1). In relation to the Rooibos case this is evident in how local farmers and communities livelihoods were disrupted in juxtaposition with the commercialisation of Rooibos (Amusan, 2014a: 71). It is argued, that industry often provisions for development in local communities however no significant difference is made (Mukerjee, 1996: 3). In light of this, there also needs to be a closer examination of the Trust Fund concept. In this regard, the question arises as to whether benefits should be directly paid into the community Trusts or an independent body subject to internal controls such as transparency, accountability, community representation and participation.

The CBD provision of State sovereignty over resources comes under critique in this regard. Roht-Arriaza (1996: 948) provides several alternative scenarios in this regard: the State can have sole ownership of its resources or partial ownership or develop a community Trust for

the respective communities like in the case of the San. The first option of sole responsibility is dubious as states have not had the best track record in protecting the rights of indigenous communities or which threatens the access and benefit-sharing ideals of the CBD (Roht-Arriaza, 1996: 948). The centralisation of responsibility impedes conservation and innovation efforts that could be done more sustainably by local communities (Roht-Arriaza, 1996: 948). Herein, even though the Trust serves as a better alternative it in itself can also result in an exclusionary system (Roht-Arriaza, 1996: 948). This is an area for further research beyond the scope of this current study.

Lastly, is the concern over access and control of the resources with regards to the seed: this raises the debate on access and control of wild resources versus the cultivation option. The local areas of cultivation are often over-harvested like in the case of the Endod Berry with certain areas exposed to problems such as deforestation (Esser *et al.*, 2003: 277). This furthermore deepens local dependence on commercial agents even though the latter are the cause of the problem. Herein, local communities who sought to cultivate their natural resources now have to depend on industry to supply them with seed. This process removes the regenerative capacity of nature and indigenous agency in transforming their own resources and grants access control of resources to industry (Shiva, 1998: 53). In this way industry has the ability to circumvent natural limitations removing the seed's ability to reproduce itself to produce a supply chain. In this regard, Shiva (1998: 54) argues that there is a "shift in ecological processes of production...to technological processes of non-regenerative production that underlies the dispossession of farmers and the drastic reduction of biological diversity". Furthermore, begging the question if industry has control over the seed then who can claim ownership of the resource? (Shiva, 1998: 54).

4.5. CONCLUSION

In conclusion the case studies represent the reality of biopiracy within developing countries. They illustrate the manifestation of power dynamics in which industry capitalise from the indigenous knowledge of local communities. The cases convey the fragmentation within national legislations and international treaties in protecting the right of indigenous people and the preservation of their livelihoods. Herein, benefit-sharing agreements become skewed not only are the monetary transactions of compensation not met, the inherent value of indigenous knowledge becomes discarded (Shiva, 2007: 311). The most imminent problem remains the "crisis of narratives" as advanced by Lyotard (1987) and knowledge production rooted within

the concept of novelty and the relevance of prior art. The issue of local livelihoods remains pivotal to the comprehension of biopiracy and its effects on local communities. The holism that indigenous knowledge and the natural resources it encompasses represents a socio-economic battleground in relation to the misappropriation, by industry often resulting in further dispossession and entrenchment in poverty. As a result, the implications of the cases illustrated above locate rural communities and their livelihoods within the commodification paradigm. This is significant in realising that natural resource appropriation within these areas, are not only exploited but that local communities and their livelihoods are up surged into an equal system of trade and development.

CHAPTER 5

ENVIRONMENTAL GOVERNANCE IN SOUTH AFRICA WITH SPECIFIC EMPHASIS ON BIOPROSPECTING ACCESS AND BENEFIT-SHARING

5.1. INTRODUCTION

The politics of the environment in South Africa should be understood within the political history of the country. Related to this is the subjugation, exclusion, marginalisation and disenfranchisement of the African majority with resultant poverty, inequality, unemployment, unequal access to natural resources and widespread environmental degradation. Environmental degradation narratives of the colonial/apartheid era informed policy. During this era, theorising about the environment was highly politicised and consequently developed as a site of struggle for many South Africans. As a result South Africa did not have a cohesive environmental management policy that accommodated all its citizens. There was and still is a need in post-apartheid South Africa to establish an inclusive politics of the environment, to address the social injustices of the past and redefine relations between the state, local communities and the environment (Khan, 2000: 165; Cock, 1991: 4).

In 1995, South Africa became a signatory to the Convention on Biological Diversity (CBD), which paved the way for a new environmental agenda on access and benefit-sharing (ABS) regarding South Africa's natural resources. The Department of Environmental Affairs and Tourism (DEAT) was thus mandated as the overarching body to ensure that the objectives of the CBD were sufficiently met. However, given that South Africa was a new democracy the policy and legislation process was largely fragmented. The crux of this Chapter is to highlight this expansive policy formulation with specific focus on ABS. Thus this discussion is then limited to the South African Constitution Act No. 108 of 1996; the White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (1997); the National Environmental Act No. 107 of 1998 and its subsequent National Environmental Management Biodiversity Act No. 10 of 2004 (NEMBA) as relating to bioprospecting access and benefit-sharing (BABS). It is important to note that this is a highly technical Chapter. Section one provides a historical synopsis, section two addresses a new wave of environmentalism in South Africa post-1994. The last section focuses primarily on the BABS regime.

5.2. ENVIRONMENTAL GOVERNANCE IN SOUTH AFRICA

5.2.1. An Historical Overview

Historically, environmental concerns were highly politicised in South Africa. Colonial politics formed the basis of romanticising the environment where impetus was placed on the protection and conservation of animal and plant life and depicted Africans as the reason for environmental degradation (Sishuta, 2014: 489). This resulted in Africans being forcefully removed from their land and subsequently their marginalisation (Khan, 2002: 18-19; Sishuta, 2014: 489). Conservation at this time was dominated by the natural sciences, advocates of wildlife and NGOs that were ignorant of the social concerns that were implicated in the political agenda of South Africa (Wynberg and Swiderska, 2001: 10). There was, also, no acknowledgement of the significance of their environmental stewardship or that they held any prior knowledge of the sustainable use of natural resources (Sishuta, 2014: 489). As a result, environmental management was narrowly characterised as authoritarian, fortress-orientated, wildlife-centred and Eurocentric, favouring the white elite (Sunde and Isaacs, 2008:4; Middleton *et al.*, 2011: 2; Sishuta, 2014: 489). In this regard, there has been a failure to sufficiently conceptualise environmental issues holistically because it has become tainted by the authoritative conservation strategy of apartheid (Cock, 2004: 2). Subsequently, South Africa had no coherent environmental policy during this era (Khan, 2000: 165).

Several interrelated issues informed the politicisation of the environment. It highlighted the institutionalisation of environmental racism practiced within the existing environmental policies of the time (Khan, 2000: 159; Sishuta, 2014: 487). Herein, environmental management and policy were deeply fragmented and played a significant role in further advancing segregation (Sishuta, 2014: 489). Not only did this have negative effects on the indigenous South African community but influenced conservation strategies (Khan, 2000: 159). Through the creation of protected areas, Africans were alienated from their land and coerced into over-crowded and environmentally degraded areas (Khan, 2002: 24; Ramphele and McDowell, 1991: 6; McDonald, 2002: 1; Wynberg and Swiderska, 2001: 10; Scott and Oelofse, 2007: 449). Within this approach, wildlife reserves were the “epitome of racist conservation in South Africa” (McDonald, 2002: 8) referred to by Khan (2000: 158) as the protection of nature for the privileged.

This was exacerbated by the Natives Land Act No. 27 of 1913, which dispossessed indigenous South Africans from their land, limiting their “ownership” to 7% compared to the

93% of their white counterparts. This was instrumental in engineering poverty and alienating indigenous South Africans from their land (Modise and Mtshiselwa, 2013: 5; Khan, 2000: 161). As a result, indigenous communities became dependent on wage labour. The creation of the South African labour force not only removed the self-reliance of indigenous communities but led to the control of the working class and their wages by the white population (Modise and Mtshiselwa, 2013: 6). In this manner the relationship rural communities had with the environment was altered.

During this time the majority of South Africans were excluded from political decision-making as well as allocation and access to the country's natural resources and services (The Green Paper on Environmental Policy, 1996: 9). These forms of exclusion advanced the idea that rural communities and South Africans in general were hostile towards environmental conservation (Khan, 2002:16; Sishuta, 2014: 489). Institution building was racially orientated, politically-aligned with the apartheid state representing predominantly white interests. In the 1960's, more African environmental organisations arose but they were politically compromised and differed immensely in terms allocated resources (human and financial). As Khan (2000: 161) argues, these organisations developed as a smokescreen for the broader apartheid agenda.

5.2.2. Sustainable Development and Environmental Justice in South Africa

The development of environmental consciousness in the 1980's was marked by a new wave of environmentalism. The African National Congress (ANC) and the Pan Africanist Congress (PAC) were the first liberation movements to develop policies on the environment with both advocating for a "holistic environmental policy, incorporating the concept of sustainable development within a democratic political framework" (Khan, 2000: 169; McDonald, 2010: 3). The African National Congress' environmental mandate was to focus on sustainable development, equitable access to resources, public participation and transparency (ANC, 2017). Even though the PAC also advocated for sustainable development PAC recognised that there was a need for sustainability inclusive of social, political and economic concerns that needed to be addressed (Steyn, 2013: 7). Critically within this era was the evolving notion of environmental justice.

Environmental justice as a discourse entered the political landscape as a means of reconceptualising environmental issues into the new political dispensation. However, this

remained subordinated by the fight for political liberation. Earthlife was at the forefront of the emerging environmental justice discourse. The concept of environmental justice was adopted by South Africa in 1992 at the Earthlife Conference where it was regarded as a black-poor-concept which worked very well (Munnick, cited in Cock, 2004: 6). Environmental justice encompasses the interrelation of environmental (green) and social (brown) issues (Cock, 2007a: 175). It moves away from the authoritarian rhetoric of the apartheid state. Cock and Fig (2001: 18) further extend this understanding to encompass access to land, basic service delivery and effective public participation in environmental concerns. Environmental justice then encompasses a complete social transformation dismantling current power structures. McDonald (2002: 3) argues “at its core, environmental justice is about incorporating environmental issues into the broader intellectual and institutional framework of human rights and democratic accountability”. Herein, environmental justice is thus instrumental in mobilising civil society into the political domain (Cock, 2004: 5). Moreover, Patel (2009: 97) argues that environmental justice consists of two elements: it is anthropocentric in nature and secondly, it is not just about equal access but addresses how power relations perpetuate the development rhetoric. However, the idea that environmental justice is anthropocentric is a misinterpretation of the concept. Environmental justice tries to overcome social inequalities whilst fighting for the protection of the environment. Significantly, the environmental justice discourse is seminal in placing emphasis on the integration of marginalised communities into the environmental agenda.

Notable organisations that advocate for environmental justice are the Environmental Justice Networking Forum (EJNF), Earthlife, Groundwork, Environmental Networking Group and the Group for Environmental Monitoring (Cock, 2004: 6-16; Sishuta, 2014: 490). Despite these organisations working closely with local communities and grassroots projects, it cannot be concluded that the concept of environmental justice has been fully incorporated into the “conservation ideology” of South Africa. This is explained by “the lack of a national environmental movement that is fully representative of South Africa’s population and capable of giving a voice to the concerns and perceptions of poor black communities” (Khan, 2000: 176). Herein, Cock (2007a: 174) argues that the concern that social and environmental imperatives are not met attributed to the lack of a “coherent centre” in the environmental movement. This has resulted in fragmentation and division of how the environment is conceptualised. Specifically, on the one end, sustainable development has been characterised as reifying early authoritarian and wildlife conservation strategies that is considered socially

shallow (Cock, 2007a: 174). On the other end the environmental justice movement is viewed as socially and ecologically inclusive, taking on a largely brown agenda. (Cock, 2007a: 175). In this way it is evident that different views are found within the conceptualisation of the South African environmental discourse.

Sustainable development has been integrated into mainstream policy addressing social concerns, however, attributing the alleviation of environmental issues through the marketization and commodification of natural resources. Sustainable development effectively removes the social struggle from that of the environment (Cock, 2007a: 175). With various NGOs in South Africa still largely influenced by the sustainable development rhetoric, which removes local communities from their embeddedness in the environment, there also remains a disjuncture in how the environment is perceived by the privileged and the poor. Wherein, the former still places focus on biological species as central to environmental issues negating the social factor (Khan, 2000: 177). This leads to the point that the environment is still inextricably linked to the socio-economic disparities prevalent in poor communities (Khan, 2000: 179). Thus, there is a need to find alternative ways to alleviate poverty in order to effectively address unequal access to natural resources and local community participation in environmental decision-making processes (Khan, 2000: 179). Theoretically, this means a paradigm shift from exclusive state regulation of resources to the inclusion of rural communities in decision making processes and their traditional techniques in conservation efforts (Sunde and Isaacs, 2008: 4; Khan, 2002: 28; Scott and Oelofse, 2007: 447; McDonald, 2002: 2; Wynberg, 2002: 233).

5.3 MANAGING BIODIVERSITY IN SOUTH AFRICA: POLICY AND LEGISLATION

5.3.1. The South African Constitution

Before any discussion on environmental policy the South African Constitution, Act No. 108 of 1996, serves as a brief starting point as the umbrella framework mandating all spheres of government, especially local to ensure that both the environment and socio-economic rights are protected (Sishuta, 2014: 492; Fuo, 2015: 18). Thus, it provides the legal framework to address basic environmental rights, specifically Section 24 states that:

“Everyone has the right:
(a) To an environment that is not harmful to their health or well-being; and
(b) To have the environment protected for the benefit of present and future generations
through reasonable legislative and other measures that:
(i) prevent pollution and ecological degradation;
(ii) promote conservation; and
(iii) secure ecologically sustainable development and use of natural resources while
promoting justifiable economic and social development”.

The provisions of the environmental right are mainly focused in the “environment, health, well-being and sustainable development” each of these terms are subject to contextual understandings (du Plessis, 2011: 292). A variety of authors provide a critic of the environmental right. McDonald (2002: 8) argues that the constitutional right offers a “formidable array of judicial tools to challenge environmental injustices”. However, du Plessis (2008: 342) and Wynberg (2006: 130) argue that this right is highly anthropocentric and remains vague on the ownership of resources due to definitional inconsistencies on genetic resources and a lack of awareness on the concern of the environment. Moreover, the environment as concept has been tainted by the authoritarian conservation strategies of the past (Cock, 2004: 2). Herein, on a practical level local (majority black) communities are still experiencing unequal access and alienation from their land and natural resources. Problems of increasing environmental degradation continue as well as unabated species loss despite this environmental clause.

5.3.2. The White Paper on Conservation and Sustainable Use of South Africa’s Biological Diversity

The Consultative National Environmental Policy Process (CONNEPP) was established in 1995 with the rise of civil society in post-apartheid (DEAT, 1996: 2). CONNEPP was an attempt to develop the environmental policy with the participation of all affected stakeholders (DEAT, 1997: 5). In effect, the discussion document was made available throughout the country in several official languages (DEAT, 1997: 6). In line with the principles of the Constitution significant outcomes of this process were the White Paper on Environmental Management (1998) and the National Environmental Management Act (NEMA), No. 107 of 1998⁴⁰ (Sishuta, 2014: 492; Cock and Fig, 2001: 18). Prior to CONNEPP, the biodiversity policy process was characterised by civil society as “terrible, elitist and untransparent” with a lack of the involvement of local communities (Wynberg and Swiderska, 2001: 21). Thus, with the onset of CONNEPP the advancement of public participation was emphasised. The

⁴⁰ Discussed in Section 5.3.3

vision of the new environmental policy was to provide a holistic strategy to addressing environmental concerns premised on the ideals of sustainable development (DEAT, 1997: 6). This involved enhancing the quality of life, advancing equitable access to land and resources, the integration of economic, social and environmental concerns, sustainable utilisation of resources and public participation (DEAT, 1997: 7).

The White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (hereafter the Biodiversity White Paper), is South Africa's landmark and seminal policy on biodiversity conservation and ABS. The DEAT (1996: 1) noted that the objective of the Biodiversity White Paper was to "provide a basis for developing an environmental policy which will lead us along the path of sustainable development and ensure that all South Africans, both now and in the future, will have an environment which always caters for their well-being". It was a response to the CBD's obligations of signatories to develop national policies to ensure that the core goals of the CBD are implemented. Herein, the sovereignty of states over their natural resources "places most decision-making at the national level" (The Biodiversity White Paper, 1997: 11). Several concepts are addressed in the Biodiversity White Paper as the guiding principles of the policy. These are listed in **Table 4** below.

Table 4. Guiding Principles of the Biodiversity White Paper

No.	Principle
1.	Intrinsic value of all life forms
2.	Duty of care towards biodiversity
3.	Sustainable use and conservation
4.	The fair and equitable distribution of benefits
5.	Full cost-benefit accounting – relating to processes and projects, which have negative impacts and the environment and society.
6.	Informed and transparent decision-making
7.	The precautionary principle – reducing threats to biodiversity.
8.	Accountability and transparency
9.	Subsidiarity of government responsibilities
10.	Participation of all interested and affected parties

(Biodiversity White Paper, 1997: 20)

Herein, the vision of the Biodiversity White Paper was to raise environmental awareness – acknowledging that humans are interrelated with their environment. Specifically, the overriding priorities of the Biodiversity White Paper were "a) the eradication of poverty; b) the sustainable development of its economy; and c) the social development of its people"

(Biodiversity White Paper, 1997: 23). These place emphasis on the notion of economic development – a premise on which is further elaborated in the National Environmental Act No. 107 of 1998 and subsequently, the National Environmental Management Biodiversity Act No. 10 of 2004. The Biodiversity White Paper is further informed by six main goals as illustrated in **Table 5** below.

Table 5: Goals of the Biodiversity White Paper

Goal	Objective
1	Conserve the diversity of landscapes, ecosystems, habitats, communities, populations, species and genes in South Africa.
2	Use biological resources sustainably and minimize adverse impacts on biological diversity.
3	Ensure that benefits derived from the use and development of South Africa's resources serve national interests.
4	Expand the human capacity to conserve biodiversity to manage its use and to address factors threatening it.
5	Create conditions and incentives that support the conservation and sustainable use of biodiversity.
6	Promote the conservation and sustainable use of biodiversity at the international level.

(The Biodiversity White Paper, 1997: 24-84)

The goals of the Biodiversity White Paper are a direct reflection of the provisions emphasised in the Convention on Biological Diversity as expressed in Article 1. Specifically, goal three is informed by the need to address key elements of developing an efficient system of bioprospecting regulation. Goal Three contextualises the Biodiversity White Paper by referring to the CBDs founding discussion with specific reference to the common heritage and common concern principles and national sovereignty (Biodiversity White Paper, 1997: 62). For a detailed discussion, see Chapter Three Section 3.3 on the CBD and its objectives.

The focus is placed on the commercialisation of biological resources. Wynberg (2002: 239) argues that commercialisation of natural resources in South Africa are important as the country is rich in biodiversity. The Biodiversity White Paper (1997: 65) furthermore, provisioned that access to South Africa's resources is controlled and facilitated by the development of effective policy legislation surrounding biodiversity prospecting with all affected stakeholders (summarised in **Table 6**). Herein, benefit-sharing encompasses conservation, building technological capacity and the rights of local communities holding

traditional knowledge, and effectively build the South African economy. More significantly, emphasis is that all benefits are shared equitably.

Table 6: Mechanisms of Access and Control

No.	Objective
1	Developing regulations and guidelines for bioprospecting
2	Establishing a permit system for the appropriation of resources
3	State the requirements for benefit-sharing
4	Advancing the participation and relation between research organisations
5	Developing a structure for the distribution of monetary benefits
6	Establishing regulations to decrease negative environmental impacts
7	Developing a sui generis system for the formal acknowledgement and protection of the collective rights of indigenous people.

(Biodiversity White Paper, 1997:65-66)

However, still in its infancy the definition of bioprospecting in the Biodiversity White Paper (1997: 64) does not make provisions for traditional/indigenous knowledge and does not differentiate between research and industrially-based commercialisation. The Biodiversity White Paper (1997: 62-76) defines bioprospecting and traditional knowledge respectively as:

“the search for commercially valuable genetic and biochemical resources from nature. These could be novel chemicals or genes used to develop new drugs, improve crop yields, or accord pest resistance to plants. Many indigenous species also hold promise for exploitation and commercialisation through domestication (e.g. ornamentals and forages). Resources for biodiversity prospecting may originate from plants, marine organisms, insects and other vertebrates, invertebrates, fungi or bacteria”.

“There is therefore a clear need to strengthen traditional knowledge, practices and cultures by protecting and recognising the value of such systems and preventing their loss. This may be achieved by ensuring that benefits arising from the innovative use of traditional knowledge of biodiversity are equitably shared with those from whom knowledge is gleaned, and also by incorporating traditional knowledge and practices into biodiversity research and conservation programmes”.

The above bioprospecting definition is highly anthropocentric placing emphasis on the exploitation and utilisation of indigenous resources for economic purposes. The definition remains technocratic and managerial neglecting the socio-environmental dialectic. In this regard, even though the ideal is to move towards sustainable development biodiversity loss continually increases unabated (DEA, 2012a: v). Whilst, traditional knowledge is alluded to in the Biodiversity White Paper there is no concrete definition of what it constitutes. Moreover, traditional knowledge should be considered as integral to the use of indigenous natural resources. In this regard, there is no resonance between the two definitions.

5.3.3. The National Environmental Management Act

The National Environmental Management Act (NEMA) No. 107 of 1998 is the umbrella legislation structuring the way in which we should engage with the environment. Specifically, it provides the guidelines on how to govern, manage and assess environmental impacts (Cadman *et al.*, 2010: 30). The primary objective of the NEMA is to

“...provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith” (NEMA, 1998: 3).

The NEMA is further informed by several principles which emphasise the interrelation of environmental and social factors but falls short with definitional inconsistencies. Specifically, Chapter 1 of NEMA (1998: 10) *National Environmental Principles* advances the need to meet the objectives of the two environmental agendas discussed above namely, sustainable development and environmental justice. In this regard, Chapter 1 is significant in the recognition of the interests of local communities and their involvement in decision making processes regarding environmental development and capacity building to ensure effective participation (1998: 10).

Whilst also recognising the need to conserve and protect the environment against biodiversity loss and degradation. Herein, Section Two notes that people nor the environment or a combination of the two should be placed at the forefront of environmental management. Furthermore, Section Three notes that “development must be socially, environmentally and economically sustainable” (NEMA, 1998: 14). This point reifies the discussion in Chapter Three, in that the sustainable development principle is not necessarily about the sustainable utilisation of the environment but how to use our resources in such a manner that will not jeopardise the process of modernisation (Sachs, 1994: 12). In these opening objectives of NEMA take on a very anthropocentric approach in addressing the needs of the people, utilising the environment for their overall well-being (NEMA, 1998: 14-17). Section 4(a) gives a more comprehensive understanding of achieving sustainable development and provisions for a more precautionary, conservationist approach to environmental management (Cock, 2004: 2). Specifically, in the interest of this study it emphasises:

“that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided are minimised and remedied; that the development, use

and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; that negative impacts on the environment and on people's environmental rights be anticipated and prevented and where they cannot be altogether prevented, are minimised and remedied" (NEMA, 1998:14-17).

Of significance is that the Biodiversity White Paper makes reference to the regeneration capacity of nature. Even though it raises this concern the objectives remain contradictory as the emphasis of sustainable development as aforementioned remains the human condition. Section 4(b)(c) move onto the concept of environmental justice. Herein, emphasis is placed on a more holistic form of environmental management. The concept itself is not definitively explained within NEMA but makes reference to the fact that "adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons" (NEMA, 1998: 14-17). Interestingly, the NEMA uses the common heritage principle, emphasising in Section 4(o) that "the environment is held in public interest for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage" (NEMA, 1998: 12). The connotations associated with the common heritage principle can be found in Chapter Three Section 3.3.2. Relevant to the issue of bioprospecting are the provisions from Section 4(d)(q) herein it is argued that:

"(d) equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination; (f) The participation of all interested and affected parties in environmental governance must be promoted and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured; (g) decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge; (h) Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means; (i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment; (k) Decisions must be taken in an open and transparent manner, and (q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted" (NEMA, 1998: 14-17).

In light of the above excerpt, it needs to be highlighted that NEMA defines 'community' and 'local community' independent from the acknowledgement of ITK. It does not make an attempt to define traditional knowledge in its definitions section in Chapter 1. This needs to be problematized as indigenous biological resources cannot be removed from the

traditional/indigenous knowledge held by communities. Even though, in the subsequent bioprospecting access and benefit-sharing regulations (BABS) ‘indigenous use and knowledge’ is defined, there remains definitional inconsistency within the policies (DEA, 2012a: 5). Herein, NEMA as an umbrella policy delivers an aspirational rhetoric but falls short of clear environmental reform. In addition to promoting sustainable development emphasis is placed on the “State’s responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter Two of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination” (NEMA, 1998: 3). It is instrumental in realising the provision of the environmental right in the Constitution through developing policies and structures to implement its agenda (Sunde and Isaacs, 2008: 7; Koyama and Mayet, 2007: 48).

It is important to note that South Africa was involved in activities of bioprospecting years before the development and implementation of access and benefit-sharing legislation (Wynberg and Taylor, 2008: 218). Most of these activities were spearheaded by research organisations that either entered into contracts legally or unlawfully (Wynberg and Taylor, 2008: 218). Herein, the commercialisation of South Africa’s biodiversity was described as taking place in a “legislative vacuum”. Thus, the policy vacuum between 1997 and 2004 has had major implications for biodiversity appropriation during this time. It would take South Africa another four years to effectively develop ABS provisions (Wynberg and Taylor, 2008: 218).

5.4 BIOPROSPECTING ACCESS AND BENEFIT-SHARING

5.4.1 The National Environmental Management: Biodiversity Act

A significant outcome of the NEMA was the National Environmental Management Biodiversity Act (NEMBA) No. 10 of 2004. NEMBA gives effect to the provisions of NEMA at a national level and the CBD at an international level, established as a “comprehensive approach to biodiversity conservation” outside protected areas (Strydom and King, 2009: 106; Cadman *et al.*, 2010: 30). The NEMBA advances “the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving

indigenous biological resources⁴¹” (2004: 1). Furthermore, the objectives of the Act are to provide for “the management and conservation of biological diversity; the need to protect the ecosystem as a whole, including species which are not targeted for exploitation; the use of indigenous biological resources in a sustainable manner; and the fair and equitable sharing among stakeholders of benefits arising from bioprospecting involving indigenous biological resources” (NEMBA, 2004: 17).

Similar to the Biodiversity White Paper, NEMBA notes that bioprospecting “relates to indigenous biological resources and means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation” (2013: 8). However, the Biodiversity White Paper provides a very limited definition whilst NEMBA extends its definition to the “the utilisation for purposes of such research or development of any information regarding any traditional uses of indigenous biological resources by indigenous communities” (2004: 12). This amendment of the definition is significant in that it locates indigenous knowledge in the context of the appropriation and utilisation of indigenous biological resources indicating that they exist as interrelated entities. Bioprospecting activity excludes from its provisions human genetic material, exotic fauna and flora, certain plants and organisms and indigenous biological resources found in the International Treaty on the Plant Genetic Resources for Food and Agriculture (NEMBA, 2004: 66).

5.4.2. Regulations on Bioprospecting Access and Benefit-Sharing

In relation to Article 15.2 of the CBD South Africa is mandated to create regulations and administrative measures to manage access and sharing of benefits in relation to the country’s resources (CBD, 1992: 10). Consistent with international instruments such as the CBD, South Africa ratified the Nagoya Protocol (NP)⁴² in 2013 and came into force in 2014 (Wynberg *et al.*, 2015: 564). Under the Nagoya Protocol South Africa is obliged to reinforce state sovereignty and Article 15 of the CBD (DEA, 2013a: para 2). Furthermore, emphasis is placed on equitable sharing of benefits arising from the utilisation of genetic resources and the “interrelationship between genetic resources⁴³ and traditional knowledge, their

⁴¹ Any indigenous biological resources as defined in paragraph (b) of the definition of “indigenous biological resource” in Section 1, whether gathered from the wild or accessed from any other source, including any animals, plants or other organisms of an indigenous species cultivated, 35 bred or kept in captivity or cultivated or altered in any way by means of biotechnology...” (NEMBA, 2004: 64).

⁴² It came into force in 2014 see Chapter Three on NP Section 3.4.3.

⁴³ “Includes- (a) any genetic material; or (b) the genetic potential or characteristics of any species” (NEMBA, 2004:14). In this regard genetic material includes “any material of animal, plant, microbial or other biological origin containing functional units of heredity” (NEMBA, 2004: 14).

inseparable nature for indigenous and local communities” (Secretariat of the Convention on Biological Diversity, 2011: 3). In this regard, Chapter 6 of NEMBA entitled *Bioprospecting, Access and Benefit-Sharing* (BABS) established in 2008 provides a framework for the regulation of Access and Benefit-Sharing (ABS) under NEMBA (ACB, 2009: 6). The principal objectives of Chapter 6 are:

“(a) to regulate bioprospecting involving indigenous genetic and biological resources; (b) to regulate the export from the Republic of indigenous genetic and biological resources for the purpose of bioprospecting or any other kind of research; (c) to provide for a fair and equitable sharing by stakeholders in benefits arising from bioprospecting involving indigenous genetic and biological resources; and (d) to ensure that the nation’s indigenous genetic and biological resources are developed and utilized in an ecologically sustainable manner while promoting social and economic development, in particular in the areas where the indigenous genetic or biological resources and associated traditional knowledge is accessed” (NEMBA, 2004: 61)

The BABS regulations reiterate the definition of bioprospecting as developed in NEMBA. However, BABS defines indigenous use/knowledge as subject to bioprospecting and NEMBA does not (BABS, 2008: 9). NEMBA also provides a definition of traditional knowledge “as knowledge of, discoveries about or the traditional use of indigenous biological resources, if that knowledge, discovery or use has initiated or will contribute to or form part of a proposed bio-prospecting or research project to which an application for a permit relates” (2008: 9). This definition links the traditional knowledge to the process of indigenous biological resource appropriation through bioprospecting. The implication herein is that a loophole is created wherein, prior to BABS communities were not recognised for their indigenous contribution within bioprospecting activity nor were they compensated. The definition of bioprospecting as specific to “commercial or industrial application” needs to be problematized. Bioprospecting activities are characterised either through bioprospecting or research other than bioprospecting (Crouch *et al.*, 2008: 358). However, in relation to the latter no distinction is made between research for the scholarly advancement and research for commercial purposes other than exporting making it harder to implement legal provisions under Chapter 6 of NEMBA. This creates “a loophole for the legislation of biopiracy in respect of commercial or industrial bioprospecting undertaken under the pretext of non-commercial research” (Koyama and Mayet, 2007: 22; Wynberg, 2004: 39; Crouch *et al.*, 2008: 361).

Definitional problems of what exactly constitutes bioprospecting needs to be comprehensively addressed as there is no definition of what constitutes commercial or

industrial exploitation (Wynberg, 204: 39; Crouch *et al.*, 2008: 361). This definitional inconsistency makes the role of research institutions under BABS ambiguous as they can be granted ownership rights over IBRs through the intellectual property system. This excludes indigenous communities from decision-making processes (Koyama and Mayet, 2007: 24-25). However, for the purposes of this thesis bioprospecting can be understood as any research on and/or appropriation of indigenous biological resources and indigenous knowledge of its utilisation for the purposes of commercialisation and advancement of scientific knowledge.

5.4.3 The Phases of Bioprospecting

Under Chapter 1 of NEMBA two phases of bioprospecting are defined: the discovery phase and the commercialisation phase. These phases of bioprospecting are subject to a bioprospecting permit issued by the Minister otherwise one will be in contravention of the regulations of the legislation (NEMBA, 2008: 25). The discovery phase “means any research on, or development or application of, indigenous biological resources where the nature and extent of any actual or potential commercial or industrial exploitation in relation to the project is not sufficiently clear or known to begin the process of commercialisation” (NEMBA, 2008: 8). The commercialisation phase is defined as “any research on, or development or application of, indigenous biological resources where the nature and extent of any actual or potential commercial or industrial exploitation in relation to the project is sufficiently established to begin the process of commercialisation” (NEMBA, 2008: 7). It is interesting to note that activities that constitute the discovery phase, research and research other than bioprospecting are highly ambiguous as any of these processes may yield potential value for commercialisation purposes specifically with regards to IP applications and market research.

Crouch *et al.* (2008: 361) argues that market and associated research is undertaken prior to the discovery phase. In this regard, industry must have undertaken some historical research to acquire an understanding of the geographical area of biodiversity hubs. The legislation is thus restrictive in that it does not acknowledge the activities of industry as much broader than what is contained in its provisions. The discovery phase logically involves a research process involving interaction with the local community and collection of data which in itself is bioprospecting and should be considered illegal without a permit (Crouch *et al.*, 2008: 361). Thus, there is concern that bioprospecting activity will take place “under the guise of basic research” (Crouch *et al.*, 2008: 361). Wynberg (2006: 140) and Crouch *et al.* (2008: 361)

argue that due to the inconsistencies present in bioprospecting for commercial gain and bioprospecting for research purposes (*and in the discovery phase – my emphasis*) there is fragmentation in effective control of and access to the natural resources in the country.

It is significant to note that within the discovery phase indigenous knowledge has been omitted. Whilst acknowledging indigenous knowledge, the Act also undermines ITK value from the beginning of its provisions. The NEMBA notes that without a permit no individual may enter into the commercialisation phase of bioprospecting in relation to IBRs and other resources from South Africa (2004: 68). In accordance with the discovery phase an amendment has been made that obliges any individual to make the Minister of Water and Environmental Affairs aware of the activity and are required to sign a document of compliance highlighting the legislation with regards to the commercialisation phase (ACB, 2009: 7; DEA, 2012a: 5).

5.4.4. The Permit System

Chapter 7 of NEMBA sets out the provisions for the permit system which allows individuals or groups access to biological resources. Without the relevant permit no one may export or commercialise biological resources in South Africa. The DEAT as result of these exemptions have noted that traditional healers are exempt from applying for bioprospecting permits with regards to the direct utilisation of IBRs and traditional customs (NEMBA, 2008: 149). The implications of this is that traditional healers would have to pay exorbitant amounts of money to obtain these permits, which are a non-refundable fee between R5000-R6000 and are subject to an annual renewal processes (NEMBA, 2008: 149). However, in the event that they sell or develop medicinal plants for profit a bioprospecting permit is required (ACB, 2009: 17). Permits for bioprospecting activity are issued on a national level. Section 88 of the NEMBA (2008: 9) provisions for three kinds of permits:

1. **Bioprospecting Permit:** “means a permit to engage in the discovery phase and/or commercialisation phase of a bioprospecting project”.
2. **An Integrated Export and Bioprospecting Permit (IEB):** “means a permit to export indigenous biological resources for the purpose of bioprospecting”.
3. **Export Permit:** “means a permit for exporting from the Republic any indigenous biological resources for the purposes of research other than bioprospecting”.

It is significant to note that the Minister of Environmental Affairs is the custodian of biodiversity and the competent authority for the issuance of bioprospecting permits and IEB permits, however, the provincial MEC is responsible for the issuance of export permits (NEMBA, 2004: 68). The Minister is responsible for naming the agents that are authorised to grant permits, to develop the mechanisms for regulating the criteria with ABS agreements, is involved in the transference of monetary benefits to the various stakeholders and is also able to consult with various other advisory boards like the National Bioprospecting Advisory Committee (Wynberg, 2006: 138; Mueller, 2011: 397; Kidd and Mayet, 2003: 243; Myburgh, 2011: 846; ACB, 2009: 7; DEA, 2014: 8-11).

There are various requirements that have to be met in order for a permit application to be granted as illustrated in **Table 7**, these are consistent with the provisions in the CBD.

Table 7. Requirements of a Permit Application

1.	Disclosure of all information related to the bioprospecting activity and IBRs utilised both to the a) issuing authority and b) the identified stakeholders;
2.	The prior informed consent has been obtained from a) the individual or group granting access to the IBR and/or b) the indigenous community;
3.	That Material Transfer Agreements (MTAs) and Benefit-Sharing Agreement (BSAs) have been negotiated and agreed upon by the user ⁴⁴ and the provider ⁴⁵ granting the access (these must be attached to the application); The MTA provision only applies to IBRs and not indigenous knowledge;
4.	That a BSA has been negotiated and agreed upon by the user and the relevant indigenous community (these must be attached to the application);
5.	Disclosure of any other permit applications applied for in relation to the specific IBR and the outcome thereof and
6.	Disclose the nature of the research and related activities for research other than bioprospecting.

(Adapted from the ACB, 2009: 9)

The DEA (2012a: 19) notes that both the BSA and MTA “are legally binding contracts” between the bioprospector and those who are providing the resource. The MTA and BSA are both subject to PIC and MAT of all interested and affected stakeholders as discussed in Chapter Three. The BSA “provides for sharing by the stakeholder in any future benefits that may be derived from the bioprospecting to which the application relates” while the MTA

⁴⁴ “Includes researchers at recognised national tertiary institutions or research institutes, exporters/traders of indigenous biological resources, multi-national corporations, local/foreign processors and manufacturers, importers, and foreign researchers” (DEA, 2012a: 24).

⁴⁵ “Providers include: a person, company, landowners, state institution or indigenous community that owns or controls the IBR” (DEA, 2012a: 10).

specifically relates to “providing or giving access to the indigenous biological resources to which the application relates” (NEMBA, 2008: 7-10). With regards to indigenous knowledge only a BSA is required. Herein, a BSA can be issued without a MTA when requesting access to indigenous knowledge without the IBR “an indigenous community that consents to use of traditional knowledge for the purposes of bioprospecting only needs a BSA and not a MAT” (DEA, 2012a: 14-15). Interestingly, Wynberg (2006: 150) argues that even though NEMBA regulations remain the same, industry prefers to bioprospect on state-owned land such as protected areas or private farms instead of communal land where PIC is less complex avoiding “lengthy and complex negotiations with a community”.

According to Crouch *et al.* (2008: 362) realistic benefit-sharing agreements are “difficult to negotiate, with the process being unduly difficult, costly and onerous for the applicant”. These processes are even more difficult for local communities to infiltrate with bioprospecting permit costs estimated to be over five thousand rand. Despite lack of access to these processes local communities are continuously found at the losing end of these negotiations where no effective development or capacity building has taken place (Wynberg, 2006: 151).

Permits are only granted to legal South African residents therefore any outside party who wants to apply for a permit must do so in association with a South African citizen (ACB, 2009: 9; DEA, 2012a: 5). Permits may also be revoked on the basis of false information provided by the applicant (NEMBA, 2004: 74). Stakeholders are also allowed to appeal against permit applications subject to complaints experienced and provided to the Minister within 30 days (NEMBA, 2008: 21). Before a permit is issued it is the responsibility of the Minister to consult and protect the interest of affected stakeholders. Stakeholders in this regard include:

(a) A person, including any organ of state or community, providing or giving access to the indigenous biological resources to which the application relates; and (b) an indigenous community or a specific individual- (i) whose traditional uses of the indigenous biological resources to which the application relates have initiated or will contribute to or form part of the proposed bioprospecting; or (ii) whose knowledge of or discoveries about the indigenous biological resources to which the application relates are to be used for the proposed bioprospecting” (NEMBA, 2004: 63).

The reservations of the ACB (2009: 5) with regards to the issuance of permits are worth noting – specifically the “lack of opportunity for public participation by civil society in the

bioprospecting permit process, problems with accessing information, issues relating to the restricted appeal process, and the apparent conflict between the bioprospecting laws and apartheid provincial legislation”. Another prominent concern that arises is that there is no obligation for permit applicants to give notice that a permit has been applied for. As a result, there is a complete lack of all-inclusive decision-making regarding interested and affected stakeholders, civil society, public participation and local community representation (ACB, 2009: 9-21). Also, the idea of who constitutes as a stakeholder in relation to local communities becomes ambiguous where there is no distinguishing between a “community” providing access to an IBR and an “indigenous community” whose knowledge is being utilised.

Local harvesters also require a permit to harvest. This is done on a provincial and local level (ACB, 2009: 27). However, homeland policies largely still govern the Eastern Cape⁴⁶ these include the Ciskei Nature Conservation Ordinance 10 of 1987⁴⁷ (Ciskei Act), The Transkei Decree No. 2 of 1992 and the Nature and Environmental Conservation Ordinance 19 of 1974 (Hartle, 2011: 1). It is also significant to note that these policies are all statutes developed during the apartheid regime (Koyama and Mayet, 2007: 26; Hartle, 2011: 1, BMP, 2011: 10; ACB, 2010: 18). In the Eastern Cape Province there has been no amalgamation of its three statutes, moreover in relation to the permit system the provincial level has not been updated in accordance with national provisions in relation to access and commercialisation of biodiversity (Biodiversity White Paper, 1997: 87).

BABS only came into effect on the 1 January 2008. These activities were allowed on the provision that a benefit-sharing agreement be negotiated before the 1 January 2007, failing which the activity would be considered illegal. It is noteworthy, that legislation does not provide any protection of indigenous knowledge exploited without consent prior to 2007. Thus, ignoring the historical record local communities hold with regards to indigenous knowledge (Hartle, 2011: 1). This gap is important in that any indigenous knowledge exploited prior to 2007 is not subject to provisions of a BSA thus those communities do not benefit fair and equitably from the use of their knowledge. This time period is indicative of the bioprospecting activity surrounding the appropriation of *pelargonium sidoides*⁴⁸. The

⁴⁶ Further discussed in Chapter Six and Nine

⁴⁷ Ciskei Nature Conservation Act of 1987 was mandated “to consolidate and amend the laws relating to the conservation, management and protections of fauna, flora and fish and their habitats generally, to provide for the establishment and management of nature reserves...”

⁴⁸ This is further discussed in Chapter Six.

pelargonium case is indicative of an effort to conserve the resource and the delegation of fair BSAs however the case illustrates that “monopolistic control, complex and uncoordinated laws, elite capture of benefits and increased cultivation undermine benefit-sharing” (van Niekerk and Wynberg, 2012: 530).

5.4.5. Patents in South Africa: A Brief Overview

Patents further complicate bioprospecting activity. South Africa is a signatory to the Agreement on Trade Related Aspects of Intellectual Property (TRIPS⁴⁹). On an international scale South African patent laws are subject to the Patent Cooperation Treaty (PCT)⁵⁰ which ensures compliance with regards to regulations in patent applications (Gregory, 2008: 11; Pechacek, 2012: 201; Cock and Fig, 2001: 30). In relation to Article 27 of the agreement on TRIPS the South African Patents Amendment Act of 2005 extends this provision subjecting applicants to disclose information regarding the impact of IBRs or traditional knowledge of its use in relation to the innovation. If there is a direct relation then the application must provide proof that access to these resources has been granted by the relevant community (Crouch *et al.*, 2008: 357). This raises a serious concern in relation to the premise of novelty, newness and non-obviousness as discovered in Chapter Three Section 3.5. This argument is also unpacked in Chapter Two wherein the patents are argued to be nothing but a robbery system – “patent claims are not only economically unjust, but are a moral affront to the many generations of Africans who have cared for and created the continent’s rich genetic and cultural diversity” (African Centre for Biosafety, 2009: 5).

The concern over rightful ownership of these resources and knowledge lies at the core of benefits arising from their utilisation. In the case of South Africa Crouch *et al.* (2008: 357) argues that there is a distinction between resources occurring on state-owned land, private-owned land and communal land in this regard industry often chooses to set up agreements with “owners whose ownership status is most straightforward”. This effectively marginalises land that is communally owned and has numerous implications for the community (Crouch *et al.*, 2008: 357). Furthermore, the problem is not necessarily access to resources alone but also access to justice where legal litigation on part of local communities against patents is often

⁴⁹ For a detailed discussion see Chapter 3 Section 3.5.

⁵⁰ “the Patent Cooperation Treaty is an agreement for international cooperation in the field of patents...It is however largely a treaty for rationalization and cooperation with regard to the filing, searching and examination of patent applications and the dissemination of the technical information contained therein...the principal objective of the PCT is by simplification leading to more effectiveness and economy, to improve on — in the interests of the users of the patent system and the Offices which have responsibility for administering it — the previously established means of applying in several countries for patent protection for inventions” (WIPO, 2008: 277).

costly and outdrawn (Wynberg, 2006: 141). This process is indicative of the pelargonium patent case further addressed in Chapter Six.

5.5. CONCLUSION

In conclusion this Chapter has addressed a number of pitfalls in the current biodiversity legislation. From a historical standpoint the adoption of international agreements and introduction of legislation on biodiversity and the environment came at a time when South African democracy was still in its early stages of formation. In light of this most of the legislation is still informed by the rhetoric and power dynamics of past authorities. Western ideologies are still engrained within ideas of development and conservation. Even though there are many policies and legislation in place that govern biodiversity there is still fragmentation within these regulations specifically related to bioprospecting, access and benefit-sharing. This is largely attributed to the policy vacuum that developed between 1998 and 2004 which created a gap of unrestrained access to South Africa's natural resources. Going forward this has informed the unequal ABS negotiations and left communities at the periphery of the decision-making processes regarding their resources.

Moreover, definitional, technical, structural and authoritative problems exist within the administration of the BABS regulations. Definitional problems create ambiguity with regards to stakeholders, ownership, access and benefit-sharing resulting from the utilisation of IBRs. Technical and structural problems create loopholes and non-compliance with regards to disclosure of stakeholders, origin and significant information regarding BSAs and MTAs. In light of this, the issue of confidentiality highlights the negation of public participation within the process of permit applications and associated BSA and MTA agreements. Authoritative problems create discrepancies within the governance, administration and implementation of various policies and legislation which may exist in contradiction to one another. Lastly, public participation plays a central role in the reviewing process of permits, however, thus far the pivotal role of the public and local communities in decision-making processes regarding the issuance of permits has been denied.

CHAPTER 6

THE CASE OF PELARGONIUM SIDOIDES IN THE RAYMOND MHLABA LOCAL MUNICIPALITY

6.1. INTRODUCTION

The Eastern Cape is a largely underdeveloped, however, it is a biodiversity rich-area. Serious concerns have been raised in relation to the rampant overharvesting of medicinal plants and their commercialisation in the area. *Pelargonium sidoides* is one of several other medicinal plants being pillaged. This includes: *aloe ferox*⁵¹, *devils claw*⁵², *rooiwortel*⁵³, *African potato*⁵⁴ and *pelargonium reniforme*. The case of *pelargonium sidoides* in the Raymond Mhlaba Local Municipality is illustrative of the disparity that exists between capital accumulation, unsustainable resource use, local livelihoods and ambiguous biodiversity legislation. In light of recent rampant exploitation and unsustainable management there exists a skewed relation between industry, local communities and the state. This analysis notes that due to the premature introduction of biodiversity legislation in South Africa there remains a lack of capacity within state institutions as well as local communities as providers in dealing with cases of access and control of genetic material and indigenous knowledge thereof. Closely related to the issue of resource appropriation in the Masakhane community is the question of land. In this regard it is then important to note that the economic value of *pelargonium sidoides* or medicinal plants in the province could be a significant economic driver as a solution to underdevelopment and unemployment. In light of this it is suggested that there is a need to build capacity within local communities.

The first section addresses the demographics of the Eastern Cape highlighting the disparities within the province and the research area. The section also sheds light in the dynamics of traditional leadership⁵⁵. The second section provides a description of the attributes of *pelargonium sidoides* and *reniforme* as well as a historical overview of the appropriation of these plants. The last section examines the *pelargonium* patent case and the Biodiversity Management Plan for *pelargonium sidoides*.

⁵¹ *Aloe Ferox* Mill (DAFF, 2013).

⁵² *Harpagophytum procumbens* DC. (DAFF, 2013).

⁵³ *Bulbine latifolia* spreng (www.desert-tropicals.com)

⁵⁴ *Hypoxis hemerocallidea* (DAFF, 2013).

⁵⁵ In this thesis the terms traditional leadership, traditional authority and chieftaincy are used interchangeably at the risk of over-simplification.

This chapter then aims to illustrate the power dynamics, key actors, evolution of rampant harvesting of pelargonium sidoides and the international litigation instituted by the Masakhane Community Property Association. As well as the contradictions present in access and control pelargonium sidoides. Included in this is an attempt to unpack the insufficient policy and legislation surrounding the management and protection of pelargonium sidoides.

6.2. THE EASTERN CAPE PROVINCE: HISTORY, LAND AND CHIEFTAINCY

6.2.1. The Landscape and Governance

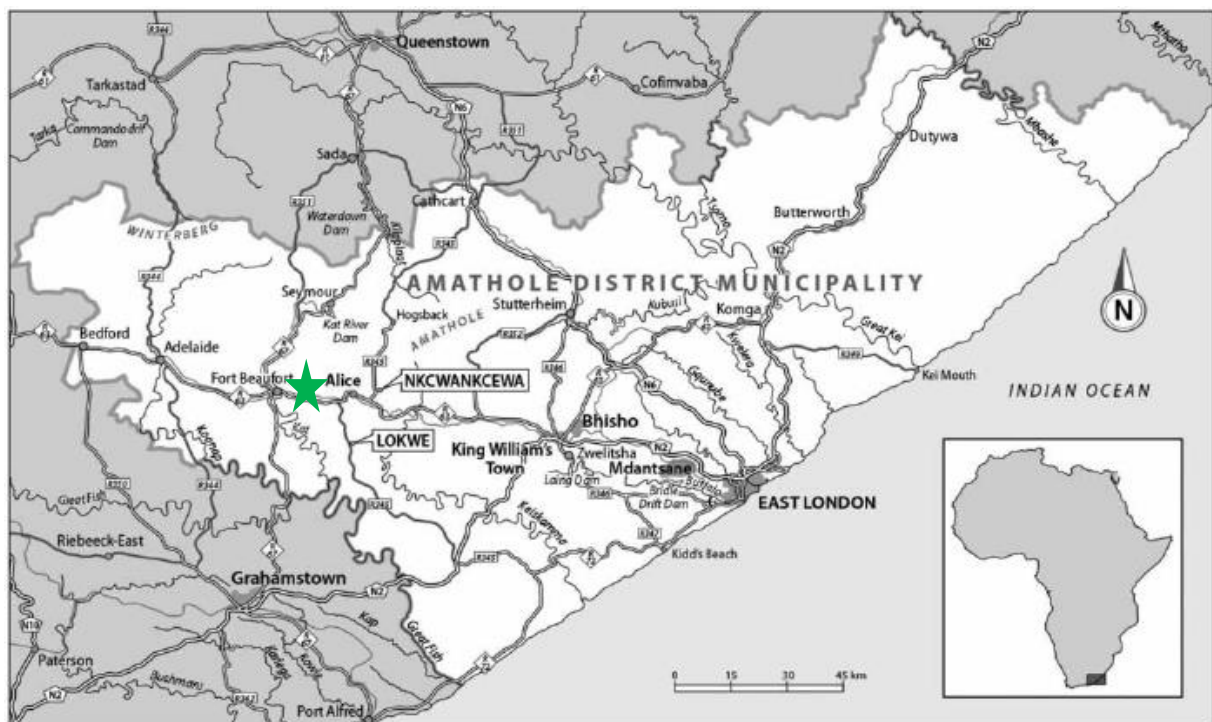
The Eastern Cape Province was demarcated in 1994. It is made up of the former homelands, the Transkei and the Ciskei, and the former Cape Province. Currently, the Eastern Cape is the second largest province spanning approximately 169 954 square kilometres (Municipalities of South Africa, 2018). The Eastern Cape is made up of 8 districts and 31 local municipalities of which Nelson Mandela Bay and Buffalo City are the 2 largest metropolitan areas (Municipalities of South Africa, 2018). The economic hubs the provinces remain within these metropolitan areas. The provincial capital is Bisho and it is politically ruled under the leadership of the African National Congress (ANC). The Eastern Cape is considered the “traditional home of the isiXhosa nation” with most rural areas still governed under traditional leadership (Ngxetwane, 2011: 33; van Niekerk, 2009: 11; Census, 2011: 45).

The population constitutes of approximately 6,562,053 people with 63% percent of the population living in rural areas. The Eastern Cape has the second highest poverty level in South Africa with 47% of large family households (often headed by females). The main sources of income are social grants or remittances of R800 or less (Kewana, 2009:17; Westaway, 2012:117; Dirwayi, 2010:8; van Niekerk, 2009:11; Perret, 2001-12:5). These areas are plagued by poverty, inequality, and lack of sufficient access to education and basic services. These areas are largely underdeveloped with little, to no, economic activity and adequate infrastructure (Ngxetwane, 2011: 33; Nkonkobe IDP, 2013/14: 33). Illustrative of these inequalities is the Raymond Mhlaba Local Municipality (hereafter Raymond MLM) situated in the Amathole District Municipality, which is identified as the third poorest district.

In 2016, the Raymond MLM was established through combining the Nkonkobe Local Municipality and Nxuba Local Municipality with a population of 159 515 people (Municipalities of South Africa, 2018). The Raymond MLM is constitutive of Adelaide, Bedford, Fort Beaufort, Middledrift, Alice, and Seymore, “making up a third of the

geopolitical area” (Municipalities of South Africa, 2018). These areas are also characterised by an abundance of informal settlements (van Niekerk, 2009: 12; Dirwayi, 2010: 6). Agriculture in the area is depressed and remains marginal to the vast majority of the residents in the rural areas. This area has a rich history of land that has been reclaimed by the government which formed part of the Ciskei independence in the 1960’s (Nkonkobe Municipality Annual Report, 2015-16: 8). However, most of the surrounding land is owned by white commercial farmers with the black majority depending on subsistence farming to sustain their livelihoods. It is within the Raymond MLM that the appropriation of natural resources became prominently evident.

Figure 1: Map of the Eastern Cape showing the Amathole District Municipality



(Source: van Niekerk and Wynberg, 2012: 532)

The institution of traditional leadership is a prominent feature in most of these rural areas. The Raymond MLM is no exception. Specific to this study, traditional leadership plays a central role in capturing the dynamic interplay of these rural disparities in relation to the natural resource appropriation in the Raymond MLM. For this reason it is significant to highlight the importance of traditional leadership as a governing structure. During the apartheid era chiefs were governed by the Bantu Authorities Act of 1951 (Vail, 1989: 105). In the case of the Ciskei this resulted in the National Party’s “policy of retribalisation” which entailed the redistribution of previously white-owned and black-owned land for “geopolitical

unity” (Vail, 1986: 400). Herein, chiefs had authority over land through rightful ancestral lineage (Ribot, 2001: 78).

Post-1994 the resilience of traditional authorities (TAs) has been cemented in Section 212 of the Constitution and the Traditional Leadership and Governance Framework (TLGF)⁵⁶ Act No. 41 of 2003 (Ntsebeza, 2005: 14; Kewana, 2009: 6). According to the Preamble of the TLGF traditional leaders are mandated to:

“promote freedom, human dignity and the achievement of equality and derive its mandate and primary authority from applicable customary law; strive to enhance tradition and culture; promote nation building and harmony and peace amongst people; promote the principles of co-operative governance in its interaction with all spheres of government and organs of state; and promote an efficient, effective and fair dispute-resolution system, and a fair system of administration of justice, as envisaged in applicable legislation.”

Traditional leadership under the TLGL (2003: 6) is defined as “the customary institutions or structures, or customary systems or procedures of governance, recognised, utilised or practised by traditional communities”. However, there has been contestation over their legitimacy within the democratic state. Herein, Ntsebeza (2005: 19) argues that traditional leadership presents a concern in effectively institutionalising democracy and development. There exists an essential contradiction in implementing South Africa’s Constitutional provisions of an accountable, decentralised, liberal democracy whilst attempting to “accommodate a role for the institution of traditional leadership” in rural areas which is an entirely undemocratic, unaccountable inherited role (Ntsebeza, 2005:24). Specifically, structures of chieftaincy impede upon the Constitutional right of communities to choose local representatives (Ntsebeza, 2005: 16). More importantly, it is argued that chiefs may not be partial to the entire population and that they are often instruments of the central state authority. Thus, they do not need to be liable to the community and working in association with them does not ensure local development (Ribot, 2001: 77). In the case of the former Ciskei there has been a move towards more community-based social organisations (Ribot, 2001: 78; Ntsebeza, 2005: 24). According to Jara (2011: 2) these decentralised organisations have become embedded within a more constitutional governance to advance local development.

⁵⁶ In this thesis the terms traditional leadership, traditional authority and chieftaincy are used interchangeably at the risk of over-simplification.

The discussion by Fuzile (2012: 1) is a microcosm of the attitude of communities towards this institution. This is illustrated in the 2012 Zalarha villages outside King Williams Town where tensions arose between various fractions in relation to traditional leadership. In this case “some villagers support a traditional headman, while others say the system is an outdated approach used by government to rule villagers” (Fuzile, 2012: 1). These contested views have resulted in the villages turning into a “war zone” creating divisions within the community itself (Fuzile, 2012: 1). This contestation is evident in the Raymond MLM between the Masakhane Community Property Association and the Imingcangathelo Community Development Trust, presided over by chieftaincy. These communities have become entangled in a complex web of natural resource trade that has systematically marginalised local communities on all aspects of trade related activities.

6.3. PELARGONIUM SIDOIDES: A HISTORY OF UTILISATION AND TRADE

6.3.1. Pelargonium Sidoides: Description and Properties

Pelargonium sidoides (hereafter *p.sidoides*) is a traditional medicinal plant belonging to the Geranium family and is endemic to South Africa and Lesotho. In South Africa they are found in certain parts of the Eastern Cape, the Free State, and Gauteng. A similar looking species *pelargonium reniforme* (hereafter *p.reniforme*) is however only found in South Africa (van Niekerk and Wynberg, 2012: 531; Koyama and Mayet, 2007: 28). *Pelargonium* is usually found in “short, open grassland, often in rocky places in sandy to loamy soil derived from quartzite, shale or basalt” (Brendler and van Wyk, 2008: 427). The original Khoi name for *pelargonium* is *rabas* other names include *umckaloabo*, *uvendle*, *umkumiso*, *kalwerbossie*, *rabassam*, *rooirabas*, *kubalo*, *icwayiba* and *khoaara e nyenyane*. These names often translate into the literal meaning of the ailments that were treated (van Niekerk, 2009: 34; Brendler and van Wyk, 2008: 422; Taylor *et al.*, 2005: 790; Newton *et al.*, 2008: 2; ACB, 2008: 3).

The term *Umckaloabo* derives from the Zulu words *umkhuhlane* referring to lung diseases (Taylor *et al.*, 2005: 790). The plant has been generally used across various cultures. The root has been mainly used for the treatment of dysentery, diarrhoea, gastritis, gonorrhoea, colic, asthma, as a paste for acne, tuberculosis, respiratory tract infections and a variety of livestock ailments (van Niekerk, 2009: 36). The preparation of the remedy involves boiling the sliced root in either water or milk and the leaves may also be used as a paste to cover wounds (van Niekerk, 2009: 36).

P. sidoides is characterised by its thick red root which is used as the main ingredient in curing respiratory ailments mainly tuberculosis and certain diseases in livestock other uses are cosmetic such as a face mask (Lewu *et al.*, 2007: 381). Moreover, it “is an aromatic plant with crowded, velvety, heart-shaped, long-stalked leaves’ (Lewu *et al.*, 2007: 381). The physical appearance of *p.sidoides* is very similar to *p.reniforme*, the only difference is that the latter has pink flowers and the former dark red. *P.sidoides* is the more highly esteemed variety as significant extracts and tinctures are more predominant (Brendler and van Wyk, 2008: 421; Lewu *et al.*, 2007: 381; Koyama and Mayet, 2007: 28). Interestingly, it has been debated that due to their highly similar features harvesters can often not tell the difference collecting them together (Van Niekerk and Wynberg, 2012: 531; Mayet, 2010: 5; Lewu *et al.*, 2007: 380; Brendler, 2009: 299).

Figure 2. Images of the Pelargonium Species Root and Leaves



(Captured during field research)

6.3.2. The International Trade of Pelargonium Sidoides

Recorded biopiracy of *p.sidoides* can be traced back to 1897 when Englishman Charles Henry Stevens who had contracted TB found himself a cure in his travels to Lesotho (Koyama and Mayet, 2007: 29; van Niekerk, 2009: 41; Brendler, 2009: 297). Realising the potential of *p.sidoides* Stevens sold his tincture in England as “Steven’s Consumption Cure”. Following which, he gained an international market selling in India and the United States. However, even though his efforts were successful there was no scientific premise to validate

the cure. In light of this, his remedy was not considered a legitimate remedy by the British Medical Association (BMA) (Koyama and Mayet, 2007: 29; van Niekerk, 2009: 41; Brendler, 2009: 297; Taylor *et al.*, 2005: 791).

In the 1960's a Swiss Physician Dr Adrien Secheyay further advanced Stevens remedy and successfully treated 800 patients with tuberculosis. However, the BMA continued to doubt the origin and potential of *p.sidoides*. The cure was then marketed under the name Umcka. After Stevens' death his son sold the business to a company in Germany (Taylor *et al.*, 2005: 792). Subsequently, in 1997 Dr Sabine Bladt discovered the main active property in Umckaloabo which propagated pharmaceutical research for an ethanol-based extraction method to remove EPs 7630 from the pelargonium root (Brendler, 2009: 298; Taylor, *et al.*, 2005: 791). This extract was significant in treating acute bronchitis, two fungal pathogens that affect the respiratory tract and consisted of antibacterial, antiviral properties (van Niekerk, 2009: 36; Brendler and van Wyk, 2008: 428).

Given the broad overview of this historical context the key focus here is the involvement of international companies ISO-Arzneimittel and Schwabe Pharmaceuticals. In 1939, successful trials addressing the properties of *p.sidoides* resulted in the establishment of Umckaloabo by Germany-based company ISO-Arzneimittel (Koyama and Mayet, 2007: 30). By 2002, ISO-Arzneimittel had applied for patents on various appropriations and processes of extracting properties from both species of pelargonium. It has become a fully licensed herbal medicine by industry in Germany for the treatment of respiratory ailments in children (Koyama and Mayet, 2007: 30; van Niekerk, 2009: 42; Brendler, 2009: 299; Taylor *et al.*, 2005: 790). ISO-Arzneimittel is part of a global conglomerate called the "Dr Schwabe Group" which includes Natures' Way and Spitzner (van Niekerk and Wynberg, 2012: 534; Koyama and Mayet, 2007: 50; van Niekerk, 2009: 44; ACB, 2008: 3).

Schwabe Pharmaceuticals (hereafter Schwabe) is a German-based family-owned company established in 1866 focusing mainly on the production of naturally-based herbal treatments for health ailments (Mayet, 2007: 2). Schwabe is ranked amongst the top pharmaceutical companies in the world. In 2004 alone Schwabe's profit margin was worth 420 million Euros and in 2008 generated 390 million Euros just from natural medicines and 80 million Euros from Umckaloabo (Mayet, 2007: 2; van Niekerk and Wynberg, 2012: 534; Koyama and Mayet, 2007: 50; van Niekerk, 2009: 44). Exclusive monopoly has been granted to Schwabe

over the commercialisation and distribution of *p.sidoides*-based product, Umckaloabo, viewed as the top selling product in Germany for respiratory ailments. Schwabe harvests over 440 tonnes of *pelargonium sidoides* a year (Van Niekerk and Wynberg, 2012: 531; Koyama and Mayet, 2007: 26; Brendler, 2009: 296; Lewu *et al.*, 2007: 381; van Niekerk, 2009: 44).

Gaining international recognition *pelargonium sidoides* packaged under the name Umckaloabo is marketed in the Ukraine, Russia and Latvia as Umckalor and is available under the Traditional Herbal Products Directive in Great Britain and Northern Ireland, in North America and Mexico (Brendler, 2009: 299; Brendler and van Wyk, 2008: 427). Interestingly, *p.sidoides* has also been harvested by Schwabe *ex-situ* in Mexico and Kenya due to more rigorous regulations being implemented in South Africa. This was viewed as a “natural move by a large corporation to secure its supply chain” (van Niekerk, 2009: 46). There exists a total of seven patents in various countries on *pelargonium sidoides* and *reniforme* (Brendler, 2009: 299; Brendler and van Wyk, 2008: 427).

In the South African context *pelargonium sidoides* is ranked as the 28th most exported resource in the Eastern Cape (van Niekerk and Wynberg, 2012: 531; Koyama and Mayet, 2007: 26; Brendler, 2009: 296; Lewu *et al.*, 2007: 381; van Niekerk, 2009:43). Even though *pelargonium sidoides* has secured an international market 70% of South Africans rely on natural remedies to treat illnesses. In the Eastern Cape the “trade in medicinal plants plays a vital role in the healthcare of consumers of traditional medicines who may not be able to afford or have access to conventional medicine” (van Niekerk, 2009: 42; Hartle, 2011: 1).

There is a direct link between the South African and international markets regulating *p.sidoides* trade. Parceval Limited (Ltd.) is active in the trade value chain of *p.sidoides* and other natural resources supplying various other industries in the country. Parceval Ltd is significant as they were formerly part of the “Dr Schwabe Group” subsidiary established in 1992, Parceval Ltd. is both a supplier and producer of the *pelargonium*-based remedy and has been exporting *p.sidoides* on an international scale since 1995 (van Niekerk and Wynberg, 2012: 534; Mayet, 2010: 12; van Niekerk, 2009: 44; Mayet, 2007: 2; Brendler, 2009: 299).

To ensure a consistent supply of *p.sidoides* and other natural resources Parceval Ltd started their own cultivation farms, in Wellington, Western Cape, 1996 – however the majority of their raw material is still collected from the wild (Koyama and Mayet, 2007: 33). Parceval

Ltd. was granted a harvesting permit under the provincial Eastern Cape Ciskei Nature Conservation Act Ordinance 10 of 1987 established under apartheid – which provisions for permits to be granted in order to harvest in the former Ciskei region (DEA, 2011: 10; Koyama and Mayet, 2007: 26; Hartle, 2011: 1; ACB, 2010: 18).

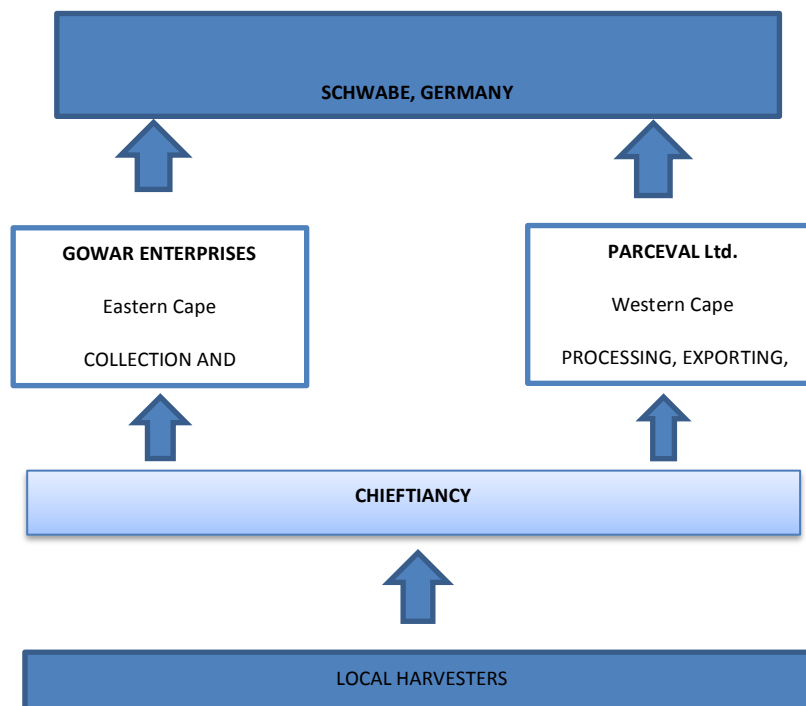
Parceval Ltd. together with Schwabe Pharmaceuticals entered into a benefit-sharing agreement with the Imingcangathelo Community Development Trust (ICDT) to harvest Pelargonium in 2008 (Msomi, 2013: 60). The ICDT is made up of 40 trustees who have been appointed by Chieftainess Tyali some of whom are from the villages under her jurisdiction (Andre and Baux, 2011). Van Niekerk and Wynberg (2012: 537) report that it was a “natural step” for industry to associate with the ICDT as it was governed by an “organised structure” namely chieftaincy (van Niekerk and Wynberg, 2012: 538). Parceval Ltd. was granted a national Integrated Export and Bioprospecting Permit on the 10th July 2013 which allows them to trade, cultivate, process and commercialise wild harvested material both nationally and internationally (DEA, 2013b: 2). This permit is further premised on the grounds that harvesters who are directly engaged in the cultivation and processing of the wild material need to be compensated (DEA, 2013b: 2). In this sense Parceval Ltd. is required to create employment opportunities as well as build capacity in relation to sustainable harvesting practices (DEA, 2013b: 2).

A second role player, Gowar Enterprises also holds a permit to harvest p.sidoides (Koyama and Mayet, 2007: 26; Hartle, 2011: 1; BMP, 2011: 10; ACB, 2010: 18). Gowar Enterprises is a local supplier of p.sidoides in the Eastern Cape and is also involved in the Aloe Ferox industry. Gowar supplies pelargonium in its raw form, harvesting and transporting the raw material (van Niekerk and Wynberg, 2012: 534; van Niekerk, 2009: 47; Mayet, 2010: 12). Gowar Enterprises formerly supplied the intermediary buyer BZH Export & Import, situated in the Western Cape. Which in turn, supplied Parceval Ltd. who exported p.sidoides to Schwabe (van Niekerk and Wynberg, 2012: 534; van Niekerk, 2009: 47). However, Parceval Ltd. is no longer the sole exporter of pelargonium sidoides, with Gowar Enterprises being issued an Integrated Export Permit⁵⁷ in 2011. This allows Gowar Enterprises direct access to the international market. Thus, granting Gowar Enterprises with the same opportunities as Parceval Ltd. ultimately changing the trade structure. Gowar Enterprises is however only

⁵⁷ See Chapter Five section for a detailed description

permitted to sell *pelargonium sidoides* and *aloe ferox*, the raw materials of these plants come in different forms (DEA, 2012c: 3). The latter is harvested as sap/crystals/leaves, and the *pelargonium* root on communal lands (DEA, 2012b: para 34). The local harvesters remain as beneficiaries of this process and must be paid upfront by the permit holder (DEA, 2012c: 4). **Figure 3** is illustrative of the dynamic trade interaction between industry, chieftaincy and local harvesters.

Figure 3. The Pelargonium Trade in South Africa



6.3.3. The Moratorium of *Pelargonium Sidoides* Harvesting: A Case of Illegal Appropriation

The case of *p.sidoides* gained prominence between the periods of 2000 until 2008 where several concerns were examined (ACB, 2010: 10). These were spearheaded by a local Masakhane community member Nomthunzi Api. It is important to note that the issues raised in this section run concurrently with the international litigation fought against Schwabe by the Masakhane Community Property Association with the assistance of several non-governmental organisations. The latter is further addressed in Section 6.4. In this section four themes emerged with regards to the illegal appropriation of *p.sidoides*; harvesting activity was in contravention of the permit system and existing legislation, harvesting was done unsustainably, and the large disparity in the trade value chain between local harvesters and industry and lastly the moratorium placed on *p.sidoides* harvesting.

In relation to unsustainable harvesting practices the African Centre for Biosafety (2010:10) found that harvesting was taking place at an alarming rate not allowing for the sufficient regeneration of the species. Generally, across the Eastern Cape Province it was reported that over this 8 year period approximately “330 million plants were uprooted” (Hartle, 2011: 1; van Niekerk and Wynberg, 2012: 544; Stern, 2008: 2). This effectively resulted in the complete degradation of *p.sidoides* in the wild. Specifically, in the Grahamstown area where it is reported that 14000 hectares of *p.sidoides* was uprooted (ACB, 2010: 10). Between 2002 and 2003 several arrests were made in relation to illegal harvesting of both *p.sidoides* and *p.reniforme*. Specifically, industry was in contravention of the Ciskei Act 10 of 1987. Herein, not only was industry charged with storing illegal plant material they were doing this without the required permits under the Act (ACB, 2010: 10).

Interestingly, nine elderly women were also arrested during this time and charged with illegal harvesting. These harvesters were sentenced to three months imprisonment however industry was charged with a meagre fine in comparison (Koyama and Mayet, 2007: 34; Gerardy, 2002: 1). Herein, it is argued by Limson (2002: 2) that the main transgressors of the international and national policy and legislation have been “protected by loopholes in the law”. A botanist from the Albany Museum in Grahamstown described the misappropriation of *pelargonium sidoides* as “potentially very serious biopiracy” (Gerardy, 2002: 2). Ms Sizani a representative of the Masakhane CPA stated that “the community wants to stop [companies] from saying they were the first to know this medicine is important, because we grew up knowing that...they are like thieves, just stealing the indigenous knowledge” (ACB, 2008: 2).

The Albany Museum has played a key role in the identification of the *pelargonium* species for various interested parties who needed assistance in verifying the plant properties (Limson, 2002: 2; Gerardy, 2002: 2). They also enlisted the aid of local individuals in the Ciskei area thus they had easy access to plant material. It was estimated that about 484 tonnes of *pelargonium* was being traded (Limson, 2002: 2; Gerardy, 2002: 2)

What is more significant in the *pelargonium* trade is the disparity that exists between the compensation that harvesters receive in relation to the profit made by these companies. Many of these harvesters are mainly women dependent on the local resources and social grants to sustain their livelihoods (van Niekerk and Wynberg, 2012: 531; Mayet, 2010: 5;

Lewu *et al.*, 2007: 380). On an average, harvesters in the community make between R2-R4 per kilogram resulting in an income R200 per month on raw pelargonium which does not secure livelihoods in an already poverty-stricken community (van Niekerk and Wynberg, 2012: 536; Mayet, 2010: 10). Not only does local industry sell the raw material at a profit, Mayet (2010: 12) argues that harvesters are only “paid only €0.0058 for the raw material needed to produce one 100ml bottle of Umckaloabo, equalling 0.17% of Schwabe’s total costs of producing such a bottle”. This is less than 1%, so in reality there is no equitable sharing of benefits on behalf of Schwabe Pharmaceuticals (Mayet, 2010: 12).

The concerns raised above led to the government placing a moratorium on the harvesting of *p.sidoides* in 2007. The implication of this was that all harvesting permits expired on the 31 March 2007 but were extended to the 31 June 2007 after which harvesting was considered illegal (ACB, 2010: 10). However, the ACB notes that the DEAT had issued three new collection permits on the 30 April 2007 as well as a transport permit to export from the Eastern to the Western Cape for processing these actions prove contradictory as harvesting continued (Koyama and Mayet, 2007: 34). Upon further investigation the ACB found no benefit-sharing or material transfer agreements and no compliance with the provisions of prior informed consent, so harvesting activities were actually not permitted as per the provisions set out on the 1 of January 2007 (Koyama and Mayet, 2007: 35). In 2009 the ban was partly lifted allowing industry with permit applications to continue their business (van Niekerk and Wynberg, 2012: 538). Ndaba (2010: 1) argues that the officials of the Department of Water and Environmental Affairs provisioned that if anyone was in contravention of these requirements they would be subject to a sentence of 5 years and a R5-million fine.

The ban was only fully lifted in 2010 during this time industry had moved to Lesotho (van Niekerk and Wynberg, 2013: 11; Koyama and Mayet, 2007: 37). In 2010 it was reported at a pelargonium stakeholder meeting with harvesters and the Eastern Cape DEDEAT that there were still people harvesting pelargonium without permits (BMP, 2011: 16). An Environmental Affairs Official in response to illegal harvesting noted that it is causing extensive damage to the pelargonium species furthermore that there is insufficient manpower in the district offices and lack of support on part of courts to follow-up on environmental crimes (Bisseker, 2002: 1; Gerardy, 2002: 1; Limson, 2002: 2). In this regard, an official from TRAFFIC, a wildlife trade monitoring programme, noted that due to contradictory and

fragmented legislative policies in place it was difficult to assess and monitor the activities surrounding the trade (Bisseker, 2002: 1). Following this period of rampant harvesting three prominent Integrated Export Permits were granted to local South African industries. The permits are depicted **Table 8**.

Table 8. Permits Issued Locally for *Pelargonium Sidoides* in South Africa

Industry	Description	Beneficiaries	Benefits
Gowar Enterprises 2011	“To sell <i>Pelargonium sidoides</i> (cough mixture) and <i>Aloe ferox</i> (concentrate juice) raw materials in various formats on national and international markets for bioprospecting”.	“ Imingcangathelo Community Development Trust ; Nonkqubela Multi-Purpose Community Project; Tshatshu Traditional Council; The Anta Traditional Authority”.	“1% per kg paid into Trusts Upfront payment to harvester, Employment, training, technology transfer, environmental education, acknowledgement of access being granted by land owners”.
Essential Amatole 2012	“Cultivation, processing, selling and exporting of <i>Aloe ferox</i> , <i>helichrysum odoratissimum</i> , <i>P. reniforme</i> and <i>p. sidoides</i> in different formats for national and international markets for bioprospecting”.	“Amatole Community Trust 5”.	“Employment, development, education, technology transfer within the community”.
Parceval Ltd. 2013	“Trading wild harvested materials of the listed plant species; Propagation and manufacturing of indigenous medicinal plants; Processing and manufacturing of semi-finished medicinal products and; Marketing and retailing of finished products both locally as well as abroad”	“Workers involved in cultivation and processing”.	“Employment and building capacity in sustainable harvesting practices”.

(Adapted from the DEA, 2012c, DEA, 2013b)

6.4. THE MASAKHANE COMMUNITY: LAND AND RESOURCES

6.4.1. Contestation of Land and the Community Property Association

The area of land referred to as Masakhane is a highly contested area. Situated in the Victoria East district of the Raymond MLM it is geographically demarcated between the Great Fish River and Alice (Morris, 2014: 2). It consists of seven villages made up of mainly farm labourers. The area has a highly troublesome history in relation to the controversial independence of the Ciskei (Morris, 2014: 3), specifically, with regards to gaining access to the title deeds of the land they reside on. Their land claim goes as far back as 1994 where the issue of jurisdiction currently remains unresolved (Morris, 2014: 3). Herein, chiefly authority and farm labourers are caught in competing versions of land dispossession and rightful ownership in relation to generational descendants. More significantly, the Masakhane community is central to the contestation over the illegal appropriation of *p. sidoides* and the

indigenous knowledge of its utilisation by international industry. Herein, through their land claim they have not only formerly rejected the Imingcangathelo chieftaincy but have laid a claim on accessing the p.sidoies trade (Morris, 2014: 2).

It is within this context that tensions have arisen between the Masakhane community represented by their Community Property Association (CPA) and Chieftainess Tyali who rules over Imingcangathelo land (Msomi, 2013: 62). According to the TLGF and the Communal Rights Act 11 of 2004 the Masakhane Community legally falls under traditional leadership but they do not recognise this except democratically elected municipal structures (Msomi, 2013: 70). Hence, they opted to form a Community Property Association in an effort to secure their land and resources (Morris, 2014: 1). The 1996 Communal Property Associations Act (CPA Act) advances the idea of the common ownership of property by groups. However, there has been inefficient support on part of the state in the formation of CPAs and community trusts (Wynberg, 2006: 131; Weinberg, 2014: 2). The DRDLR has proposed that CPAs “should not be established in communal areas where traditional councils exist (Weinberg, 2014: 2).

Taking into account the CPA Act 28 of 1996, the community formed two CPAs, namely, the Masakhane CPA and the Iqayiyalethu CPA in order to gain the title deed for land they have inhabited since the 1850's (Morris, 2014: 2). In 1998 several researchers and government departments became involved in the case of land redistribution and tenure, as the land now belonged to the state (Morris, 2014: 3). In 2000, the case successfully resulted in the transfer of nine farms to the Masakhane CPA. As a result in 2001 the CPAs were officially registered under the Section 8 of the CPA Act. However, despite the agreed transfer the CPAs were not given their land (Morris, 2014: 4; Weinberg, 2014: 3; LRC, 2014: 1). In 2011, the CPAs appealed against then project manager Mr Mzolisi Msimang but the Department still took no action (LRC, 2014: 3). A doctoral researcher Mr Christopher Morris also sought updated information on the case. Morris (2014: 2) argues that the department's lack in fulfilling the transfer may be based on the fact that due to its status as a former homeland the land must be governed under a chief. In 2014, the land claim was again brought to the attention of the Department of Rural Development and Land Reform by the Grahamstown-based Legal Resources Centre. The Department agreed that the Masakhane community are eligible for Settlement Land Acquisition Grants that would aid with various community-based developments once the land is secure (LRC, 2014: 2). The LRC gave the Department 21 days

to respond, however, they still have not taken any action, thus the LRC are opting for legal litigation and are in the process of securing funding for the case (LRC, 2014: 1).

Several years down the line the Masakhane CPA are still struggling in their efforts to claim the title deeds to the land. Herein, they continue to live in a state of land insecurity as a result of what the Legal Resources Centre (2014: 1) argues as “racially discriminatory laws and practices”. Morris (2014: 5) further reports that the case of land transfer had been completely mishandled and was further hindered by a moratorium in 2000. Herein, the newly appointed Minister Gugile Nkwinti at the time placed a hold on any state-owned land to local communities in the former homelands (Morris, 2004: 2; LRC, 2014: 3). This leaves CPAs at a disadvantage and vulnerable wherein many traditional authorities have argued that these processes undermine their authority (Weinberg, 2014: 3). There has been inefficient support on part of the state in the formation of CPAs and community trusts (Wynberg, 2006: 131; Weinberg, 2014: 2). As a result the Masakhane community remain subject to many social and economic hardships specifically, with regards to accessing the trade in *p.sidoides* (LRC, 2014: 3). It is within this context that the Masakhane community’s land claim is linked intrinsically to the case of *pelargonium sidoides*.

6.4.2. The Patent Hearing

The Masakhane CPA has, thus, played a prominent role in the international litigation against Schwabe Pharmaceuticals whilst fighting their land claim. In 2003 five patents were registered to Schwabe in relation to the cultivation and utilisation of *pelargonium sidoides* (Andre and Baux, 2011). Schwabe filed for three patents on the use of the extracts from the *pelargonium* species (Koyama and Mayet, 2007: 32). The argument by the ACB in 2008 was that Schwabe was trading in traditional knowledge that could not be subject to patenting (Andre and Baux, 2011).

The African Centre for Biosafety (ACB) is a South African-based NGO fighting against biopiracy and the commodification of natural resources and associated indigenous knowledge (Mayet, 2007: 3). It is interesting to note that in 2007 the ACB sought the aid of the then Director-General of the Department of Environmental Affairs and Tourism (DEAT) (Mayet, 2007: 3). Specifically, requesting assistance on the patent case, healthcare relief and the protection of indigenous knowledge through *sui generis* methods. This was to ensure the sustainable utilisation of *pelargonium sidoides* and indigenous knowledge of its use (Mayet,

2007: 3). They have actively worked alongside the Masakhane community (ACB, 2009: 22). Thus, the Masakhane CPA represented by the African Centre for Biosafety and the Swiss-based Berne Declaration opted for international litigation against Schwabe. They mainly opposed Schwabe's patent applications, their claims on access and benefit-sharing, and the contestation of ownership over pelargonium, subsequently accused of biopiracy (Jara, 2011: 3; van Niekerk and Wynberg, 2012: 542). The Masakhane community were represented by the highly acclaimed patent lawyer Dr. Fritz Dolder (Jara, 2011: 3; van Niekerk and Wynberg, 2012: 542; ABC, 2010: 4; ACB, 2010: 4).

The ACB argued that both patents granted to Schwabe are insufficient on the basis of novelty and newness as this knowledge has been held by the indigenous community over centuries (Koyama and Mayet, 2007: 32; van Niekerk and Wynberg, 2012: 543; ACB, 2008: 9; ACB, 2010: 4). The Masakhane CPA together with the ACB argued that pelargonium is used for a variety of ailments. They accused Schwabe on the lack of novelty and inventive step, that prior informed consent was not obtained from all community members, and that the extraction method patent was patenting the plant itself which goes against the provisions of the European Patent Convention (van Niekerk and Wynberg, 2012: 542; van Niekerk, 2009: 50).

On 26 January 2010 the European Patent Office revoked Schwabe's patent on the basis of lack of novelty after which Schwabe retracted four other patents in response to them being accused of being "bio-buccaneers" and "biopirates" (van Niekerk and Wynberg, 2012: 542). Schwabe attributed the accusation of biopiracy as a condition of Third World countries who did not have access to resources in the past but now use exploitation as a façade to demand benefits (van Niekerk and Wynberg, 2012: 542; Groenewald, 2010: 3; van Niekerk, 2009: 51; ACB, 2010: 7). Subsequently, within the turmoil Schwabe established a million euro Umckaloabo Trust-For a Healthy Future to invest in building a scout centre in Mpumalanga, South Africa, however, this venture has invested nothing to the livelihoods of the harvester communities in the Raymond MLM (van Niekerk and Wynberg, 2012: 543). Even though the Masakhane CPA in conjunction with the ACB won the case against Schwabe the community still has not received any remuneration from this endeavour.

6.4.3. Access and Benefit-Sharing: The Case of Industry and the Rural Elite

Another concern for the Masakhane CPA is that Schwabe and Parceval Ltd has set up trade relations with the Imingcangathelo Community Development Trust. In this regard industry has preferred to engage with chieftaincy. This has provisioned under their permit granted by the Eastern Cape DEDEAT that harvested material may only be sold to Parceval Ltd, advocating “benefit-sharing as defined by the bioprospector” (ACB, 2011: 13). Herein, the Masakhane CPA has been systematically denied access to the trade in *p.sidoides*. They argued that the Trust is not representative of the entire community and thus lack “the necessary authority to conclude the benefit-sharing agreement and grant the requisite prior informed consent” (ACB, 2011: 19). Moreover, this process does not shed light on any sharing of benefits with the larger community affected by the trade and the total disregard of claims made by the Masakhane community in that they hold traditional knowledge about the use of *pelargonium sidoides* and their legal litigation against Schwabe remains eluded to (ACB, 2011: 13).

The Biodiversity Management Plan⁵⁸ for *p.sidoides* argues that Schwabe is the first company to comply with BABS regulations in establishing benefit-sharing agreements with the communities affected by the trade (BMP, 2011: 10). In accordance with the CBD Germany as a signatory since 1993 is obliged to uphold the objectives of the CBD, however, the African Centre for Biosafety reports that they have not found any evidence to support Schwabe’s compliance with these objectives (ACB, 2008: 9). The ACB have tried unsuccessfully to engage in the permitting process of *pelargonium sidoides* and in 2009 tried to gain access to information through the DEA in relation to these applications (ACB, 2009: 23). On request of details specific details to the BSA agreements granted to Parceval Ltd. and Gowaar the ACB was denied access by the DEA stating that in consultation with the permit applicants “the affected parties refused the request for disclosure of the information pertaining to their submitted bioprospecting permit applications” based on the provisions of confidential information within BABS (ACB, 2009: 24).

In 2010 the DEA released a document in the Gazette in relation to non-confidential information disclosed for public comment on the BSA between Parceval Ltd., Schwabe Extracta GMBH & CO.KG and the Imingcangathelo Community Development Trust (ICDT)

⁵⁸ A detailed discussed in Section 6.5.

(ACB, 2009: 14). The African Centre for Biosafety upon inspection of the document found it to be a “watered down version” as much of the information was not disclosed (ACB, 2009: 14). This leaves civil society in a contentious position when it comes to matters of public participation where the provisions under BABS “institutionalise unfair administrative processes” in relation to interested and affected parties and in relation to access to information (ACB, 2009: 25). According to the ACB (2009: 15) the following information was made available, that the ICDT would be cultivating *pelargonium sidoides* and *reniforme*, that the BSA all benefits derived from the commercialisation of these resources would be shared with the ICDT and that this BSA is based on access to the IBR and not the traditional knowledge associated with it (ACB, 2009: 15). Thus the information that was provided was very board not covering any specific detail (ACB, 2009: 15). Furthermore, no documentation has been advanced indicating the indigenous knowledge associated with *pelargonium sidoides* and *reniforme* used by local communities (ACB, 2009: 15).

It is argued that because *pelargonium* is not sold at a fixed price it is hard to estimate whether the ICDT is having a positive effect on the community in terms of benefit-sharing, or whether the Trust itself is merely acting as an intermediary (Andre and Baux, 2011). More inherently, the control of harvesting permits under Chieftainess Tyali has been met with contestation as she is not acknowledged as the rightful TA by the Masakhane community (van Niekerk and Wynberg, 2012: 542). In a study done by an Environmental Biodiversity Official it was noted that harvesters that were once viewed as legal now have become illegal workers under the establishment the *Pelargonium* Project wherein permits have been granted to the ICDT and Siyazama (Andre and Baux, 2011). This ensures that these two entities are the only two allowed to trade with Parceval Ltd. or companies that have a bioprospecting permit completely excluding other communities such as the Masakhane community from the trade (Andre and Baux, 2011). This initiative has also been supported by the government, however, it needs to be argued that the IDT is being used to evade the law because both on the premise of the BSA and harvesting permits all stakeholders should be consulted (Andre and Baux, 2011). Furthermore, this process is highly exclusionary as it prevents others from accessing the trade in *pelargonium sidoides* (Andre and Baux, 2011).

In relation to the issue of access and benefit-sharing the alignment of central governing structures with industry has been advocated as a problem that stems from the “elite capture of benefits” deriving from the trade of *p.sidoides* (van Niekerk and Wynberg, 2012: 541). In

order for power to shift the Masakhane community needs to secure their land tenure and to enter the market with economic stability otherwise benefits will be accrued by those with “land, capital and capacity” and the poor will continue to be marginalised (Morris, 2014: 2). Herein, the Masakhane community argue that the chiefdom have centralised capital instead of contributing its local development (Morris, 2014: 2).

6.5. NATIONAL PROTECTION OF PELARGONIUM SIDOIDES

6.5.1. The Biodiversity Management Plan for Pelargonium Sidoides

The case of *p.sidoides* trade in South Africa been largely critiqued as reactionary where the government was caught off guard. In this regard even though policy and legislation exists on all levels of government to protect and control trade in species, conservation efforts will only be implemented once the species is under threat (Motjotji, 2011: 7). In 2009, Ms Raimondo the Threatened Plant Programme Manager at the South African National Biodiversity Institute (SANBI) issued a field survey on the distribution of pelargonium sidoides conducted by de Castro *et al.* (2010). The study was based on population size, sustainable harvesting levels and the conservation status of pelargonium which SANBI approved in 2010 (de Castro *et al.*, 2010: 1). Even though the study covered a variety of areas including sites provided by Parceval Ltd, the Endangered Wildlife Trust and TRAFFIC, many of these sites were not assessed due to “time constraints” (de Castro *et al.*, 2010: 10). The study does not attribute the threat of loss of species to unsustainable harvesting but to “habitat transformation and degradation...degraded by historical and ongoing overgrazing and erosion” (de Castro *et al.*, 2010:18). Placing impetus on incentivising sustainable harvesting practices, the de Castro study concludes that:

“Pelargonium Sidoides does not meet any of the criteria required to qualify for any of the IUCN categories of threat (Critically endangered, Endangered and Vulnerable)...and it is difficult to envisage that such a widespread, abundant and vigorously re-sprouting plant will qualify as Near Threatened in the foreseeable future” (de Castro *et al.*, 2010:18).

Thus, it has not been listed on the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) nor the International IUCN Red List of Threatened Species due to the fact that there has been no global assessment (BMP, 2011: 9). Despite pelargonium sidoides being appropriated it has not even been included under NEMBA’s Threatened and Protected Species (TOPS) which ensures sustainable utilisation of plant material (BMP, 2011: 10). The ACB argues that they cannot comprehend why pelargonium sidoides has not

been documented in any CITES endangered lists “despite it being traded internationally” (ACB, 2011: 11). In 2009 the ACB submitted documents for the inclusion of *pelargonium sidoides* in the CITES to no avail (ACB, 2011: 19). Additionally, harvesting of *p.sidoides* outside the Ciskei area only requires a permit if it is being collected within “nature reserves and protected areas” (BMP, 2011: 10). Not only does this provision become conflated with the national BABS regulations it allows for unabated access to wild harvesting. In a study done by Newton *et al.* (2008: 5) it was noted that current global trends show a decrease in the species population

“According to the South African Red Data List (2008), this species has a huge distribution range of 480,000 km²; however it is under severe harvesting pressure. Although the plants coppice after harvesting, local extirpations can occur when harvesting takes place too regularly and in the absence of adequate rainfall. The species is under-going a continuing decline and it is therefore classified as “Least Concern-Declining” (Newton et al., 2008:5).

As a response to the potential threat to wild harvesting of the *pelargonium sidoides* species the Biodiversity Management Plan for *pelargonium sidoides* (DC) (BMP) was established (BMP, 2011: 4; van Niekerk, 2009: 38; ACB, 2011: 4). The BMP acts as a regulatory framework controlling the wild harvesting of *p.sidoides* by industry (BMP, 2011: 6). The plan is premised on NEMBA’s Section 9(1)(a)(i) and Section 43, the Norms and Standards prescribed for Biodiversity Management Plans for Species, and Chapters 3 and 6 of NEMBA which requires that the export and extraction of *pelargonium* and indigenous knowledge thereof be monitored and regulated and that BABS stakeholders are in compliance with BABS (BMP, 2011: 4). Furthermore, “the BMP advances regular monitoring of the trade”, “continuous scientific research and analysis” and a review and update of policy in order to comply with conservation, access and benefit-sharing legislation (BMP, 2011: 5). The overarching goal of the BMP and the five objectives of BMP Action Plan respectively state:

“to ensure the long-term survival of p.sidoides in the wild, whilst ensuring that the livelihoods of stakeholders are respected...that sustainable management practices will be developed and endorsed through a Pelargonium Working Group and ultimately formalised through this BMP-S (in terms of the NEMBA) as legally binding conditionalities on stakeholders for continued harvesting and trade...harvest techniques will be improved and harvesters will be trained appropriately” (BMP, 2011: 4).

1. *Wild collection of P. sidoides is carried out in a manner that maintains survival of the species in the wild.*
2. *Wild collection of P. sidoides does not affect the environment, other wild species or neighbouring area.*
3. *Collection and management activities are carried out under legitimate tenure arrangements and comply with relevant laws, regulations and agreements.*

4. *Customary rights of local and indigenous communities to use and manage collection areas are recognised and respected.*
5. *Wild collection of P. sidoides is based upon adaptive, practical, participatory and transparent management practices”*

(BMP, 2011: 20-28).

The objectives of the BMP are further integrated in the FairWild Standards of ensuring compliance with sustainable management practices for harvesting medicinal plants (BMP, 2011: 5). However, the key elements of these standards are broad and vague. The BMP is largely based on the findings of de Castro’s *et al.* (2010) survey of 103 sites suitable for the growth of *P. sidoides*, noting that due to the abundance in species there should be “no concern regarding the conservation status” of *pelargonium sidoides* (BMP, 2011: 18). Furthermore, the BMP suggests that effects on local ecosystems can be attributed to illegal harvesting where there has been a lack of training (BMP, 2011: 14). The BMP also recognises that even harvesters that have been trained in accordance with the 2011 Harvesting Guidelines established by SANBI it has had adverse effects on wild harvesting for instance when the entire root is removed regrowth may not occur (BMP, 2011: 17).

The BMP draft was developed by TRAFFIC and SANBI funded by the German Ministry for Economic Cooperation and Development, WWF Germany and the Norwegian Foreign Ministry (BMP, 2011: 7). The BMP was also drafted with “extensive consultation with the Pelargonium Working Group” (BMP, 2011: 2). In 2007 Mr Ulrich Feiter of Parceval Ltd. played a significant role establishing the Pelargonium Working Group “set up to further the preservation, harvesting, propagation and utilisation” of *pelargonium sidoides*. The PWG consists of the Council for Scientific and Industrial Research (CSIR), the Eastern Cape Development Corporation and TRAFFIC, the execution organ of the CITES (Stern, 2008: 3). This working group has been mentioned in the BMP as “a potentially strong forum that should provide oversight of the BMP...should be formalised and chaired by the DEA” to ensure that all its provisions of sustainable management are complied with (BMP, 2011: 26). The ACB has questioned why the main trader in *pelargonium sidoides* is a member of the PWG and why there is no representation of the Masakhane community in this PWG (Hartle, 2011: 1; ACB, 2011: 17).

Even though they claim to have consulted with various stakeholders the Masakhane CPA were denied access on the decision making where they could have made a significant influence on the outcome of the BMP (Hartle, 2011: 1). Moreover, a stakeholder workshop

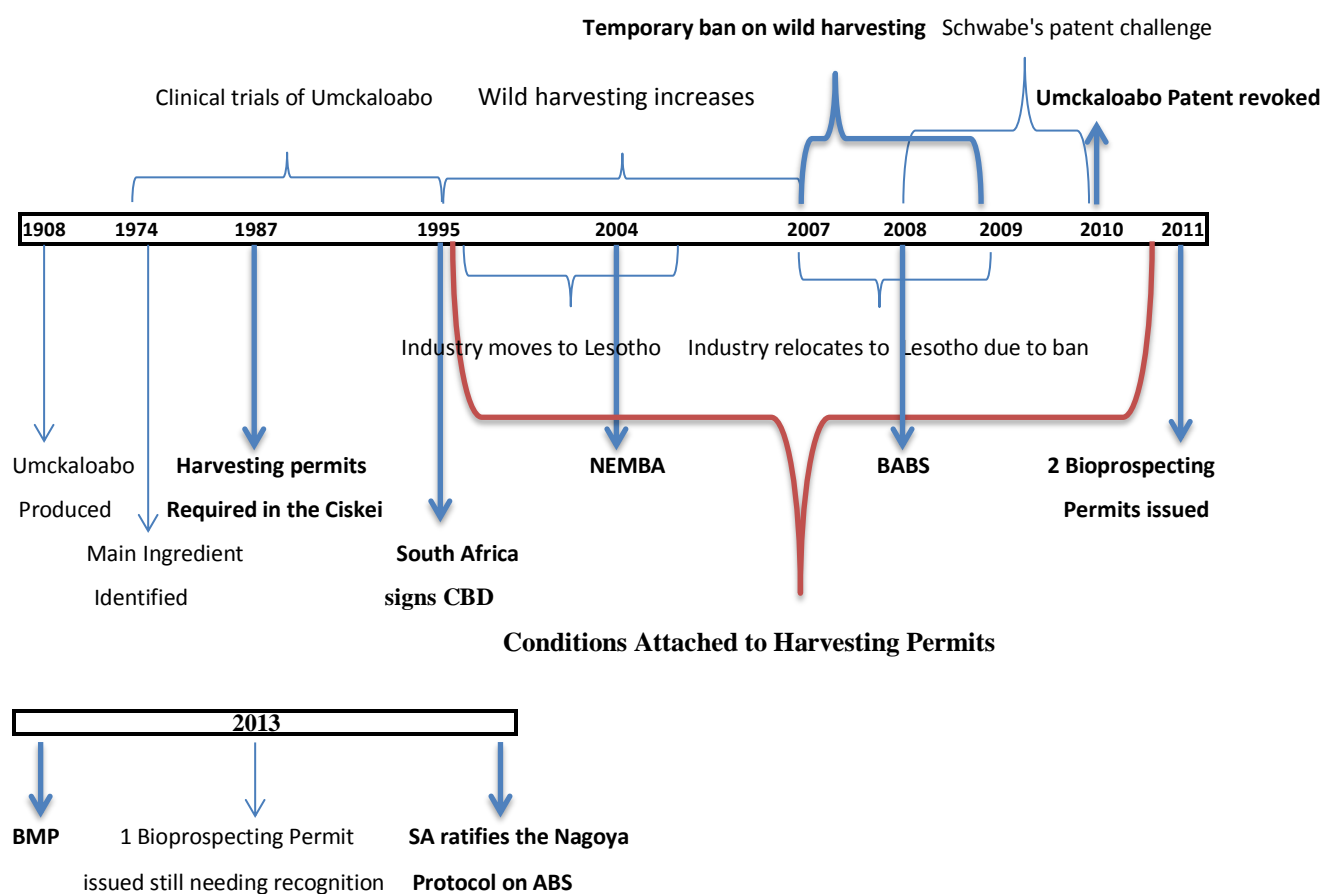
held in Grahamstown on the 3rd February 2009 was representative a various interested parties, however, neither the African Centre for Biosafety nor any representative of the Masakhane Community Association was present (BMP, 2011: 34). This contravenes the objectives of NEMA which stipulates public participation of “all interested and affected parties in the development of such a plan” (Hartle, 2011: 1). Thus, it was an inherently exclusionary process as Regulation 5 of the Norms and Standards as prescribed for the BMP for species requires the inclusion and representation of all relevant and affected stakeholders which is further reiterated in the overarching governing legislation NEMA of which the BMP is to be premised on (Hartle, 2011: 1; ACB, 2011: 5).

The ACB has raised several other concerns in relation to this and problematizing the way in which the BMP addresses the issues of trade, socio-economic issues, benefit-sharing, traditional knowledge, over-reliance on traditional authorities and an “export-orientated extraction model for natural resources” which undermines plant restoration threatening local livelihoods and natural resource sustainability (Hartle, 2011: 1; ACB, 2011: 19). In terms of trade no statistics on profits generated in the production of *p.sidoides* and how much of the tubers are traded each year is mentioned (ACB, 2011: 10; Hartle, 2011: 1). Nor any mention of the main stakeholders involved in the trade have been provided, the BMP have dismissed findings from the van Niekerk (2009) study on the grounds that it does not accurately reflect the current value chain (ACB, 2011: 10; Hartle, 2011: 1). In light of the lack of data available the BMP nevertheless promotes wild harvesting and trade the ACB argues that there remains an inextricable link between the demand in trade and overharvesting that has been overlooked by the BMP (ACB, 2011: 10-11). Overharvesting in Lesotho has led to the species being listed as threatened. The ACB (2011: 12) recognises the need for Lesotho and South Africa to work together as signatories of the Nagoya Protocol to implement an efficient system of species management.

In terms of access and benefit-sharing the BMP echoes the objectives of Chapter 6 of NEMBA. The draft BMP was criticised for its negligence of the historical use of *pelargonium sidoides* in traditional communities over centuries, however the official BMP recognises the lack of studies showing the “cultural significance of *pelargonium*” (ACB, 2011: 13; Hartle, 2011: 1). The BMP through advocating the commercialisation of *pelargonium* also plays a significant role in the socio-economic status of local communities in that the sustainable use of the plant within communities may be impeded upon by the demand for the industrial

market (ACB, 2011: 14). According to the BMP (2011: 10) “as *p.sidoides* is being harvested in many regions of South Africa, not only in the former Ciskei region, there is a need to list this species on the National Threatened and Protected Species (TOPS) list to facilitate sustainable management of the population in the wild”. In accordance with NEMBA, the ACB agrees with the BMP in that *pelargonium sidoides* is an internationally traded species and that it should be recorded in the TOPS (ACB, 2011: 17). The BMP is subject to review every three years yet no such review seems to have taken place (ACB, 2010: 19). **Figure 4** illustrates a summarised version of the events surrounding the *p.sidoides* case study.

Figure 4. A History of the Regulation of *Pelargonium Sidoides*



(Adapted from Wynberg *et al.*, 2015: 564)

6.6 CONCLUSION

In conclusion several concerns are raised in the *p.sidoides* literature. Firstly, the Masakhane claim to land and resources remains unresolved. The concern of land insecurity remains pivotal to the Masakhane community. Their international litigation against Schwabe has led to their complete marginalisation and exclusion by the state-industry-rural elite coalition. Even though the government and relevant policies promote equity and public participation within trade and decision-making the commodification of *pelargonium sidoides* has been centralised and elitist. Given their international struggle for reparations against Schwabe the community remains economically and socially deprived. In relation to national legislation permit regulations have become complex leaving room for loopholes. In this regard, the case study clearly shows the concentration of capital by the elite and their continuous efforts in aligning with power within the community further creating divisions between the various fractions in the local community.

Secondly, the status of *p.sidoides* has been subjected to competing narratives. As a result, the BMP and national legislation has been largely fragmented and contradictory. Herein, given the moratorium placed on *p.sidoides* harvesting illegal appropriation occurred nevertheless. Moreover, wild harvesting activity continues to be unsustainable in relation to the regeneration capacity of *p.sidoides*. As a result there has been a significant loss in species, however, *p.sidoides* as the species remains threatened. The lack of government involvement within this case is also another concern bringing to light the skewed relations between the state and disempowered local communities such as Masakhane.

CHAPTER 7

THE CONCEPTUAL FRAMEWORK

7.1. INTRODUCTION

This Chapter focuses on the theoretical frameworks that underpin this study. Adopting a two-pronged approach the conceptual framework firstly addresses Marx's Ecology informed by the interrelated concepts of the treadmill of production, accumulation by dispossession and ecological unequal exchange. These concepts provide a valuable understanding of the power dynamics, displacement and predatory nature inherent within capital accumulation, specifically the commodification of nature. Secondly, the Sustainable Rural Livelihoods Framework (SRLF) examines how livelihoods are fashioned in a holistic way in local communities, addressing issues such as access to resources and livelihood strategies. This approach also advances the need to include rural communities in sustainable and participatory practices. These forms of critical analyses are influenced by the ideals of fairness and justice as advanced by Sachs *et al.* (2002: 6):

“...fairness calls for enlarging the rights of the poor to their habitats while on the other hand, it calls for cutting back the claims of the rich to resources. The interests of local communities in maintaining their livelihoods often collide with the interests of urban classes and corporations to expand consumption and profits”.

The central argument in this Chapter is that these two conceptual frameworks demonstrate the opposing nature between the forces of capital accumulation and sustaining rural livelihoods. This runs counter to the CBD's principal objectives: the conservation of biological diversity; sustainable use of its components and fair and equitable sharing of the benefits resulting from the commercial use of genetic resources (CBD, 1992). On a macro level natural resource appropriation is forged as a system of exploitation that infiltrates rural areas such as the Masakhane community serving as hubs of natural resources for production. On a micro level these resources form part of the sustenance base of local communities. As a useful starting point this Chapter examines South Africa's political economy through the lens of the two-economies approach. The following section, then, addresses the relevance of Marx's Ecology in the contemporary analysis of the nature of capital accumulation followed by the SRLF.

7.2. SOUTH AFRICA AND THE TWO-ECONOMIES DEBATE

The contextualisation of the South African political economy is significant in providing a useful foundation for the implementation and understanding of the conceptual frameworks that are being utilised in this thesis. This section provides a critical overview of the various components of the two-economies approach. The two-economies debate arises as a critic of the political economy of South Africa. It needs to be noted that the two-economies approach is only one analysis of the South African political economy. Other significant contributions to this scholarship include the Minerals-Energy-Complex (MEC) as advanced in Fine and Rustomjee's (1996) study, *The Political Economy of South Africa: From Minerals-Energy Complex to Industrialisation*.

According to Fine and Rustomjee (1996: 10) the MEC should be understood as a system of accumulation dating back to the colonial era with the advent of the Minerals Revolution. This acted as the site of exploitation of both African labour and natural resources through the subsequent development of the mining industry (Bond, 2002: 284). According to Sharife and Bond (2012: 295) the MEC has become resilient in depicting a continuous renewal of the historic prejudices inherent in the colonial and apartheid era which have come to shape the economic development of South Africa. The MEC depicts the notion that the state and industry are central beneficiaries of the economy in South Africa (Frye, 2007: 179). A key determining factor of South Africa's environmental structure is that it is resource-export-intensive and highly extractive (Fine and Rustomjee, 1996: 10). It serves as the perfect target for the perpetuation of disproportionate capital accumulation and as a peripheral nation in terms unequal ecological exchange⁵⁹ (Rice, 2009: 216).

Ultimately, the MEC is understood as a barrier to society's development and a threat to local communities and the global environment. Firstly, it dismantles the sustainability and development of rural livelihoods through exploitative cheap labour exacerbating the poverty problem (Sharife and Bond, 2012: 279). Secondly, the MEC exponentially exploits the natural resource base subsequently denuding resource-rich areas. In effect, the MEC within the South African economy has been comprehended as an obstacle to equal and fair development (Sharife and Bond, 2012: 279).

⁵⁹ The concept of unequal ecological exchange is further unpacked in Section 7.3.2.

7.2.1. The Two-Economies Approach

“South Africa is a country of two nations. One of these nations is white, relatively prosperous, regardless of gender or geographic dispersal. It has ready access to a developed economic, physical, educational, communication and other infrastructure...The second and larger nation of South Africa is black and poor, with the worst affected being women in the rural areas, the black rural population in general and the disabled. This nation lives under conditions of a grossly underdeveloped economic, physical, educational, communication and other infrastructure...This reality of two nations, underwritten by the perpetuation of the racial, gender and spatial disparities born of a very long period of colonial and apartheid white minority domination, constitutes the material base which reinforces the notion that, indeed, we are not one nation, but two nations. And neither are we becoming one nation” (Mbeki, 1998).

The above excerpt captures the 1998 Statement of former Deputy President Thabo Mbeki from the debate in the National Assembly on Reconciliation and Nation Building. Of significance in this Statement is his conceptualisation of the “socio-economic dualism” present in the South African economy (Frye, 2007: 176). Mbeki’s formulation represented an attempt to understand and explore poverty, inequality, race and class in the country, in this way depicting economic and structural marginalisation. In effect, this approach became the benchmark of addressing socio-economic inequalities inherent in the State (du Toit and Neves, 2007: 147; Desai, 2007: 277). The disillusionment of the majority of the South African population after more than 20 years of democracy has questioned the government’s commitment to eradicating the legacy of apartheid especially endemic poverty and growing inequality. According to du Toit and Neves (2007: 148) this failure allowed for a shift in theorising about poverty alleviation placing emphasis on the “developmental state.”

In Mbeki’s formulation the first economy is described positively as opposed to the negative attributes given to the second economy. The first economy consists of all formal contemporary industrial activity that works in relation with the international economy. Whereas, the informal and unskilled sector made up of the unemployed and unemployable is referred to as the second economy (Mbeki, ANC Today, 2003). Other terminologies include “uneven and combined development”, an analysis advanced by Leon Trotsky relating the industrial actions and informal activities of the Russian economy in 1906 (Bond, 2007: 3). Similarly, it has been referred to as the “double-decker” economy wherein the first and second economies co-exist (Sparks, cited in du Toit and Neves, 2007: 147).

Scholarly discussion calls for understanding the contradictions, hidden assumptions and controversies of the two-economies approach. Different perspectives inform these issues. The

first strand of thought is advanced by the Centre for Development and Enterprise (CDE) with its emphasis on the importance of market-led development for the poor (du Toit and Neves, 2007: 148). The CDE (2006: 21) has advanced the making markets work for the poor (MMW4P) approach. This “aims to promote interventions that will help the poor to help themselves, make existing markets work more inclusively of poor producers and consumers and make the benefits of well-functioning markets more widely accessible” (CDE, 2006: 7). Another position is developed by Isobel Frye (2007) questioning the use of the two-economies as a metaphor. Herein, Frye (2007: 176) poses the question of whether the two-economies is a euphemism deluding an international audience into thinking that South Africa has addressed the sources of poverty in the country. As a result, the state has displayed a complete ignorance of the foundational basis of this inequality, herein, Frye (2007: 176) argues:

“Is it a conjuror’s sleight of hand, an attempt to persuade people both internally and internationally that we have contained and isolated the causes of poverty in society? The continued use of this phrase should be seen as a deliberate and underhand attempt to deny the true roots of the crisis at hand...”

According to du Toit and Neves (2007: 150) the point is not whether the two-economies approach is a metaphor but whether it offers anything helpful for policy and analysis in the socio-economic transformation of South Africa. If it is not useful in analysing and addressing these concerns then alternative approaches should be offered. Bond (2007) is then apt in questioning the validity of Thabo Mbeki’s articulation – the appropriateness and utility of this for overcoming South Africa’s development crisis. It is for this reason the two-economies approach cannot be understood away from the political economy and historical inequalities of the country. With the exception of the CDE this is exactly the point other critics are advancing. Mbeki’s argument lacks this kind of critical analysis. This is an acceptable formulation if one considers the systematic dispossession and proletarianisation which includes exclusion, subjugation and dominance of the majority through centuries of colonialism and apartheid.

It is significant to note that the two-economies approach is not new. It invokes post-World War Two (WWII) development theory notably modernisation theory with its traditional-modern dualism and dependency theory with its core and periphery narrative (Esteva, 2010: 1). This dichotomy was cemented by President Harry Truman in 1949 through defining

southern countries as “underdeveloped areas” (Sachs, 1994: 1; Esteva, 2010: 1). This umbrella concept attributed to the south envisioned a new development rhetoric which cast the south as economic competitors of the north - in a perpetual need to “catch up” (Sachs, 1994: 3; Esteva, 2010: 2).

Subsequently, the north’s imposition on the south reshaped their heterogeneous social and cultural parameters turning them into homogenised economic hubs of production (Sachs *et al.*, 2002:18; Sachs, 1994: 3; Esteva, 2010: 2). This has created various complexities within southern countries, specifically, as Sachs (1994: 3) argues “it undermines a society’s capacity to secure well-being without joining unconditionally the economic race”. It is in this regard that the current development path has been subject to concerns of justice and equity (Sachs, 1994: 4). This hierarchical development rhetoric forms the foundational basis of modernisation theory. Herein, modernisation requires the entire transformation of traditional/primitive societies through various processes of industrialisation and ultimately evolving as a system of mass consumption and production (Matunhu, 2011: 66). Through providing aid and technological transfer to the south, the ultimate aim was a homogenous society “drawing all peoples worldwide into a simultaneous reality and exposing them to the waves of global acceleration” (Gronemeyer, 2010: 73). This entire rhetoric of development is embedded in western ideals. Hence, the argument by many critics of the “westernizing the third world” or its “recolonization” (Mehmet, 1996: 37; Escobar, 1995: 214; Satheesh, 2017: 592).

In this regard, this structural disconnect present in modernisation theory is not only evident on an international scale but on a national and local level in the case of the two-economies approach as argued by President Thabo Mbeki. The two-economies approach is characterised by a disjuncture between the first and second economy. For Desai (2007: 282) Mbeki’s two-economies approach is not only a reappraisal of modernisation theory but also, an attempt for social control wherein market-based solutions are offered to alleviate poverty.

The predatory nature of capital is aptly described by Bond (2007). Bond (2007: 3) refutes the notion of the two-economies and prefers for the South African economy to be characterised as a system of super-exploitation. Bond (2007: 1) draws his analysis from Marx’s argument in *Capital* (1867) noting that:

“From day to day it...becomes clearer that the relations of production in which the bourgeoisie moves do not have a simple, uniform character but rather a dual one; that in the same relations in which wealth is produced, poverty is produced also; that in the same relations in which there is a development of the forces of production, there is also the development of a repressive force; that these relations produce bourgeois wealth, i.e. the wealth of the bourgeois class, only by continually annihilating the wealth of the individual members of this class and by producing an ever growing proletariat”.

Super-exploitation is described as a system of “biased accumulation” built on the creation of cheap labour through the use of the proletariat black majority (Bond, 2007: 7; Frye, 2006: 179). Central to this is Wolpe’s (1972/1980) understanding of modes of production. Wolpe’s articulation of this concept is cemented in the South African political economy – specifically he argued that from the apartheid segregationist state derived a new form of capitalism predicated on the exploitation of the labour force and subsistence agriculture (Hart, 2007: 48). Bond (2007: 4-14) explains that capitalism maintains control through its primary function of undermining other modes of production with South Africa existing as a “capitalist and pre-capitalist society”. It develops as a systematic marginalisation and exclusion of the pre-capitalist society (Frye, 2007: 175; Desai, 2007: 151).

South African industrialisation through the mineral-energy revolution and the establishment of the Land Act of 1913 played a pivotal role in the creation of the “landless peasantry” (Berlak, cited in Bond, 2007: 5). Land became an intrinsic feature of the means of deprivation in poor African societies (Bond, 2007: 5). Specifically it created the conditions for capitalist production, dispossessing the majority of their land and exploiting their labour. The purpose of the working class was to maintain the system of exploitation advancing the development of the first economy (Frye, 2007: 186). Similarly, in a Statement given by Mbeki in 2005 he argued that the poverty-stricken are only linked to the first economy insofar as they provide “unskilled cheap labour” (Frye, 2007: 187). However, he still maintained that they remain structurally separate on all other accounts (Frye, 2007: 187). In this regard, it is argued that through this understanding capitalist modes of production remain exclusively controlled.

Even though Mbeki argues that the two economies work alongside one another they are in fact significantly interrelated. For Frye (2007: 176) the state is unable to reconcile with the fact that the political economy of South Africa is not dual but in fact a “parasitic” unitary system. This is corroborated by Nzimande (cited in Desai, 2007: 146) arguing that the South African economy is a unitary one embedded in the “historical inequalities” of the country. This argument is also proposed by du Toit and Neves (2007: 145) who argue:

“Rather than being structurally disconnected from the ‘formal economy’, formal and informal, ‘mainstream’ and marginal activities are often thoroughly interdependent, supplementing or subsidising one another in complex ways. Instead of imagining a separate economic realm, ‘structurally disconnected’ from the ‘first economy’, it is more helpful to grasp that the South African economy is both unitary and heterogeneous”.

There are numerous contemporary examples of this parasitic interrelation between the core economy and peripheral centres of exploitation in South Africa. The history of agricultural development since the 1900’s provides a concrete example. For instance Desai (2007: 278) makes use of du Toit’s (2005) study on the farm workers in the Ceres Valley, Western Cape. These labourers are systematically integrated into the first economy functioning as agents of its growth. As the first economy develops it creates poverty by exploiting the means of its production through cheap labour (Desai, 2007: 278). The wages received by the farm labourers are often grossly insufficient to support their livelihoods. This is a prevailing characteristic of the South African economy as evident in the case of the Raymond Mhlaba Local Municipality. Herein, the Masakhane community are subject to the functions of capitalism, the agenda of the state and the subsequent marginalisation of their community (van Niekerk and Wynberg, 2012: 541). These processes are indicative of the superimposition of the first economy in rural areas, exploiting their natural resources and the harvesters/rural labourers. It is evident that super-exploitation is double-edged. Firstly, the community enables the functioning of industry through extracting the resources. They are paid disproportionately for their labour. Secondly, through unsustainable harvesting practices and lack of state protection the natural resources, also, exist in a state of exploitation for commercial profit.

This “development syndrome” as advanced by Sachs (1994: 8) is a western ideology which offers itself as a solution to the problem perpetuated by its own processes. As mentioned in the introduction Sachs *et al.* (2002: 6) argues that in order to alleviate this unequal dualism “the claim of the rich to resources needs to be cut back”.

This paradox is a significant entry point in linking the analysis of the South African economy to Marx’s Ecology. Specifically, relating the conceptualisation of super-exploitation to the interrelated concepts of accumulation by dispossession, ecological unequal exchange and the treadmill of production. More significantly, how these processes alter the sustainability of rural livelihoods. The arguments of the MEC and the two-economies debate are then the

premise for understanding the concepts that will be further addressed in the examination Marx's Ecology.

7.3. UNPACKING MARX'S ECOLOGY: AN OVERVIEW

The 1970's gave rise to what Hannigan (2006: 1) refers to as the "Environmental Decade". Subsequently, the rise of environmental concerns informed a theoretical discourse about the interrelation between society and the environment (Hannigan, 2006: 1). However, theorists at the time were met with the lack of literature surrounding this area of analysis. More significantly, it has been claimed that the classical fathers, Emile Durkheim, Karl Marx and Max Weber had an understanding of environmental influences, however, the global interpretation their work was limited to an emphasis on their "social-structural" contributions (Buttel, cited in Hannigan 2006: 1). Specifically Marx, whose social theory is considered as having a predominant focus on social class relations. The classical sociological tradition was largely critiqued to be "radically sociological" stressing that social processes were void of nature (Buttel, 1996: 7; Foster, 1999: 366). Emphasising this critique Murphy (1997: 10), Foster (1999: 366), Dunlap and Catton (1992/3: 270) argue respectively that, sociology "was constructed as if nature did not matter" placing impetus on "human distinctiveness in relation to nature" wherein "the vast majority of sociologists share a fundamental image of human societies as exempt from ecological principles and constraints".

The question then becomes why Marx's Ecology? Marx has been critiqued as an anti-ecological thinker not taking into account nature's intrinsic value (Clark and Foster, 2010: 149). As a result Marx's contribution to environmental theorising has been generally thought of as having no contemporary significance (Clark and Foster, 2010: 142). However, in a reappraisal of Marx's scholarship Clark and Foster (2010: 142) highlight that some authors see Marx as a "pioneer of ecological critique". Marx's scholarship has been significantly rearticulated and reappraised in relation to the discipline of environmental sociology. Marx's Ecology is understood as an important contribution to understanding the socio-environmental dialectic (Clark and Foster, 2010: 143). Whilst not a unified school of thought Marx's Ecology provides us with a rich heritage and critical method for engaging with the main limitations of contemporary ecological thought (Clark and Foster, 2010: 143).

It is with the historical analysis of soil fertility and other environmental concerns that Marx's Ecology gains particular significance (Foster, 1999: 373). Through this he advanced a

theoretical understanding of the “materialist conception” of history and nature as dialectically interconnected (Foster, 1999: 373). A primary outcome of this analysis was the understanding that humans and nature existed in a metabolic relationship (Foster, 1999: 373). Clark and Foster (2010: 145) explain this metabolism as humans and nature existing in a mutual relationship of cause-and-effect, where man actively transforms the earth through labour. This natural exchange then became disrupted through the introduction of the social metabolism of capital production – referred to as the metabolic rift (Hannigan, 2006: 9; Clark and Foster, 2010: 145). The metabolic rift is indicative of compromising nature’s restorative capacity whilst creating social inequalities – specifically in the working class and in underdeveloped areas such as the Masakhane community. More significantly, these consequences of capital production are dependent on the undermining of developing countries which exist as centres of resource extraction (Shiva, 2010: 229). According to Clark and Foster (2010: 147) as a solution to this rift, capital attempts to advance technological and managerial fixes without sufficiently addressing the root causes of these concerns – capital itself. This analysis has had a profound influence on the contemporary realisation that the capitalist mode of production is irreconcilable with social and environmental conceptions of justice.

Marx’s Ecology is then pivotal in critiquing the capitalist mode of production. Clark and Foster (2010: 145) describe capitalism as:

“A system predicated on the constant accumulation of capital. It is both the subjective goal and the motor force of the entire economic system...this inherent impulse toward exponential growth intensifies the social metabolism of the capitalist order, increasing the demands on nature...capitalism and nature are caught in an enduring conflict”.

It is significant to argue that through the inception of colonial trade the capitalist mode of production advanced a new “dualism between man and nature” (Shiva, 2010: 229). As a result nature exists as a free resource open to exploitation within systems of accumulation and production (Clark and Foster, 2010: 149). It advances an anthropocentric perspective of how to engage with the environment. Anthropocentrism predicates on the foundation that humans have dominion over nature as a result nature exists as a resource for the development of the human condition (Sachs, 1994: 9).

In this discussion specific focus is placed on Marx’s use of the Lauderdale Paradox and the Elementary Triangle of Ecology. The main argument advanced within these perspectives is

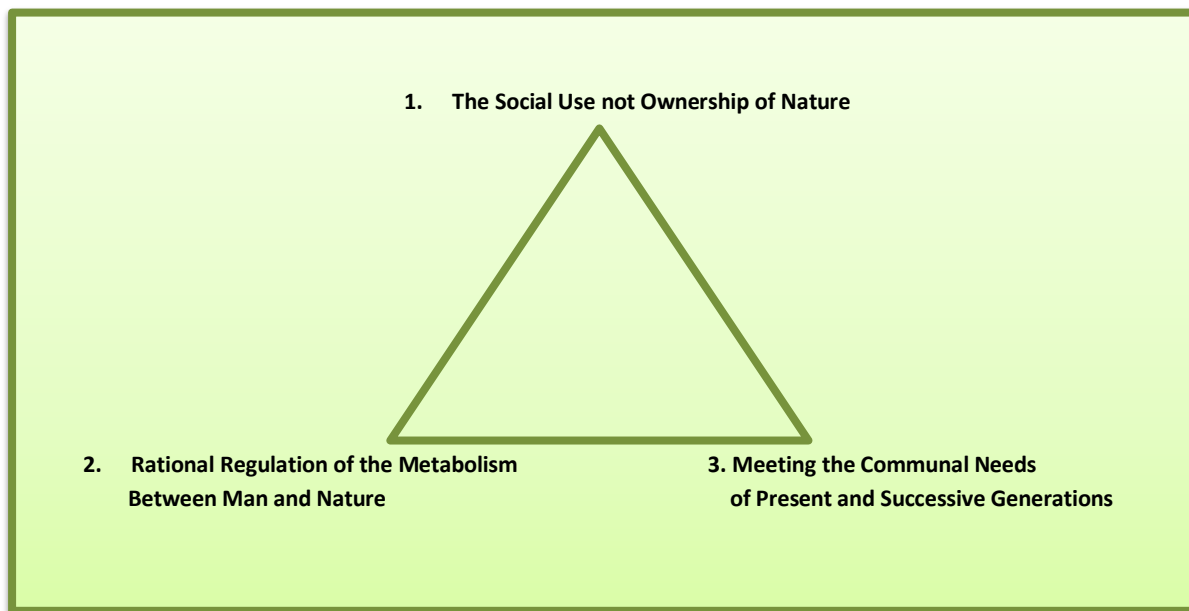
that biodiversity retains cultural and ecological significance beyond its location in the commodification paradigm. More significantly, that biodiversity has intrinsic value apart from the value ascribed to it by capital. Therefore, Marx argues that we need to rethink our relationship with nature where sustainability is a prominent feature (Clark and Foster, 2010: 150).

The Lauderdale Paradox is where the contradictions of the political economy are made evident as capital accumulation is promoted at the expense of natural wealth and social justice. Advanced by James Maitland, the Lauderdale Paradox is located in how value is created through systems of exchange – specifically how natural resources once processed and commodified can be sold to yield a profit (Foster and Clark, 2009: 1-2). As a result, natural systems are commodified to maintain this system of growth, with their intrinsic value denied (Foster and Clark, 2009: 1-2). Herein, intrinsic or use value is understood as qualitative. It is a sustainable and reciprocal relationship between man and nature respecting natural limitations while meeting basic human requirements (Marx, cited in Benton, 1989: 54). Whereas, exchange value, is quantitative - created in the transformation of resources through the production process (ascribed value). Exchange value is ascribed when a resource becomes commodified and estranged (Clark and Foster, 2010: 150). The Lauderdale Paradox maintains that use-values (public wealth) inherent in basic resources become privatised and commoditised with exchange-value ascribed to it. In this process these resources are made scarce, in order for an elite few to benefit (private riches) from their commercialisation (Clark and Foster, 2010: 150).

As a result Marx advanced a historical conceptualisation of sustainability as the preservation of the earth for successive generations (Clark and Foster, 2010: 152). It is important to argue here that what distinguishes this idea of sustainability from the generic and juxtaposed “sustainable development” is that it is not an anthropocentric conservation of nature. It encompasses the view that nature should not be monopolised at all (Clark and Foster, 2010: 152). A similar argument is advanced by Shiva (2010: 233) noting that resource exploitation is central to capital accumulation however as a natural resource base nature “cannot be owned as private property or exploited for private profit”.

Marx’s advancement of this ideology is captured in what is referred to as the Elementary Triangle of Ecology depicted below:

Figure 5. The Elementary Triangle of Ecology



(Source: Clark and Foster, 2010: 152)

Marx places emphasis on the need to preserve nature for successive generations – attached with the acknowledgement that man does not have dominion over the environment (Foster and Clark, 2009: 6-8). Herein, Foster and Clark (2009: 7-8) argue that for Marx sustainability can be achieved through having: “a direct relation to nature; the land as a means of production; and a communal relation to the earth”.

From this stems an alternative way in which humans relate with nature restoring their natural interaction – placing ecological conditions on the economy so that the social metabolism of society does not undermine the natural limitations of nature (Clark and Foster, 2010: 148). This advances the concept of eco-socialism.

Two fundamental arguments inform this view (a) that the current capitalist mode of production is irreconcilable with the limitations of the natural environment which will ultimately cause environmental crises and perpetuate inequalities between developed and developing countries, (b) the current pattern of economic expansion threatens human existence itself and therefore the protection of the environment is vital (Lowy, 2005: 18). Lowy (2005: 18) and Cock (2012: 10-12) argue the solution is found in the reinterpretation of the relation between society and production focusing on meeting social needs and environmental protection. Herein, the working class and their networks exist at the forefront

of “radical transformation” (Lowy, 2005: 18) and “a just and sustainable social order” (Cock, 2012: 7).

7.3.1. The Treadmill of Production and Interrelated Concepts

The following section is significant as it does not just highlight the predatory nature of capitalism but describes the unique productive, extractive and accumulative power of capitalism. Alan Schnaiberg (1980) presents the most prominent analysis of the political economy as influenced by Marx’s scholarship. Schnaiberg successfully locates the relationship between capitalism, the state and nature within the processes of economic development and environmental degradation (Hannigan, 2006: 20). Hannigan (2006: 20) argues that environmental concerns are organised within the contemporary form of industrial society dubbed the treadmill of production, defined as – “the inherent need of an economic system to continually yield a profit by creating consumer demand for new products, even where this means expanding the ecosystem to the point where it exceeds its physical limits to growth or its carrying capacity”. Through the evolution of the theory of the treadmill of production Schnaiberg *et al.* (2000: 3-5) further state that the treadmill of production is constitutive of incessant economic growth, production and consumption; remedying environmental concerns through further advancing the treadmill, expansion predicated on core industry, state and labour.

Through the evolution of the political economy the treadmill of production emerged as a site of exploitation of the working class and the environment (Schnaiberg *et al.*, 2000: 6). This has created several problems. Firstly, the treadmill requires increasing access to natural inputs to function. As this system grows exponentially, it exceeds nature’s physical capacity to regenerate (Hannigan, 2006: 20). Secondly, in relation to the social implications the working class becomes continuously undermined, exploited and alienated through the advancement of technology (Schnaiberg *et al.*, 2000: 7). Lastly, the treadmill of production highlights that as industry increasingly becomes self-governing the state becomes dependent on these institutions for financial and political investment (Schnaiberg *et al.*, 2000: 8).

This concept of the treadmill of production is further elaborated on by Bunker (2005) and Rice (2009). Bunker (2005: 38) expands Schnaiberg’s discussion by proposing that the treadmill of production analysis gains more significance when it is integrated into a “world-systematic approach” referred as the **transnational organisation of production**. Bunker

asserts that on an international scale production has been skewed, wherein patterns of resource extraction and exploitation have become more intensive within a vast array of countries (Rice, 2009: 219).

This exploitation is exacerbated by unrestrained access to cheap labour and resources from developing nations coupled with weak state regulation (Sachs, 2003: 9; Rice 2009: 219). This interaction between developed and developing nations is referred to as unequal exchange, a concept advanced by Arghiri Emmanuel (Rice, 2009: 219). Adding an ecological layer Rice (2009: 217) advances the concept of **ecological unequal exchange** defined as:

“...the environmentally damaging withdrawal of energy and other natural resources and the addition or externalization of environmentally damaging production and disposal activities within the periphery of the world-system as a consequence of exchange relations with more industrialized countries. It is based upon both the obtainment of natural capital and the usurpation of sink-capacity or waste assimilation properties of ecological systems in a manner that enlarges the domestic carrying capacity of the industrialized countries to the detriment of peripheral societies”.

This is characterised by the movement of resources from “extractive peripheries” predominantly developing nations to the “productive core” (Bunker, 1984: 1018; Rice, 2009: 216). 219). As a result underdevelopment is created in the extractive peripheries – through the loss of value seen in the degradation of the environment, the disruption of local relations and dependencies on the environment and the cost involved in the exportation of resources (Bunker, 1984: 1019; Rice, 2009: 216).

The idea of ecological unequal exchange can then be further located in the conceptualisation of the contemporary notion of accumulation by dispossession. **Accumulation by dispossession** (AbD) is advanced by David Harvey (2003) and further adapted by Hallows (2011). Hallows (2011: 1) argues that the evident social and environmental injustices in the current political economy inflicts three central constraints – externalisation, enclosure and exclusion. Often the environmental costs and effects do not affect the productive core but are externalised through the exploitation of labour power, the environment and public wealth (Hallows, 2011: 1). Through the enclosure of the commons it continuously perpetuates underdevelopment. The concept of enclosure is not new as advanced by Shiva (2007: 308) in critiquing the current bioprospecting and intellectual property regime in what she refers to as the “enclosure of the biological and intellectual commons”. It requires the redistribution of

state-owned resources to be privatised and controlled by industrial companies (Harvey, 2003: 159). Lastly, the majority of civil society specifically the rural poor become excluded from socio-environmental, political and economic decision-making that ultimately affects their well-being (Hallowes, 2011: 1). Specifically, through dispossessing the rural population of their resources and knowledge, enclosing access to these resources and land through the monopolising effect of property rights and making them dependant on the systems that undermine them (Negi and Auerbach, 2009a: 89).

Given the above, the discussion highlights several issues in relation to the case study, the development discourse, access and control of resources and the concern of local livelihoods. The concern of achieving sustainable livelihoods becomes laden with complexity and ambiguity when confronted with capital infiltration, fragmentation of state legislation and hierarchical power structures that define access and control. As a result the Sustainable Rural Livelihoods Framework (SRLF) may exist as a viable strategy to achieving sustainable livelihoods but remains dubious when subjected to the current political economy. The next section then examines the sustainable rural livelihoods framework.

7.4. THE SUSTAINABLE RURAL LIVELIHOODS FRAMEWORK (SRLF)

7.4.1 The Development of the Sustainable Rural Livelihoods Framework

The notion of sustainable rural livelihoods was first addressed at the Brundtland Commission on Environment and Development in 1987 and further developed at the Rio Summit in 1992 –“advocating for the achievement of sustainable livelihoods as a broad goal for poverty eradication” (Krantz, 2001: 1). In 1997 the SRLF became cemented in the objectives of the Labour administration’s White Paper on International Development which placed focus on global concerns of poverty alleviation, the development of poor communities and conservation of the environment (DFID, 1999). The framework is entrenched in the idea of sustainability advancing the notion that livelihoods should be fashioned in a holistic/integrative way through addressing namely, access to resources, livelihood strategies, policy, capacity building and infrastructure as informed by organisational and institutional dynamics (Dorward *et al.*, 2001; Krantz, 2001; Scoones, 1998; Chambers, 1987: 10). Within this context the United Nations emphasised the need for civil mobilisation and participation, the needs of the poor placing impetus on the need to integrate strategies of self-reliance and sustainable development (Chirau, 2012: 11).

It is a largely bottom-up, grassroots framework that incorporates resource management and adaptation strategies – analysing how communities organise their livelihoods, through both the physical mechanisms and the activities they govern (Ashley and Carney, 1999: 4; Scoones, 1998). More specifically, through the analysis of resources, social, economic and symbolic capital the SRLF addresses the ways in which people react in relation to economic vulnerability (Chirau, 2012: 10). The SRLF approach acknowledges that poverty is not stagnant rather it is an adaptive state in which the poverty stricken “move in and out of poverty as they react to opportunities, shocks and stresses” (Chirau, 2012: 10). As a result, the SRLF provides a basis on which one can comprehend how the livelihoods of the poor can be transformed in relation to strategic organisation in response to change within their constitutive structures of dependence, thus, linking the micro to macro level organisations (Chirau, 2012: 10).

The Department for International Development (DFID) (1999: 1) describes a livelihood as comprising of material, human and social resources utilised in developing a means of surviving – sustainable through the effective management of their vulnerabilities and its resilience in maintaining these adaptations for current and future generations. The latter is emphasised in Chambers and Conway (1991: 7) who argue that

“A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term”.

Scoones (1998: 5) argues that the definition postulated by Chambers and Conway identifies core characteristics of the approach. The first three sections of the definition focus on livelihoods showing the interrelation between strategies of poverty eradication and its relation to security and capability. The second focuses on sustainability and lastly it reflects the flexible relation between local livelihoods and the natural resources that they are dependent on (Scoones, 1998: 5). The next section then expands on these core components.

7.4.2 The Components of the Sustainable Rural Livelihoods Framework

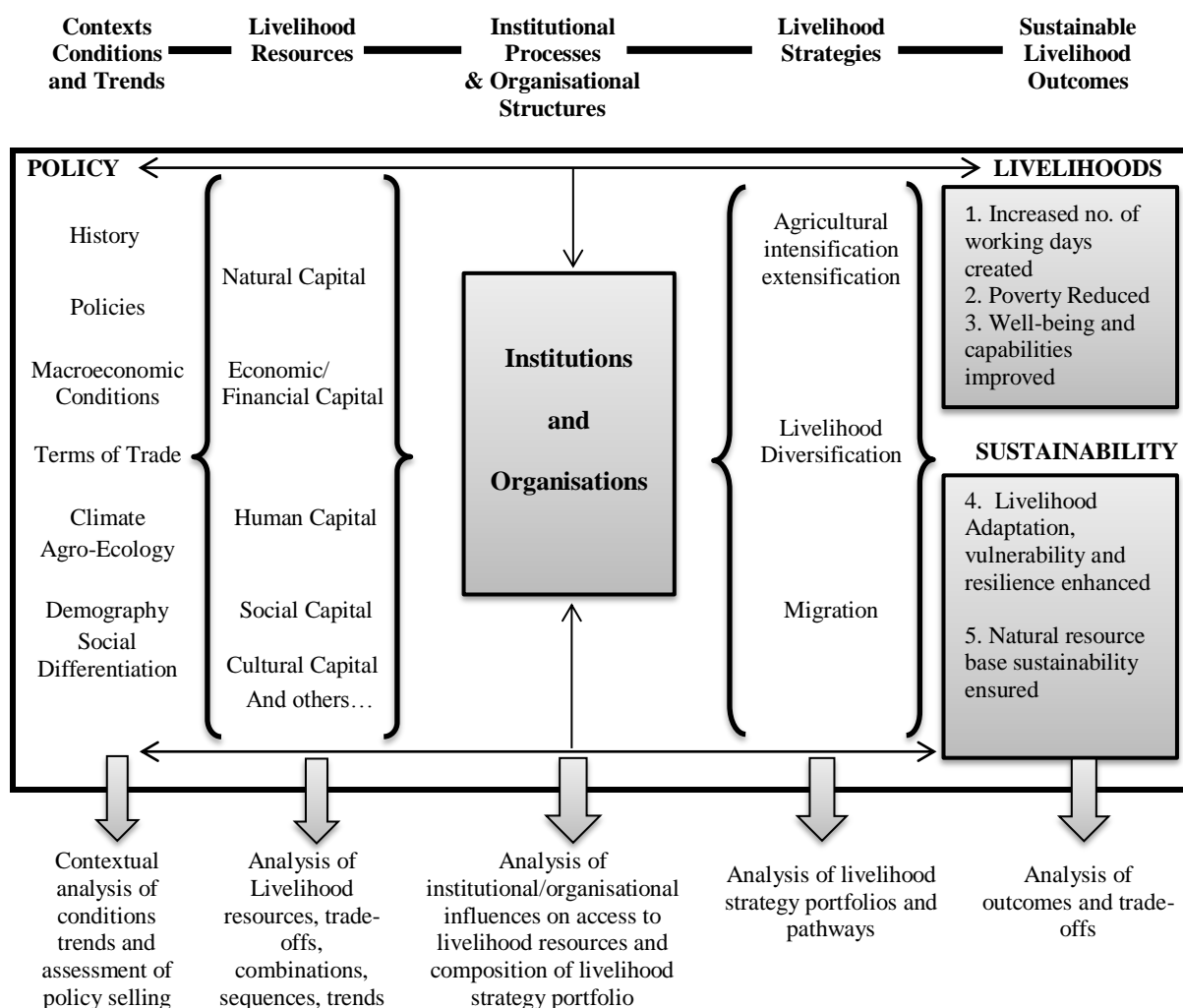
The SRLF has six main objectives mainly, improved access to high-quality education, information, technologies and training and better nutrition and health; a more supportive and

cohesive social environment; more secure access to, and better facilitating infrastructure; more secure access to financial resources and; a policy and institutional environment that supports multiple livelihood strategies and promotes equitable access to competitive markets for all (DFID, 1999: 5; Ashley and Carney, 1999: 6). The framework also emphasises five interrelated elements mainly, contexts, resources, institutions and outcomes herein resources are significant to attaining the objective of sustainable development (Chirau, 2012: 11). Scoones (1998: 3) argues that the SRLF has a number of interrelated characteristics that looks at a given context and assess how and which kind of livelihood resources and strategies have an effective outcome in terms of sustainability for a given community. More specifically, the SRLF approach addresses the institutional barriers or aids in meeting the desired outcomes of the community (Scoones, 1998: 3).

Various livelihood strategies are dependent on a complex and diverse system of interrelations contingent to various resources both material and immaterial capital – referred to as the “capital base” (Scoones, 1998: 7, Chirau, 2012: 14). Natural capital is defined as the natural resource materials such as water, air, social and flora and environmental cycles on which livelihoods are dependent (Scoones, 1998: 7). Natural capital is vital to local communities who are based on resource intensive activities such as natural resource extraction and farming (DFID, 1999: 2.3.3). Physical capital addresses the infrastructure and goods that are produced to sustain livelihoods such as roads and rails which are vital to remote local communities, here lack of infrastructure remains a significant problem in local poverty stricken communities (DFID, 1999: 2.3.1).

Human capital derives from the inherent skills, capacities and knowledge that are contingent to how humans interact with their environment to develop various livelihood approaches (Scoones, 1998: 8). Human capital as it fosters knowledge and labour is important in requiring assets (DFID, 1999: 2.3.1) Financial capital is embedded within economic activities and social capital is defined as “the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions” (Scoones, 1998: 8). Social capital is the most vital as it fosters all other forms of capital within relations of mutual trust, exchange of collective innovation (DFID, 1999: 2.3.2). The interrelations between these different forms of capital are illustrated in **Figure 6** below:

Figure 6. The Sustainable Livelihoods Framework



(Source: Scoones, 1998: 4)

Krantz (2001: 11-10) argues that there are three implications of the SRLF firstly there is a need for the poor to take advantage of economic opportunities even though the politics of the economy tend to not be in their favour. Adding impetus Krantz (2001: 10) argues that the limitations the poor face should be identified so that solutions can be reoriented to effectively address them (Krantz, 2001: 10). Secondly, poverty needs be to acknowledged as not only contingent to economic but inclusive of access to services and institutions such as education which can play a vital role in aspects of poverty alleviation, and their vulnerability rooted in lack of inherent power (Krantz, 2001: 10). Lastly, active participation of the local communities in decision making processes relative to their circumstances is vital in creating awareness and social mobilisation – “given a say in design, they are usually more committed to implementation” (Krantz, 2001: 10-11). The SRLF could also benefit from the inclusion of

cultural capital as theorised by Bourdieu (1986) specifically addressing the shared generational knowledge of local communities and their resources. In his later work Bourdieu does address cultural capital as manifested in the dynamics of groups (Bennett and Silva, 2006: 87). There are many nuances to this idea of cultural capital especially with regards to ITK held by local communities as their knowledge and resources are a part of their livelihood strategies.

7.5. CONCLUSION

In conclusion Marx's Ecology remains inherent within the cycle of capital accumulation and the alienation it perpetuates removing the worker from their means of production fostering a relation of dependency whilst also changing the social metabolism between man and nature. Intrinsic to this theory are various features of inequality economically and socio-politically that reflect the power dynamics of developed nations feeding off the resources of those on the periphery. The system of capital accumulation manifests itself within all spheres of society and permeates its ideals into mainstream policy indoctrinating itself within new environmentally friendly prospects however the aim is still capital accumulation. Furthermore, the dynamics of power as well as the entrenchment of local communities into a state of dependence inherently dismantle and distort local livelihoods. Livelihoods sustain themselves through intricate dynamics of capital that remains interrelated with capital accumulation which fundamentally fragments these relations through it being resource intensive and its rhetoric of imperialism being socio-politically dominant. These predatory forces of capital have manifested themselves in the South African political economy. Herein, local communities remain systematically undermined and marginalised – specifically from the mainstream political and economic agendas of their environments.

The SRLF has been characterised as an ideal solution, however, in light of the South African political economy it is not as simplistic to achieve within the context of local communities. In this case the economic capital has been exclusive to an elite few whilst marginalising the majority. Given that areas such as the Masakhane community are epicentres of superexploitation the dynamics of economic capital will always be polarised. This is the case even though most of natural and human capital exists within the local community in the form of natural resources and harvesters. Attaining sustainable livelihoods within the Masakhane community is also highly fragmented over the historical contestation over land. Moreover, they remain at a disadvantage with poorly developed infrastructure and access to services.

CHAPTER 8

RESEARCH METHODOLOGY

8.1. INTRODUCTION

The primary objective of this study is to explore access and control of biodiversity in the context of biopiracy with specific reference to the case of *Pelargonium Sidoides* within the Raymond Mhlaba Local Municipality. The sub-goals are: to explore the impact and implications of the politicisation and commodification of local knowledge and biodiversity in terms of local economy and rural livelihoods, assess the community's perceptions and experiences on benefit-sharing and biopiracy. In this regard the use of qualitative research is significant in providing an in-depth analysis of the chosen case of the *pelargonium sidoides*. Qualitative research explores various approaches and schools of thought that play an integral role in analysing research (Ritchie and Lewis, 2003: xiv). This Chapter is informed by the various techniques that inform the methodology, transcription and coding of qualitative research. These techniques are addressed in relation to the core features of this research – the case study, literature review and conceptual frameworks. The first part of this Chapter addresses the research design. The second section looks at the various techniques used. The third section addresses ethics and the last section discusses the limitations of the study.

8.2. RESEARCH DESIGN

This study is largely informed by qualitative research as it allows for an interpretive account of the information being collected specifically through the meanings people attach to phenomena (Ritchie and Lewis, 2003: 3). This is crucial in achieving both the primary and the secondary objectives of the study. Qualitative research provides the following advantages as opposed to quantitative. The qualitative research paradigm refers to a broad research approach which is rooted within “the insider perspective on social action” (Babbie, 2002: 53) more specifically looking at the subjective experiences of people (Terre Blanche *et al.*, 2006: 273). Denzin and Lincoln (cited in Ritchie and Lewis, 2003: 2) note that qualitative research is an interpretive and naturalistic method of analysing the social world. Terms used interchangeably with qualitative research include ethnography, field research and naturalistic research (Babbie, 2002: 53). This is important as most of the fieldwork and data collection process was conducted in the context of the Masakhane community – who have an array of understandings in relation to natural resources that are being appropriated in their area.

As a means of incorporating various data collection techniques triangulation was used to increase the validity and reliability of the research, taking “multiple perspectives into account and attempting to understand the influences of multilateral social systems and subjects’ perspective and behaviours” (Babbie and Mouton, 1998: 275). Herein, triangulation refers to the collection of data using as many techniques as possible as well as a variety of sources (Terre Blanche *et al.*, 2006: 287). It is vital in terms of cross-referencing various perspectives with the claims made throughout the research study more specifically methodological triangulation looks for “convergent evidence from different sources” such as interviews, observations and archival research (Terre Blanche *et al.*, 2006: 287). Through the integration of the various techniques not only was the data that was collected rich and descriptive the literature review was extensive capturing a comprehensive examination of the biopiracy-bioprospecting discourse. Specifically, this study used in-depth interviews, systematic observation and archival research as data collection methods. These provide rich, in-depth (“thick”) description and understanding of social actions and events (Babbie and Mouton, 1998: 270).

In this regard the researcher can only gain meaning from the data collected in relation to the context in which a phenomenon is experienced, this is referred to as a process of “empathic reliving” (Terre Blanche *et al.*, 2006: 274). The insider perspective is also referred to as the emic perspective of human action and is based on the premise of understanding through observation and inquiry (Babbie, 2002: 53). By creating understanding within the given context the researcher then becomes the main instrument of data collection (Terre Blanche *et al.*, 2006: 274). Given that this research is primarily focused on the analysis of case studies it is significant to note that case studies are often descriptive and ideographic used to “understand situations in-depth” and is reliant on observation and archival research (Terre Blanche *et al.*, 2006: 461; Babbie, 2007: 300). As a result adopting this approach is integral to a critical examination and unpacking of access and control with regards to the case pelargonium sidoides in the Raymond Mhlaba Local Municipality.

8.2.1. The Literature Review

An important aspect of any research is the literature review. The literature review contextualises the research within a specific area of study (Terre Blanche *et al.*, 2006: 19). Firstly, reviewing the scholarship on a certain topic allows one to refine the focus of the research topic. Secondly, the literature review is pivotal in allowing the researcher to

understand the topic better and to structure the various sections that will be addressed in the study (Terre Blanche *et al.*, 2006: 20). Furthermore, refining the research topic informs the selection of a suitable conceptual framework which serves “as an orientation for gathering facts since it specifies the types of facts to be systematically observed” in this instance the research is orientated towards Marx’s Ecology and the Sustainable Rural Livelihoods Framework (Terre Blanche *et al.*, 2006: 20). The review of literature is then significant in placing emphasis on the seminal areas of scholarship within the research field (Terre Blanche *et al.*, 2006: 21). The review also allows the researcher to highlight key concepts and provide definitions that will be used throughout the research. Lastly, the literature review plays a role in guiding the researcher towards a suitable methodology for the research through revealing various techniques used in other studies (Terre Blanche *et al.*, 2006: 21).

It is important to note that the biopiracy-bioprospecting discourse is an emerging area of social inquiry. Generally research on the topic is multidisciplinary as evident in the data and literature. Many of the sources that are cited draw from the disciplines of law, science, politics, sociology and anthropology. This allows for a more broadened perspective on the scholarship that informs this area of social inquiry. Defining the scope of the study was largely reliant on international literature and case studies – these were also important in designing the data collection instruments.

This study made use of the literature review through a systematic bibliographic analysis of all relevant literature relating to the specific topic (Terre Blanche *et al.*, 2006: 22). This was informed by moving from broad browsing to key word searches on various journal databases as well as physical access to hard copy materials in the Rhodes University and University of Fort Hare library catalogues. This then further involved the extraction of significant data that would make up the literature review. From this process the core literary texts were also identified (Terre Blanche *et al.*, 2006: 23). This form of data mining was also integral to sourcing all the policy and legislative documents relative to the case study. The comparative cases formed the foundation for locating the biopiracy-bioprospecting discourse on an international scale – with the Neem Tree and Endod Berry cases providing a significant starting point to realising the discrepancies in the international policy frameworks. On a local platform the San-Hoodia, Rooibos and Honeybush cases were significant in structuring the critic of the pelargonium sidoides case.

Another significant factor in the collection of data and further developing the structure of the thesis itself were the conferences and seminars the researcher attended and presented papers. The first two papers were presented at the South African Sociological Association Conference in 2014. These two presentations focused on the pelargonium sidoides case study as well as the conceptual framework. The second conference was the 6th Annual Interdisciplinary Post-Graduate Conference hosted by Rhodes University in 2014. A pivotal seminar series hosted by the Rhodes University Politics Department allowed the researcher to engage in the topics presented by Ben Fine – one of the theorists of the Minerals-Energy-Complex and Jacklyn Cock who is influential in theorising about the human-nature relationship. Both of these research platforms provided extensive engagement and feedback which allowed the researcher to explore and refine the thematic areas of discussion and the conceptual frameworks utilised in the thesis. Another useful exercise in relation to the research was the co-authorship of a book Chapter in, *Revisiting Environmental and Natural Resource Questions in Sub-Saharan Africa*.

8.2.2. The Conceptual Framework

Karl Marx's critic of capital has been largely thought of as irrelevant in current ecological and environmental scholarship. However, given that the current debates on access and control of natural resources is an evolving body of scholarship a reappraisal of Marx's Ecology is significant in locating the current appropriation of natural resources and indigenous knowledge in the commodification paradigm of capital accumulation. It offers a unique understanding not only of the international political economy but forms as an analysis of South Africa's political economy. These functions of capital are the juxtaposed with the need of sustaining rural livelihoods.

The impetus of Marx's Ecology relates the problem of natural resource appropriation to the current development path of economic expansion (Foster and Clark, 2010: 142). Herein, Marx provides a critic of capital as it systematically marginalises local communities such as the Masakhane community, it centralises the trade and resource appropriation indicative of the state-industry-rural elite capture of resources (van Niekerk and Wynberg, 2012: 541; Foster and Clark, 2004: 186). The interrelated concepts of the treadmill of production, ecological unequal exchange and accumulation by dispossession further implicate this capitalist regime on an international scale of wholesale appropriations and dispossessions of natural resources from developing countries to the developed core (Clark and Foster, 2010:

148; Rice, 2009: 217). These interrelated perspectives are then significant in depicting the skewed relationship between developed and developing nations – with the latter bearing all the ecological and social costs (Rice, 2009: 216).

The sustainable rural livelihoods framework (SRLF) is then significant for the study in conceptualising how local communities can adapt to social and environmental vulnerability. Specifically, relating to resource management and localised development as a means to eradicate poverty (Krantz, 2001: 1; Chambers, 1987: 10). Herein, emphasis is placed on localisation and participation similar to the solutions Marx's Ecology proposes in relation to his understanding of sustainability (Chirau, 2012: 11). However, as indicative of the research achieving sustainable livelihoods in the current political economy is highly complex as coordinated through various national and international policies that have been largely entrenched in the current capitalist regime. The conceptual frameworks are then significant in uncovering the contestations surrounding natural resource appropriation and indigenous knowledge located not just within the broader debate on the politics of knowledge but within how capital functions within access and control.

8.3. RESEARCH METHODOLOGY

8.3.1. Sampling

Sampling involves the selection of participants that will be involved in the research study (Terre Blanche *et al.*, 2006: 49; Babbie, 2007: 180). Sampling is informed by probability theory wherein the participants of the study are often “large and representative” of the specific social inquiry under examination (Babbie, 2007: 183). In social research researchers most often rely on non-probability sampling as the researcher is dependent on the participants (Babbie, 2007: 183). There are four types of non-probability sampling: random, purposive, snowball and quota sampling (Babbie, 2007: 184). Random sampling relies on the availability of participants but is often not representative, purposive sampling often goes in accordance to the usefulness of a selected participant in the study. Snowball sampling is based on suggested participants from others who have been interviewed (Babbie, 2007: 184). Lastly, quota sampling relies on pre-specified characteristics that are presumed as present in a certain population (Babbie, 2007: 185). However, the majority of non-probability sampling is often not representative of the entire population in relation to research being conducted.

In relation to this study the participants were chosen in relation to their importance and influence on the research being conducted (Terre Blanche *et al.*, 2006: 49). Thus the majority of the participants selected were actively engaged in the case of pelargonium sidoides and were distributed between the Grahamstown and Alice region. As a form of non-probability sampling, purposive sampling is understood as a chosen population that is thought of as representative of the research that is being conducted (Babbie, 2007: 188). This extends to “the researcher’s judgement about which possible participants will be the most useful or representative” (Babbie, 2007: 184). This research made use of purposeful sampling. Due to the nature of the case study analysis specific interested and affected stakeholders were selected for the interview process. In this regard the researcher selects “information-rich” cases that not only relate to the conceptual framework but are also good examples of the phenomenon being researched (Terre Blanche *et al.*, 2006: 49; Babbie, 2007: 184). Herein, key informants of the current study were representatives of the core groups (interested and affected stakeholders) involved in the case of pelargonium sidoides. Specifically, participants included representatives from the Imingcangathelo Community Development Trust and the Masakhane Community Property Association, local harvesters, local community members, monitoring and enforcement environmental officers, plant breeders (cultivators), scientists, local businessmen involved in natural resource trade, academics, legal representatives and non-governmental organisations. The study required a diversity of view-points in relation to the case of pelargonium sidoides to unpack and examine the various tensions at play in relation to the objectives of the study.

8.3.2. Fieldwork

A preliminary site visit was carried out in 2014 in order for the researcher to observe the fieldwork site, to introduce herself to the community members, potential research participants and key gatekeepers for instance those who were directly involved in the case (Babbie and Mouton, 1998; Terre Blanche *et al.*, 2006). These key gatekeepers included members of the Masakhane Community Property Association as well as representatives of Imingcangathelo Community Development Trust. The key informants were identified through the literature addressing the pelargonium sidoides case study. Access was gained through explaining the research topic to all parties in order for them to make informed decisions as to whether they would like to engage in the study or not. In accordance with research ethics the participants of the study were also given a letter of authority from the Department of Sociology, Rhodes University, which gave them an informed description of the nature of the research that was

being conducted. This was based on the provision of full disclosure so that participants can give informed consent to engaging in the interview process. Upon these visits many observations and field notes were also made. The duration of the interviews was dependent on the responses of the participants. This ranged from an hour to three hours. Regular contact was kept with some of the key informants to keep track of any developments in the study area. The research was also heavily reliant on documentaries, government gazettes, unpublished legal documents, email correspondence, newspaper articles and literature documenting the *pelargonium sidoides* case.

8.3.3. In-Depth Interviews

As a data collection instrument this research focused primarily on in-depth interviews. Specifically, because the interview process provides a rich, in-depth (“thick”) description and understanding of social actions and events (Babbie and Mouton, 1998: 270). The interview creates a process of normalcy and familiarity as a conversation between people (Terre Blanche *et al.*, 2006: 297; Babbie, 2007: 306). Specific to this research, the questions asked in the interviews were unstructured which allowed for the participants to be more expressive of their experiences (Terre Blanche *et al.*, 2006: 297). Even though the interviews were unstructured the questions asked still resonated with the key themes of the research. An unstructured interview keeps in mind the general themes that need to be covered however the questions do not have a specific order (Babbie, 2007: 306). As a result the interview process was informed by several initial areas of focus – the national legislation informing biodiversity trade in South Africa, the involvement of industry in the study area, harvesting practices, the history of *pelargonium sidoides* appropriation, views and perceptions on the history of the trade in the study area, local understandings of what was happening in their area in relation to the natural resource trade and general understandings of the biopiracy-bioprospecting discourse. These areas were later developed and refined into the core themes in the data.

The interview questions were amended in accordance with the participant that was being interviewed. In light of this Rubin and Rubin (cited in Babbie, 2007: 305) note that “the continuous nature of qualitative interviewing means that the questioning is redesigned throughout the project”. The interviews were also recorded with the consent of the participant. The interviews were conducted in areas chosen by the participants adding to the comfortability of the process. The interview process was heavily reliant on the key roles each participant played in the case of *pelargonium sidoides* thus at the start of interview the

research topic was reiterated so that the participants were fully aware of the study they were engaging in.

8.3.4. Observation and Archival Research

The study also made use of observations during the field research. Observations unlike interviews are often noted while the participant is giving their account of the phenomenon being addressed (Terre Blanche *et al.*, 2006: 308). Observation allows the researcher to capture data within the specific context documenting anything that happens and interpreting the activity (Babbie, 2007: 311). Key to making observations is for the researcher to become immersed within the context where the phenomenon is occurring (Terre Blanche *et al.*, 2006: 308; Babbie, 2007: 307). It is very important that the observation process is not invasive as this is a process of collecting information in the most natural setting (Terre Blanche *et al.*, 2006: 308). This is way the initial visits to the study area were significant so as for the research to become familiar with the study area.

In relation to this specific study observations were made during the site visits. Herein interviews were conducted whilst field notes were made with regards to the various activities that were observed. This included descriptive observation which provides a detailed account of exactly what was happening at the time of the site visits (Terre Blanche *et al.*, 2006: 308). These observations noted the social and economic deprivation in the area, hierarchical structures that inform access and control, archival documents, harvesting activity, the non-verbal gestures, body language and interaction of the participants in the interviews and of community members in general. Outside of the site visits other participants were observed at their workplace where the interviews took place, in these settings observations related to non-verbal cues as aforementioned as well as the kind of information that was given and how it was relayed during the interview process.

The study was also informed by archival research. Archival or content analysis involves the “the study of recorded human communications” (Babbie, 2007: 321). Sources included email correspondence, newspaper articles, government gazettes and documentaries. This form of data collection is thought to be easier than observation and the interview process (Terre Blanche *et al.*, 2006: 316). Documents can also be more in-depth than the interview process itself (Terre Blanche *et al.*, 2006: 316). As aforementioned, this form of data collection relied heavily on legislation, policies and regulations that have been established nationally and

internationally. This was also pivotal in gaining information about the history of the pelargonium sidoides case study specifically its relation to the struggle for land on part of the Masakhane community. Archival research was also significant in mapping the national provisions on the regulation and monitoring of the pelargonium sidoides species. Several unpublished theses and legislative documents formed part of this discussion. In this regard, archival research then involved an extensive and rigorous searching process of the various legislative frameworks and policy documents that inform the biodiversity trade both nationally and internationally.

8.3.5. Ethical Considerations

Babbie (2007: 71) argues that ethics in social research is both significant to address but can also be ambiguous. The term ethical has been broadly defined as “conforming to the standards of conduct of a given profession or group” (Webster’s New World Dictionary cited in Babbie, 2007: 62). There are several issues that need to be taken into account in relation to ethical research. These include full disclosure and transparency, informed consent, non-maleficence, voluntary participation, unobligated withdrawal, anonymity⁶⁰ and confidentiality⁶¹ (Terre Blanche *et al.*, 2006; Babbie and Mouton, 1998).

It needs to be noted that research inquiry interrupts the normal social activities of the participants, in this regard no person should be coerced to engage in the research project (Babbie, 2007: 62). As a result, it needs to be taken into account that participants have rights that need to be respected. Inherently, the research should not inflict any harm may it be physical or psychological. These two prerequisites, voluntary participation and no harm, inform the principle of prior informed consent (Babbie, 2007: 62). Prior informed consent is premised on the full disclosure of the intent of the research, this is also subject to anonymity and confidentiality (Babbie, 2007: 65). The research process also requires that participants are debriefed as a process of correcting any problems that may have occurred (Babbie, 2007: 65). It is in this regard that the intentions of the research were fully disclosed to all the participants in the interviews by the researcher. They were presented with a formal letter, issued by the Head of the Sociology Department at Rhodes University, confirming the validity of the intended research. In accordance with confidentiality and anonymity the data

⁶⁰ Anonymity ensures that the intended reader of the research and the researcher is unable to link a response to a specific participant (Babbie, 2007: 64).

⁶¹ Confidentiality allows the research to disclose the participants but the researcher can choose not to do so (Babbie, 2007: 65).

presentation does not personally identify the interviewed participants by name. The preliminary site visits also facilitated the process of transparency and voluntary participation.

8.4. DATA ANALYSIS

8.4.1. Transcription

Each interview was subjected to a process of transcription. The transcription allowed the researcher to move more efficiently through the data and to isolate key themes that developed from each interview (Terre Blanche *et al.*, 2006: 302). In this case it was important to transcribe the whole interview so that when significant sentences emerge they could be located back to context in which it was referred (Terre Blanche *et al.*, 2006: 302). Herein, Terre Blanche *et al.*, (2006: 302) argues that the reliability of the data collected can also be tested by referring the transcribed text back to the audio recording of the interview (Terre Blanche *et al.*, 2006: 302). Transcription is also useful in making note of various pauses and non-verbal cues made by the participant (Terre Blanche *et al.*, 2006: 302).

8.4.2. Developing Themes and Coding

The analysis of the transcribed data takes on an interpretive approach wherein the purpose is to “place real-life events and phenomenon into some kind of perspective” in order to build on the knowledge about the phenomenon (Terre Blanche *et al.*, 2006: 321). In relation to this approach various techniques were used to engage and extract relevant information from the data. Herein, there was a need for familiarisation and engagement with the data in a text format, transcripts and field notes (Terre Blanche *et al.*, 2006: 322). This method of developing themes involved inductive reasoning which stems from the principle that general categories are “developed from specific observations” (Babbie, 2007: 22). In order to establish reoccurring themes the researcher looked for the frequency, magnitude, structures, processes, cause and consequences of a given theme to bring to light the pattern that informs it (Babbie, 2007: 379).

Becoming immersed in the text is pivotal in developing links and inducing themes. Through a process of induction the transcripts and field notes were unpacked and organised into various underlying or recurrent themes that were found across each text (Terre Blanche *et al.*, 2006: 322). The themes were further developed and informed by the review of literature that had been covered in the Chapters of the thesis. The latter is important in framing the themes in the language of the interviews and scholarship so that they do not become abstract (Terre

Blanche *et al.*, 2006: 322). The process of creating themes does not entail a summary of the transcripts and field notes but unpacks the lived experiences, processes, contestation and power dynamics at play with regards to the phenomenon being addressed (Terre Blanche *et al.*, 2006: 323).

Whilst inducting themes the researcher also went through a process of coding which involved linking phrases and sentences from the text to the relevant themes. Terre Blanche *et al.* (2006: 352) note that “in coding we break down a body of data (text domain) into labelled, meaningful pieces, with a view to later clustering the bits of coded material together under the code heading” for further analysis. Several themes emerged from this process specifically, the status of pelargonium sidoides in relation to unregulated access and exploitation which covered a range of sub-themes which included the issue of rural livelihoods and resource appropriation. The second thematic area focused specifically on the case of the Masakhane community – the role of civil society, their land rights and access to pelargonium sidoides. The third area covers the subsequent environmental reform addressing the area of governance, policy, legislation and the concern over access and benefit-sharing. The last thematic area addresses the role of chieftaincy in local community development and their central role in access and control of resources in the study area.

The development of themes and codes is an iterative process constantly developing and reframing to enhance the understanding of the topic (Terre Blanche *et al.*, 2006: 326). This rigorous process was further elaborated, feeding into the structure of the write-up which is the researcher’s interpretation of the data in Chapter Nine (Terre Blanche *et al.*, 2006: 326).

8.5. LIMITATIONS OF THE RESEARCH

Within this context various limitations to the study were discovered. The language barrier was a problem. Even though the researcher understood some of what was being said ultimately the use of a translator was needed. Another limitation was that key informants preferred to send representatives instead of being personally interviewed, hindering the process of collecting in-depth information. Given the confidential nature of some of the required government documents it was also difficult to gain access to vital information for the study such as the gazetted benefit-sharing agreements related to pelargonium sidoides trade. Transport costs were also a limitation as the researcher at times did not have the sufficient funds to get to the research area.

The scope of the research proved advantageous however also restrictive. Due to the various themes of the research being so broad covering a number of pertinent issues in-depth and detailed accounts of these certain areas was not possible. Firstly, one of the sub-goals of the research was to examine the traditional and contemporary land-use patterns, dynamics and natural resource management practices within the community. However, due to time, cost and the depth of historical research that had to be conducted addressing this goal was not feasible. It is important to note that the biopiracy-bioprospecting discourse is an emerging area of social inquiry. As a result, on an international scale numerous cases have been covered however there is a lack of literature on resources appropriated from South Africa. There is a lack of literature on the case of the Masakhane Community Property Association (CPA) and relation to their struggle for land. This provides potential research in this area. Even though the patent case has been covered there is a need for more literature on the outcomes of the case. The lack of literature is similar to other research conducted in the study area for instance, Msomi (2013: 7) places emphasis on the “limited availability” of literature.

8.6. CONCLUSION

In conclusion conducting qualitative research opens the researcher to a wide range of techniques to both collect and analyse data. Through triangulating various techniques the researcher allowed for various forms of data to be collected adding to the development of a richer interpretation. The conceptual framework is engrained within the development of the themes and more so in the processes and structures that inform the access and control regime itself. Furthermore, the research methodology allowed the researcher to capture the disparities within a hierarchical system of power dynamics indicative of the pillaging of resources and associated indigenous knowledge. However, as highlighted in the concluding discussion in Chapter Ten and in the limitations of this current Chapter there is still a need for further research on the area specifically in the South African context. Given that this area is rich in biodiversity would be the premise for future research. Specifically, relating to comparisons between various natural resources being appropriated in the study area. This applies to the entire Eastern Cape Province as a resource-rich area.

CHAPTER 9

DATA PRESENTATION AND ANALYSIS

9.1 INTRODUCTION

This Chapter presents the data analysis based on the fieldwork conducted. The primary goal of this Chapter is to explore access and control of *pelargonium sidoides* in the Raymond Mhlaba Local Municipality. It serves as a micro level qualitative analysis over the claim of the capital elite to the resources of the local rural communities. The objective of the data is to firstly address the impact and implications of the politicisation and commodification of local knowledge and biodiversity in terms of local economy and rural livelihoods. Secondly, to assesses the community's perceptions and experiences on benefit-sharing and biopiracy.

The first section is located in two central themes, the status of *p.sidoides* specifically in relation to unsustainable harvesting practices and the concern over rural livelihoods and indigenous knowledge in relation to resource appropriation in the area. The second section is based primarily on the case of the Masakhane community addressing concerns over land, resources, representation and the role of civil society. The third section addresses the subsequent legal reform with the introduction of the permit system governed under NEMBA's Bioprospecting Access and Benefit-Sharing Regulations (BABS) of 2008. This section places emphasis on the ambiguities surrounding compliance and enforcement with regards to access and benefit-sharing (ABS). The last section addresses the rural elite and the contestations surrounding community representation and development, the relationship between the rural elite and industry and their influence on harvesting and cultivation in the area. Throughout this Chapter it is found that the rural areas exist as primary sites rich in biodiversity. In this regard, this Chapter argues that there is then a need to find resonance between the alleviation of rural poverty, ecological vulnerability, underdevelopment and biodiversity conservation.

9.2. PELARGONIUM SIDOIDES: UNREGUALTED ACCESS AND EXPLOITATION

9.2.1. Pelargonium Sidoides: A Free for All

The concept of *pelargonium sidoides* (hereafter *p.sidoides*) as a "free for all" derives from the recurrent themes within the data. Specifically, relating to the concerns over unregulated access, privileged monopolisation of resources, and the predatory and relentless-nature of

capitalism within remote rural areas such as the Raymond Mhlaba Local Municipality. These concerns are exacerbated by hierarchical relations between the rural elite, industry, the state and local community members. Even though *p.sidoides* is the primary focus of this study, other natural resources in the study area are also in contention. These are *aloe ferox*, *pelargonium reniforme* and the African potato. Herein, the scientist argued that:

“So clearly it is not just pelargonium these people are looking for opportunities here. It is a free for all out there. You can go to the Fish River and it is like you can do whatever you want to. Nobody is going to catch you”.

“I am telling you now, that aloe ferox is a problem in the former Ciskei as far as the Kei River. You stand with these things and they are dead they are like toothpicks in the ground. It is like looking at a porcupine, their stalks are there but their tops are dead and they have fallen off”.

Bioprospecting activity can thus be expected to continue in the near future as this area is a hub of biodiversity. Whilst it is reported by industry that the demand for *p.sidoides* has decreased trade in other natural resources such as *aloe ferox* has increased exponentially. The study finds that *p.sidoides* is still a highly sought after resource despite claims by industry that the market has died down.

A concern found in the study is that given that this area is resource-rich there is currently a lack of a registry or database in which these resources can be documented. Even though, the Grahamstown Albany Museum Herbarium, houses information about various plant species and historical accounts of their uses. There is a need for the local community with the aid of the state to monitor and regulate the use of all natural resources in the area and associated indigenous knowledge. For example Finetti (2011: 30) argues that digital databases of indigenous knowledge and natural resources could be beneficial when industries want to apply for patents. Herein, there would be a collection of prior art that the patent offices could refer to in light of patent applications. Another benefit is the protection of natural resources and indigenous knowledge in the process of access and benefit-sharing (Finetti, 2011: 30). A survey was conducted by Cocks and Dold in 2000. The survey covered the whole of the Eastern Cape Province characterising the increasing annual demand for medicinal resources (Cocks and Dold, 2000: 10). However, their survey was largely based on the informal, traditional and street trade and not specifically the relationship between the informal and the formal industrial market. Moreover, it did not focus solely on the context of the Raymond Mhlaba Local Municipality. It is important to note, however, that the development of this database should not be top-down. In this regard, the community should be actively engaged.

As a result, prior informed consent from the local communities would still remain a controversial issue (Finetti, 2011: 60). However it remains that the lack of this data is a grievous omission by both the community members as interested and affected stakeholders as well as the state. The study found that no attempt has been made by authorities to protect these resources in a coherent manner. The natural range of these species extends far beyond the Raymond Mhlaba Local Municipality.

9.2.2. Rural Livelihoods and Resource Appropriation

The increasing commercial exploitation puts a further strain not only on the immediate environment but, also, continues without contributing to rural livelihoods in any meaningful fashion. Herein, it is reported by the local government official and representative of chieftaincy respectively that:

“As a Department we have done very little about the use of medicinal plants. In fact, we have taken very little action against people harvesting medicinal plants, because it is more for a subsistence type of thing. We have, however, stopped certain bigger dealers that wanted to harvest, prompting them to stop because they were getting people to go out and collect for them”.

“Those who export take large sums of resources. At the shipment they cannot export two bags or three bags they export large tonnes of resources. However for home use or for community use, a community of 200 households, it may happen that only 3 of these 200 households utilise these resources”.

In this regard, the study suggests that there is a need to distinguish between harvesting as a form of subsistence and the involvement of industry in these processes of appropriation. The exploitation inherent in industrial appropriation versus subsistence utilisation are illustrative of Marx’s Ecological Materialism⁶², specifically the “rift” that capitalism creates in how humans come to interact with nature, through the introduction of the social metabolism of production (Clark and Foster, 2010: 144-145). It is this commodification of nature that lies at the centre of rampant harvesting. Herein, as described in the treadmill of production capital places immense pressure on its material resource, nature, whilst exploiting the labour process to produce consumer goods at a low cost (Rice, 2009: 217). In relation to the aloe trade the scientist argued that:

“It has got nothing to do with the poor people. It is the actual buyers that are putting the pressure on. A hundred years ago people would maybe use like ten aloes in their whole lives

⁶² Marx’s Ecological Materialism is expanded on in Chapter Seven Section 7.3.

for medicine and for fowl - put it in the water for fowl and the lice comes off. Now I mean, it is just war out there. It has got nothing at all to do with the rural people it has got to do with the buyers. They are the ones that are putting the pressure on”.

In this regard, several studies highlight the difference between subsistence and commercial utilisation of resources. Shiva (1998: 120) argues that, “for local communities conserving biodiversity means conserving their rights to their resources, knowledge and production systems. For commercial interests...biodiversity itself has no value, it is merely raw material”. The DEAT (2005: 12) emphasises the existence of an intrinsic relation between local communities in South Africa and their dependency on natural resources for “jobs, food, shelter, medicines and spiritual well-being”. This is significant in relation to the Sustainable Rural Livelihoods Framework (SRLF). The SRLF argues that natural capital such as the environment is important to local communities who sustain themselves on resource intensive activities such as natural resource extraction and farming (Scoones, 1998: 7; DFID, 1999: 233).

The study observed that harvesting forms an integral part of the local livelihoods spanning across generations of families in the Masakhane Community Property Association⁶³ (CPA) (hereafter Masakhane community). This is corroborated by the local government official, especially considering massive underdevelopment in the area which manifests itself in lack of basic infrastructure and basic services. According to the DFID (1999: 2.3.1) this lack of infrastructure is a prominent characteristic of local poverty-stricken communities. In this case *p.sidoides* forms part of the livelihood strategy of the Masakhane community, albeit in a very limited manner. The community envisions a future in which *pelargonium sidoides* and other natural resources can be used not only to sustain their families but to develop the community as the Masakhane CPA member argued:

“I am fighting for my rights. I am also fighting for my community. My community cannot see me rich what is going to happen to me? It is because pelargonium is our gold we do not have gold. This is how people can get employment, because there is a high rate of unemployment”.

However, the trade in *p.sidoides* is not as simplistic. In the case of *p.sidoides* there is an intricate web of human, social and state-industry-rural elite that has come to define the way in which the Masakhane community interacts with their natural resources. In this regard, the

⁶³ Taking into account the CPA Act of 1996 the community form two CPAs namely the Masakhane CPA and the Iqayiyalethu CPA in their fight for title deeds to their land (Morris, 2014: 2). See Chapter Six Section 6.4.1 for a detailed discussion.

study finds that this resonates with Juma's (1989: 40) study in that within the capitalist regime, land and labour exist as sites of exploitation. As described by Bond (2007: 3) on a macro scale South Africa has inherited an unfair system of economic accumulation specifically to build the economy of the state-industry-rural elite coalition. Herein, unequal ecological exchange is depicted in how p.sidoides links the Masakhane community to the formal industrial market but at the same time becomes undermined by state-industry-rural elite coalition. This is reflected in both the formal national and international trade of p.sidoides wherein there is an "elite capture" of the beneficiation process (van Niekerk and Wynberg, 2012: 541). In this way no proper development of local communities can be expected. This is reflected in the Masakhane community as they become dependent on a system that consistently undermines them. This unequal development steers the treadmill of production which is described by Bunker (2005: 38) as dependent on "cheap stable access to vast volumes of diverse raw materials" and in this case, cheap labour.

In this regard, the study argues that industry needs these peripheral centres of extraction such as the Masakhane community to sustain itself. This raises the concern of justice as indicative of the Lauderdale Paradox. Herein, it is argued that public wealth exists as a site of exploitation and decreases while private riches increase (Clark and Foster, 2010: 151). In this regard, justice requires the need of the state-industry-rural elite coalition to cut their claims to the natural resources and find resonance with building capacity within local communities (Sachs *et al.*, 2002: 6). This justice perspective also requires a shift in power, as argued by Odora-Hoppers (2002: 17), on the individual, organisational, scientific, academic and governing levels.

It is thus evident in the study that the relationship with capital is new. It has been difficult for local communities to negotiate and navigate. Given the above predicament, the question becomes whether local communities can have the autonomy to enter into trade with industry. Even though the locals are cognisant of the social ills that they face they have not developed an appropriate strategy on how to handle their interaction with industry and government departments. The community continues to have discussions in local meetings on how to become important stakeholders in the trade value chain. However, there exists an antagonistic relationship between the local community members and the rural elite precisely on the basis of this exploitation by industry. Herein, both the state and industry have transformed how local communities traditionally interact with their environment (Shiva, 2010: 229).

9.2.3. The Period of Rampant Harvesting

Specific to the scope of this study, several actors play a prominent role in the case of the politicisation and commercialisation of *p.sidoides* and indigenous knowledge. They fall mainly within the sphere of industry both national and international, the state, the rural elite, national environmental organisations (NGO's), the local community and various South African-based environmental institutions. The study shows that in the context of a poverty-stricken yet resource-rich Raymond Mhlaba Local Municipality two communities have claimed ownership of the indigenous knowledge and use of *p.sidoides*. These are the Imingcangathelo Community Development Trust presided under the rule of Chieftaincy and the Masakhane Community Property Association who have subsequently been marginalised from activities surrounding the *p.sidoides* trade. The study found that these structures inform the underlying dynamics of access and control regarding *p.sidoides*, revealing a fragmented governance structure, an enclosed resource trade and local community exploitation and marginalisation.

Historically, research evidence suggests that the period of rampant harvesting of *p.sidoides* officially started in the late 1800's. However, rampant harvesting increased between 1995 and 2007 within the study area. It was reported by the scientist that the *p.sidoides* case gained prominence over 10 years ago, with community members, government and scientists completely taken off guard. As highlighted in the study during the time of illegal harvesting most of the harvesters were young children and women, with the scientist noting that along the back-roads of Alice you would find that "kids, young people were just standing there with packets of *pelargonium*". The Masakhane CPA member corroborated this noting that, everyone in the village was doing it, even the respondent's own children. It is important to note here that even though the community was collecting the plant they were selling it to industry who had become involved in the area as aforementioned in the literature. These companies had placed a high demand on harvesting activity, with trucks moving in and out of the area, this led to the concerns raised by the Masakhane CPA member about rampant harvesting of *p.sidoides* in her area noting that:

"I was working in Grahamstown, at Albany Museum, in the herbarium section. I was working with plants in the herbarium and then I noticed one day that the people were digging this plant in all those areas. Even my kids were doing it and they were buying it for R4 a kg. Because I am working with plants I was worried that this plant could be a threatened plant. Then when I went back to Grahamstown on a Monday, I told the scientists that there is this thing happening in my village. So these scientists explained who these guys were and then

tried to do research on what was going on. Then they requested me to call them or just in the village try to get a date of when they are going to come and buy. Then I did so and we took photographs”.

Subsequently, this led to a series of investigations on bioprospecting in the area. This became a catalyst to the international litigation which the community embarked on assisted by NGO's. According to those interviewed the activities taking place were in contravention of numerous national statutes especially relating to trading without a permit. The National Environmental Management Biodiversity Act (NEMBA) No. 10 of 2004 states that without the relevant permit no one may export or commercialise biological resources in South Africa. On a provincial level this activity was also in contravention of the Ciskei Act of 1987. On an international level this activity was in contravention of the Convention on Biological Diversity to which South Africa has been a signatory since 1995. Specifically, Articles 15(4)(5) which require prior informed consent as well as the provision of mutually agreed terms between all stakeholders. Additionally, this activity was also reported as taking place outside of the study area, specifically, the Grahamstown commonage area and other areas in the province. However, given that access and benefit-sharing regulations was still in its infancy it is reported that the traders involved in the activity were prosecuted and given a meagre fine in relation to the degradation and exploitation that was taking place.

9.2.4. The Issue of Indigenous Traditional Knowledge

The investigation into the p.sidoies trade found that foreign bioprospectors were involved in the initial discovery of its commercial potential. The bioprospecting activity depicted in the previous section not only concerned the misappropriation of p.sidoies but raised the concern over the utilisation of indigenous knowledge. As addressed in Chapter Two the concern over indigenous traditional knowledge cannot be divorced from the use of natural resources. The scientist recalled this period in which foreign bioprospectors were frequent visitors at botanical institutions explaining that:

“These guys were like field botanists, they were like exploration botanists. They were out there and they were collecting plants and using the herbarium to identify those plants. Basically, asking me for botanical names of equivalent isiXhosa names. They were probably going into the former Ciskei area around Alice and they were collecting plants. They probably had a list and years ago I published a list of isiXhosa plant names with the equivalent botanical name. And they had that very ‘tatty’ copy that they were using in the field and so we botanists we like that you know we are impressed by people who actually do field work. And so I was there I was helping them and they had a carry on of packets of plants all different things and they were identifying them. So what they had been doing is going into rural areas and asking people for medicinal plants to show them what medicinal plants they

used and the isiXhosa name and collecting specimens digging out plant specimens and bringing them and identifying them. So they were screening, it was quite clear to me they were screening they obviously had a list of plants that were potentially commercially valuable, exactly, so that is bioprospecting to my knowledge that is bioprospecting”.

In this regard, there is no denying that the commercialisation and rampant harvesting in the area is directly linked to the activities of the abovementioned bioprospectors. The data also suggests that several other traders within the natural resource industry were also involved in bioprospecting activity during this time. In this regard, the study finds that this renewed interest in *p.sidoides* developed from indigenous and documented knowledge as evidenced in the above-mentioned investigations. The data then shows that prior to the rampant exploitation of *p.sidoides* foreign biosproectors were doing research on commercially valuable plants, heading into rural communities and gaining valuable natural resource information from them freely. All those interviewed in the affected areas corroborate this finding. Having prospectors rely on indigenous accounts shows the relationship indigenous communities have with their natural resources, specifically, in relation to prior art. The Masakhane CPA member noted that:

“I was born 1963 you can count how many years that is. Then my mother was born 1943 and my father was born 1940 and the forefathers I do not know but the plant was there and they were using the plant. And then they asked ‘what for?’ and then I said for coughs, for stomach aches for everything the same way they were doing it they use maybe one root”.

However, in this study industry disputes the direct relationship between ITK, medicinal knowledge and bioprospecting. With the local businessman arguing that the indigenous knowledge of *p.sidoides* harvesting practices and utilisation is of no use in contemporary commercial harvesting. Furthermore, that no one community can claim ownership and that in relation to trade and harvesting indigenous knowledge is of no value. In this respect the local businessman argued:

“I will not deny that yes it has, but who gets the traditional knowledge? Who gets the traditional knowledge? You take the Khoi people who claim that they are the traditional knowledge holders originally. We come here and the isiXhosa people will say they claim the traditional knowledge but the Khoi were here before. They used that so they are rightful owners of traditional knowledge”.

*“The knowledge of the community does not work no. Because the knowledge that you have got to have or I have got to have as a supplier has got to be different. I have got to have the knowledge of what they use it for and then I have got to skill myself in how to harvest, how to prepare and how to supply. This is not a community-based thing and you go out with that knowledge and you go and tell the community where and what to do and how to harvest. For instance, a *pelargonium* was used in the old days for cattle and small stock or stomach*

problems, it is not used in any stomach problem medicines today it is used for chest problems and that is through scientific knowledge and scientific testing”.

This argument is illustrative of the politics of knowledge. In light of this the study arguably deduces that indigenous knowledge is the cornerstone of scientific thought encompassing as argued by Nakashima *et al.* (2012: 30), “the rationality of science” and therefore cannot only gain significance when uprooted by science as it gives science its value. The Nakashima *et al.* (2012: 31) study sheds light on how this process is identical to colonial practices where foreigners “adopted from indigenous peoples’ entire classification schemes that order and interpret ecological systems according to an indigenous logic”. Similarly, Hamilton (2006: 164) and Seini (2003: 38) argue respectively, that bioprospecting is nothing but an old form of appropriation that in contemporary trade comes with the legal provision of giving back. Similarly, Shiva (2007: 307) argues that bioprospecting is an inappropriate term as the activity of collecting valuable data based on indigenous knowledge is engaging in intellectual piracy. With the subsequent mandate to give back as argued by Hamilton (2006: 164) a greater divide has been created dually on a macro scale between the industrial elite and local communities and within the local communities and local power structures such as chieftaincy. In the case of the latter a paradox exists wherein even communities that fall under traditional leadership have not benefited from the p.sidooides trade.

Herein, from the inception of trade in p.sidooides it has been characteristic of the technocratic development of a “borrowed discovery” (Nakashima *et al.*, 2012: 30). These arguments are similar to that of the Endod Berry, wherein the use and approval of the latter had to be validated by the World Health Organisation giving no acknowledgement to the value of Third World science (RAFI, 1993: 3). Furthermore, as argued in the San-Hoodia case, the collective ownership of indigenous knowledge and associated resources has made it hard to discern who exactly should benefit from the appropriation of ITK (Wynberg *et al.*, 2009: 103). In the case of Hoodia both the San and Khoi hold knowledge of its use, however, only the San were beneficiated as original holders (Wynberg *et al.*, 2009: 103). This selective practice and process is unethical and should be dismantled since it systematically marginalises and is exclusionary.

Another concern is how to integrate their traditional understanding of land and resources into a viable opportunity for them to enter the market. Herein, the Masakhane CPA member

argues that the Masakhane community have the knowledge on how to harvest *p.sidoides* sustainably, reiterating that this is generational knowledge. Similarly, Joseph (10.10.2014) notes that in relation to the regeneration of *p.sidoides* it is important to only, “take what you need”.

The general understanding of what sustainable harvesting constitutes is upheld within both Masakhane and Imingcangathelo communities. There are numerous arguments for the potential of indigenous knowledge in the monitoring and regulation for resources. As argued by Agrawal (1995a: 413) this local expertise is the basis for resource management in local communities. Similarly, Roht-Arriaza (1996: 928) places emphasis on the notion that often due to their indigenous understanding local communities know how to “take better advantage of that biodiversity” than their industrial counterparts. Similarly, the IPCC (cited in Nakashima *et al.*, 2012: 6) makes a compelling argument that indigenous knowledge is invaluable in local adaptation and for conservation strategies. As argued by Shiva (2010: 3) the utilisation of natural resources is a form of “collective innovation”.

The study argues that it is important not to romanticise the Masakhane community. Even though they have an understanding of the land and resource utilisation some of them desperately need the income. Whilst others choose to opt out of harvesting *p.sidoides* altogether herein the scientist argued that:

“My feeling is there are people who clearly need money, what they use it for is sometimes questionable. I mean you know when money comes in, when the buyers buy pelargonium, and I have seen it, and it is terribly sad, but you know this money goes straight to alcohol. They just go and buy alcohol and they get pissed. Sorry to say this but it is the truth. Whereas, the farmers certainly in the Sheshegu area at Victoria Post they are good farmers they are stock farmers, they do not just have a herd of cows just because it is a cultural thing. They are good farmers they are farming and they sell, buy and breed. They are of the opinion that they do not want anything to do with this harvesting they saying that its bugging up our range land. They understand range land as a resource it is not just like veld you know. A lot of people it is just like veld and you take something out and you sell it, it is like the prickly pear, if you know the prickly pear. They understand that it is a range and it is a resource and it needs to be looked after and these holes in the ground it is dangerous. Their cows break their legs in these holes so they do not want anything to do with it. From that perspective, the genuine farmers, they do not want anything to do with this. They are good farmers so from their perspective yes they want to protect themselves and they want to honestly as best they can, with the resources and expertise that they have, are good veld managers. They know, they understand the veld, they know the bush back and when they see Acacia Karoo coming in they know it is invasive and they need to remove it. I mean there is scientific literature on what they call bush encroachment where if a place is not grazed then thorn trees you know these Acacia trees come in you know it is a scientific fact. These people do not read those articles

they probably cannot even read. But they understand it they understand it and they know how to manage their land”.

These opposing views do not only highlight the intentions of the local community members. It also sheds light on the previous argument of indigenous knowledge and how these farmers hold significant knowledge just through their engagement with the environment. Thus, it is important to reiterate that these community members have a vast knowledge of the land that they inhabit. The study finds that there needs to be an expansion in the CBD on what constitutes indigenous knowledge as a technical and scientific entity also linking it to the biodiversity it pertains to (Gaston and Spicer, 2004: 4). In light of this, the study finds that poverty is often linked to the idea of incompetence. As argued by Nakashima *et al.* (2012: 7) indigenous knowledge and poverty are often associated with “low prestige rural life” and as such does not get the acknowledgement that it should. As argued by Hajdu (2009: 131) these views are prolonged within academia and scholarship which is undoubtedly problematic as they acknowledge the generalised idea that the local inhabitants are incapable of maintaining their environment that have resulted in severe restrictions with regards to land-use. Even in the acknowledgement of indigenous knowledge, local communities remain at the periphery of sharing equally in the benefits of its use (Akpan, 2011: 124). The Masakhane CPA does not see a problem in engaging with the bioprospectors in relation to the transfer of medicinal information, however, the problem is attributed to whether this is done in the correct manner and that the community is compensated accordingly.

9.2.5. Harvesting Practices and the Sustainability of *Pelargonium Sidoides*

The study finds that prior to BABS the trade of *p.sidoides* was illustrative of uncontrolled access on part of industry and unsustainable harvesting practices. This section focuses on the status of *p.sidoides* in the study area. Three themes are addressed in this section specifically: the difference between *p.sidoides* and *p.reniforme*, the maturity rate of *p.sidoides* and the issue of wild versus cultivated forms of harvesting. It was reported that two species were being uprooted, namely, *p.sidoides* and *p.reniforme* with the former yielding the significant chemical compound. As stated in the literature, *p.sidoides* is localised to parts of the Eastern Cape and Lesotho, however, *p.reniforme* is only found in the Eastern Cape (van Niekerk and Wynberg, 2012: 531; Koyama and Mayet, 2007: 28). However, contrary to literature and assumptions made by industry the Masakhane community members are aware of the difference between the two species.

Over the years and in the current dispensation harvesting practices have been reported as being highly unsustainable on part of industry. In this regard, the local government official argued that:

“It became clear that these people were harvesting around Grahamstown a lot and completely denuding populations. By the municipal tips outside town that hill was just completely gone everything was removed there and it was not just sidoides it was reniforme they did not know the difference. Seemingly, sidoides has a higher chemical compound content this Umckalin. I am sure you have done more reading than I have and it has been proven that in fact it has better quality. But when you find these things in the field you cannot tell them apart without the flower”.

“It was reported that there were teams harvesting all over the Grahamstown commonage area on the army property and even on some private properties. The teams were going out and collecting a lot of members of public came to me, I mean it happens quite regularly, the African potato they come to me. There was maybe a bit of harvesting of the African potato but in small quantities, not this sort of commercial harvesting that was suddenly happening...I raised concerns about the harvesting of pelargonium in the area because it was done very unsustainably. You now it is a bit like, I always compare it to the metal theft, putting out a current for the community and it is completely uncontrolled”.

As a result of the two species being uprooted the study found that exorbitant amounts were being harvested by industry. With the local government official arguing that local industry “had been collecting an estimated two (2) tonnes per week in July 2002”. Subsequently, unsustainable harvesting practices compromised the status of p.sidoides in the area. This is captured in the following explanations provided by the scientist and the representative of chieftaincy respectively:

“I have seen these plants that look like they going to grow again. There is a little piece under the ground that is about this big that has been chopped off. Indeed it sends out little green shoots, but you go back in winter and those shoots are all dead there is just not enough to sustain them”.

“No the pelargonium they have flattened it. It has become, very difficult for people to find those plants or to harvest them so they have moved into Free State Lesotho and that is apparently well documented”.

“The veld was full of scars, they did not even know that if you do not replant that thing you may take that thing and open up a site where it could be planted in the field. So we have pelargonium in the field planted from the shoots”.

The Masakhane CPA member argues that the Masakhane community fully intend on trading in p.sidoides and other medicinal plants. Furthermore, arguing that if the Masakhane community enter the trade they will allow for the regenerative capacity of p.sidoides. Thus,

only harvesting from one location at a certain time on a rotational basis – noting that this process should be monitored and community members need to be workshopped.

The issue of unsustainable harvesting practices is further complicated by the maturity rate of p.sidoides. It takes at least 3 to 10 years to reach maturity as argued in Motjotji in his 2011 study. The Motjotji (2011: 77) study argues that the number of years required for the p.sidoides to develop fully is not sufficient to make an informed decision about its sustainable utilisation since industry requires such large amounts of the resource. More importantly, “extensive harvesting of p.sidoides plants can negatively affect its wild populations should such harvest occur before 10-15 years has elapsed”. This raises concern as van Niekerk (cited in Motjotji, 2011: 11) argues that since the inception of the commercialisation of p.sidoides wild harvesting has increased.

The study finds that harvesting in the wild is not sustainably viable, a finding similar to the White (2006) study which concluded that alternative methods of harvesting need to be established to substitute wild harvesting. However, this study finds that the alternative cultivation process of p.sidoides is itself fraught with the fragmentation present in current legislative reforms regarding the regulation of p.sidoides. This raises concerns about the argument of cultivated versus wild harvesting as both systems are complicated in relation to the state-industry-rural elite coalition. The representative of chieftaincy argues that:

“I said you know it takes 5 to 6 years for those plantjies to develop into what can be sold. So whilst we are waiting for them to develop you know we will be harvesting in the wild. The minute they are right we will let the wild rest and then harvest from the sites. That is how we are trying to balance things you know and guard against depletion”.

It is in this regard, that the Masakhane CPA questions the viability and sustainability of p.sidoides. These arguments centre around quality – that cultivated p.sidoides is of a lower standard compared to the one in the wild. These arguments are corroborated by the traditional healers disputing the quality of the cultivated material. These views are contrary to the view expressed by the representative of chieftaincy who argues that they get paid on the basis of quantity and not quality with the representative of chieftaincy noting that “we as sellers we look at the weight because when we have a scale here your kilogram will pay you”. However, the White (2006: 13) study argues that it is known that harvesters are told to harvest the roots that are larger with a darker red internal tissue.

In this regard, the study finds that with industrial pressure the local harvesters cannot solely take on the blame for the unsustainable over-harvesting. The demand is what creates the over-exploitation and often local community members are scapegoated as environmentally destructive. The study then highlights the vulnerability of local harvesters with unsustainable harvesting practices forming part of a deep-seated system of exploitation. The van Niekerk and Wynberg (2012: 535-536) study shares a similar argument highlighting the vulnerability of local communities in relation to the trade monopoly. This is attributed to the “weak bargaining power” and lack of capacity communities have in relation to industry. However, this study finds that the vulnerability of local communities is an outcome of the lack of government intervention in empowering these local communities in the face of industrial infiltration.

The representative of chieftaincy noted that having a protected area will benefit the community and allow for *p.sidoideis* to flourish unhindered. The acknowledgment of this is important given that the species is in decline. However, given that these systems of trade are not as simplistic this would require a complete shift in how we understand the concept of sustainability. Herein the scientist remarked that:

*“The bottom line is that if people are going to make money out of the environment and even as a botanist I know my fellow colleagues would not be happy for me to say this but I actually have no problem with sustainable use of the environment when people are as poor and as disadvantaged as they are I do not have a problem with it. I do not even have a problem with *pelargonium* so long as it is done sustainably and done carefully and it is actually, how can I say, it is financially viable for them at the moment it is not”.*

9.3. THE MASAKHANE COMMUNITY PROPERTY ASSOCIATION: EXPECTATIONS, PATENTS AND LAND

9.3.1. The Role of Civil Society and the Masakhane Patent Case

Several organisations took part in the litigation against Schwabe and represented the Masakhane community. Amongst these were the Berne Declaration and the African Centre for Biosafety (ACB), the Grahamstown Legal Resources Centre (LRC) and a researcher from Cape Town. From the interviews conducted the extent to which these organisations interacted and collaborated is not made clear. However, the ACB became a prominent figure with regards to international litigation, writing documents and conducting research and advocacy work in general. Their research focuses on an array of biopiracy cases. The Masakhane CPA

member explains that, the ACB made several visits to the Masakhane community with their lawyers and met with the Department of Environmental Affairs. The involvement of the ACB uncovered a commercial web between industry, the rural elite and the state. Consequently, it was reported by the scientist that, with the investigations several arrests of industry including local harvesters were made during this time. The scientist further noted that:

“They arrested nine of the harvesters which is just it was really bad. These poor people they were just trying to make a buck they did not know that what they were doing was wrong but they were arrested and that happened several times”.

It is reported by the Masakhane CPA member that the ACB started skilling the community providing workshops and documented the community's indigenous knowledge of p.sidoides.

The ACB then required the assistance of Nomthunzi Api⁶⁴ a prominent member of the Masakhane community in the patent case against Schwabe Pharmaceuticals in 2008. The requirement of Nomthunzi Api as the spokesperson of the Masakhane community is indicative of the sentiments shared by Roht-Arriaza (1996) and Shiva (1988), arguing that women are always at the forefront of environmental battles. For example the Chipko Movement which began in the 1970's in the Himalayan Mountains involved local women in the fight against deforestation and ecological degradation in the area (Chakraborty, 2012: 1). In Thailand there is a Female Fisherfolk Network whose livelihoods are sustained by their natural resources (Taguiwalo, 2009: 40).

The study shows that the patent case against Schwabe Pharmaceuticals was indicative of similar cases of biopiracy internationally. The African Centre for Biosafety (ACB) (2010: 12) argues that Schwabe was making a profit of 11.60 Euros on a 100ml bottle of Umckaloabo. In comparison to the harvesters receiving a pittance for harvesting the raw material – only paid 0.0058 Euros for the harvested material needed to produce Umckaloabo (ACB, 2010: 12). As reported in the study by the ACB (2010: 6) Schwabe had through the patenting process obtained an exclusive monopoly on p.sidoides trade with exploitative means of producing their product. More significantly, no development or benefit-sharing was taking place in the community. In this regard, less than 1% was being paid to the harvesters (ACB,

⁶⁴ It is important to note here that the interviews corroborate many of the findings already in the public domain. Therefore as a prominent figure in the case Nomthunzi Api has been mentioned by name.

2010: 12). In relation to the commencement of the litigation against Schwabe the Masakhane CPA member and the scientist respectively reported that:

“I said to them, the whole village is digging these plants and then Schwabe pays our children and our parents R4 a kg and Schwabe makes so much from one root. One root for them can amount to many bottles of Umckaloabo”.

“Benefit-sharing and what communities actually get out of it, which to my mind these people are making billions and these poor people at Victoria Post get like 20 bags at like R20 a packet I mean it is it absolute robbery. And in terms of this benefit-sharing and intellectual property that is a very difficult aspect that is still not clear”.

In the case of *p.sidoides* it is found that there is a need for post-litigation support. During the field research in the study area it was observed that there has been no development in terms of transfer of technology, non-monetary investment, or monetary investment. In relation to the case the South African government are viewed as not taking responsibility evident in their recalcitrant attitude. Specifically, the community has made numerous attempts to involve the Department of Environmental Affairs however there has been a lack of engagement. Van Niekerk and Wynberg (2012: 543) argue that Schwabe invested one million Euros into a Trust to develop a centre in the Mpumalanga Province far-removed from the community in which the harvesting was actually taking place. This argument is shared by the scientist who noted that:

“But basically what these people did is to cover their backs they opened up some kind of a community centre in a place called Nelspruit, of all places. We have no idea what is going on there and if it actually even exists. However, they claim this as part of their benefit-sharing was to open up a community centre with a library and stuff. And this guy in this legal journal also comments on this and he says that you know most of the harvesting is happening here in the Eastern Cape what was the point”.

In the article by Hartle (2011: 1) it was found that the government was very ignorant of the complex system of exploitation that was taking place. This lack of government acknowledgement has resulted in the exclusion of the Masakhane community from all decision-making regarding the trade in *p.sidoides*. More specifically, the Masakhane community has been marginalised from any form of benefit-sharing from the trade (Hartle, 2011: 1). The study then finds that in this case there is an immense attitude of stakeholder fatigue wherein local communities have been consistently abandoned and left destitute. Herein, the case might have been resolved in the German context but no sufficient developments have been observed at the local level.

Given the extremity of stakeholder fatigue that the Masakhane community has endured there are many perspectives from which to assess the ACB's role in the Masakhane community case herein the scientist reported that:

"I mean it is pointless they have burnt their fingers well they have not burnt their fingers the ACB has burnt their fingers on their behalf. In fact now if memory serves somebody phoned me a couple of years ago from Victoria Post and they said please would I help them, they have got all this material and they cannot sell it because the buyers are not travelling that road anymore. But they know that the buyers are buying from the chieftainess please can I help them..."

"Ten years down the line, however long it has been, she has got nothing out of it and neither has the community at Victoria Post. Whenever I go there they ask me, 'when is it going to happen and when are we getting our stuff, when are we getting money?' Expectations were built up by this crowd hugely and I feel partly responsible".

However, this statement is unfair and fails to appreciate the role played by the ACB in its extensive research into the realm of access and benefit-sharing and management regarding the p.sidoies case. It also needs to be considered that the ACB as an NGO does not have many resources and therefore lacks the capacity to fulfil certain actions. There have also been continued negotiations with the community to get out of this impasse with the DEA, however, as aforementioned this has been ineffective not producing any tangible results. More importantly, there is a need to question what the way forward is for the Masakhane community.

9.3.2. The Masakhane Community Property Association, Land Rights and Chieftaincy

The Masakhane community has formed their own Community Property Association (CPA) as a statutory equivalent to a legal institution wherein property can be managed and held in common (Communal Property Associations Act, 1996: 1). In this respect, the Masakhane CPA is constitutive of the Masakhane community and the Iqayialethu CPA (Morris, 2014: 2). In this regard, it is important to note from the onset that the Masakhane community and the CPA reject the authority of chieftaincy as a ruling structure. Apart from formal ceremonial engagements the Masakhane community do not regard themselves as part of the chiefdom. It is reported by the Masakhane CPA member that there is a CPA representative that meets with chieftaincy and reports back to the community members. Despite the representative of chieftaincy arguing that legally, under the Traditional Leadership and

Governance Framework Act 41 of 2003 the Masakhane community does not fall under the Imingcangathelo chieftaincy, “but by birth they are the under the Imingcangathelo”. In a study conducted by Msomi (2013: 70) it was found that the Masakhane community do fall under chieftaincy, however, the land that they are allocated on is state-owned with no assigned traditional authority. In relation to the historicity of the land the representative of chieftaincy argued that “the Masakhane people ‘are lost souls’ those who do not know their originality you know”. This was made in reference to chiefly authority and jurisdiction with the rural elite arguing that historically the Masakhane community fall under the governance of traditional leadership. This is exactly part of the antagonism that exists between the Masakhane community and the Imingcangathelo Community Development Trust and is exacerbated by the rural elite aligning themselves with the state-industry-rural elite coalition.

The land question features prominently in this study. Access to and control of p.sidoides and other natural resources is intricately linked to this. The Masakhane community have been engaged in a battle for their title deeds to their land for over 20 years. This is an historical issue dating back beyond homeland rule in the former Ciskei. In this case the Masakhane CPA has resolved not to recognise chieftaincy, they state categorically that this is their land, however, as far as chieftaincy is concerned this is Chief Tyali’s land. As a result of this land contestation the scientist argued that:

“They had several meetings out there I was invited to one of them and I went out of courtesy. They sat there for like two hours waiting for these people to pitch and it is always like that. I just you know I kind of felt that responsibility they still have not got their title deeds for their land it is just an ongoing nightmare for those poor people. Again expectations were built up I think probably unfairly so but that is the way the world works I am afraid...”

“Those people never got their title deeds and today they still sit without their title deed. Do you know what a beautiful perfect case study that would be if they got their title deed not just for land reformation but for farming?”

Van Niekerk and Wynberg (2012: 545) concluded in their study that there is a fragmented system that informs land reform and ownership which is one of several other concerns that need to be addressed by government before addressing issues of benefit-sharing. In moving forward then the study finds that there is a general consensus between scientists, active NGOs, government officials and the Masakhane CPA that in order for the Masakhane community to thrive they need to get their title deeds. In this respect Bond (2007: 5) argues that land has become an intrinsic feature of the means of deprivation in African societies.

In linking land, representation and market access the Masakhane case is illustrative of the argument by Berlak (cited in Bond, 2007: 5) noting that local communities are often seen as “landless peasantry” which is imbued with the nuances of low income, lack of capacity and exploitation in largely rural farming areas (Bond, 2007: 4; Frye, 2007: 175). Herein, the representative of chieftaincy argued that when it comes to accessing the resource trade the Masakhane community have decided to follow their own strategy. Further noting that, the Masakhane community has decided that they want to utilise their environment independent of the chiefly authority. Interestingly, when questioned about whether other communities could pursue a similar path the representative of chieftaincy argued that it was impossible because the other communities are legally recognised under the Traditional Authorities Act as falling under chieftaincy. This further highlights the ambiguity surrounding the Masakhane community. In this regard the representative of chieftaincy stated that:

“Well, Masakhane they are I do not want to say an illegal entity they are an inter-entity on its own, they are there to do their own thing you know. Agreement has been reached that you do your own thing as Masakhane people you know if you want to do a cooperative you may. If want to make a Trust you may call it a Trust and most fortunately for us as Imingcangathelo Trust we never took a leaf of the plant from that Masakhane area and that they know. We did have a meeting with them fortunately together with national and provincial Department of Environmental Affairs you know and we signed that. A document was written and both parties signed...it was about allowing them to do their own thing from their own Trust...”

More significantly, in this case the role of chieftaincy is inextricably linked not only to the trade in p.sidoides but embedded in the contention over land. In this regard, considering the current trajectory of the p.sidoides trade as well as the land claim the Masakhane community are undoubtedly going to continually be placed in a situation of being marginalised.

9.4. AN EVOLVING POLITICAL CLIMATE: REGULATING THE TRADE

9.4.1. Policy and Legislative Reform: Processes & Practices

The key question addressed in this section is concerned with the policy frameworks that govern biodiversity. With the establishment of the BABS regulations, access and control within decision-making structures is fraught with centralisation and complete lack of community participation, even though access and benefit-sharing are a prerequisite of the Convention on Biological Diversity. The findings of this section to a certain extent resonate with the 2013 study conducted by van Niekerk and Wynberg, *The Trade in Pelargonium Sidoides: Rural Livelihood Relief or Bounty for the ‘Bio-Buccaneers’?* In this regard van

Niekerk and Wynberg (2012) argue that the CBD is a small incentive towards meeting the objective of equitable sharing of benefits amongst industry and local communities. However, this study subsequently draws an opposing conclusion with regards to the trade regulation of *p.sidoides*. It is thus the argument here that South Africa's implementation of the CBD has resulted in a policy vacuum post-1994.

Two fundamental issues are uncovered within the study. The first concerns the post-apartheid legislative framework as it currently exists juxtaposed with homeland/apartheid legislation with the former. This presents a contradictory and incongruent context for both compliance and enforcement of legislation in the current climate. The local government official argued that with NEMBA in place all bioprospecting activity is monitored nationally, with local statutes falling away. This is problematic as the Ciskei Nature Conservation Act Ordinance 10 of 1987 (Ciskei Act) is the only policy that defines *p.sidoides* as a protected species (BMP, 2013: 10). Despite the lack of clarity in the specific *pelargonium sidoides* species Schedule 6 "Protected Flora" of the Ciskei Act provisions for the protection of all plant species (Ciskei Act, 1987: 37). Moreover, a representative of TRAFFIC argues that due to contradictory and fragmented legislative policies in place it is difficult to assess and monitor the activities surrounding the trade (Bisseker, 2002: 1). Even though national legislation takes prominence there is risk of conflation with provincial statutes. In this regard, the local government official noted that there have been advances to the centralisation of governance and the removal of provincial laws. Herein, the local government official's views in the compliance and enforcement portfolio can be summarised in the following statements:

"You see our laws in the Province have never been amalgamated. So we have the old Western Cape which is also the old Eastern Cape which is Ordinance No. 19 of 1974 then we have the Ciskei Act and the Transkei Decree. So we have actually got three sets of legislation".

"You see our big problem with pelargonium in the beginning was that pelargonium was not a protected species. And being unprotected we actually do not have much to say about it other than when they start harvesting large quantities and selling".

The local government official further explains that these three sets of provincial legislation applied to both communal and private land, however, arguing that the "the management of communal land and the systems makes it easy to exploit". This is further indicative of the Motjoji (2011: 8) study, arguing that even though *p.sidoides* is acknowledged as an indigenous plant under these above-mentioned legislations it is not protected and "therefore the control measures for the species will not be as strict". South Africa adopted the provisions

of the CDB in 1995. It is within this context that South Africa embarked on an expansive policy formulation leading to the National Environmental Management: Biodiversity Act 10 (NEMBA) of 2004 and the Bioprospecting Access and Benefit-Sharing Regulations (BABS) Regulations in 2008. This is still an evolving process.

As argued by Sachs (2003: 9) industry requires easy access to the market specifically in developing nations where there are less legislative restrictions. Herein, legislative enforcement is directly linked to the status of *p.sidoides*. The study found that, during these large gaps of policy planning wild harvesting had increased and moved between South Africa and Lesotho, with monitoring and enforcement issues (van Niekerk and Wynberg, 2012: 538). In this regard, more emphasis was placed on trade rather than conservation of the species. Arguably, it was noted within the data that when *p.sidoides* has been completely uprooted in the former it is easy for industry to move to Lesotho where there is less regulation. With the subsequent moratorium placed on *p.sidoides* in 2009, the study finds that decision-making regarding the status of *p.sidoides* remained centralised to the state, state-funded environmental organisations, industry and chieftaincy.

The CITES, SANBI and the Pelargonium Working Group (PWG) have been pivotal structures in developing the narrative that *p.sidoides* is not in need of protection as it remains unthreatened. With the Bioprospecting Management Plan (2010: 8) for *p.sidoides* stating that *p.sidoides* is not listed on the International IUCN Red List of Threatened Species. However, the report also notes that “pelargonium *sidoides* is classified under one of these South African specific categories: Declining”. The Pelargonium Working Group as reported by the state official is still engaged in meetings with industry and the rural elite and has extended their activity to Buchu and Devils Claw. In relation to *p.sidoides* the scientist recalled when CITES did a survey:

“They did a quick survey and they said no everything is fine it is not a problem they can dig these things out because they just growing there. And I said to them well you know that is not true because I have seen these plants that look like they going to grow again there is a little piece under the ground that is about this big that has been chopped off and indeed it sends out little green shoots but you go back in winter and those shoots are all dead there is just not enough to sustain them. So I contested that report. And they said okay well then we must do a bigger study and they basically did a huge survey, I think it is online”.

The above quote is corroborated by the local community members and chieftaincy. Chieftaincy contradicts reports by the PWG. Herein, the representative of chieftaincy argued that the community were digging large holes when uprooting *p.sidoides* raising concerns about *p.sidoides* conservation and future availability. The study finds therefore, there is a difference in understanding the status of *p.sidoides*, with a predominantly one-sided narrative that is being portrayed. This is a concern in terms of biodiversity conservation, yet the DEA are using the reports to inform environmental policy on *p.sidoides*. This can be considered a reactionary “quick fix” manner of dealing with conservation. There is a need to bridge the gap of these competing narratives and understandings. One can deduce, therefore that the sustainability of *p.sidoides* remains in doubt. This argument is reinforced in Section 9.2.4 in this Chapter. In this regard the outcome of *p.sidoides* as a non-threatened plant which has informed policy formulation such as the BMP has been opposed by some of the respondents such as the local government official and the scientist respectively arguing that:

“I do not agree with their finding at all and the evidence is there if you look at areas that been harvested previously...and harvested repeatedly you can see the plants are very scarce there”.

“I feel quite strongly that that is wrong if it is not threatened now it is going to soon be threatened if they carry on the way they are going. So why don't we actually make some sort of legislation now rather than cart after the horse then suddenly it is almost extinct then its 'oh okay now we need to make new legislation' it's crazy. Anyway that is their business that is their mandate its government mandate to manage”.

9.4.2. Bioprospecting Access and Benefit-Sharing

It is evident that concerns of unsustainable harvesting are unresolved especially in light of the BABS regulation established in 2008. Indicative of the bioprospecting permits that have been granted and the benefit-sharing agreements negotiated the study finds that the Masakhane community still remains at a disadvantage. The study finds that industry prefers to deal with the rural elite. In practice, the institution of traditional leadership retains the rightful ownership over the natural resources in their areas and that any access to these resources should be granted by them. In this regard, an interesting new dynamic has emerged which privileges the rural elite as authoritative structures (van Niekerk and Wynberg, 2012: 537). This is similar to what is found in the van Niekerk and Wynberg (2012: 537) study noting that industry has built networks with organised structures. In light of this, van Rouveroy *et al.* (cited in Ribot, 2001: 22) argue that these forms of resource governance are “being renewed

as arenas for chiefly power”. This is evidenced by industry aligning itself with chieftaincy described as the “elite-capture” by van Niekerk and Wynberg (2012: 541).

South Africa as resource-intensive export economy continuously perpetuates a disproportionate accumulation regulated through the legalised expansion of industry at the expense of local communities and their resources (Freund, 2009: 3). The study finds that in addressing the objectives of the CBD BABS places great emphasis on the commercialisation phase⁶⁵ of bioprospecting but falls short in addressing social and environmental concerns. More concerning is the fact that no clear distinction is made between the discovery phase and commercialisation phase in BABS. Specifically, the issue that activities that constitute the discovery phase are highly ambiguous, wherein any stage of the discovery phase may yield potential value for commercialisation purposes (Crouch *et al.*, 2008: 361). In this instance, focus needs to be placed on conservation efforts regarding *p.sidoides* pre-cautioning against its depletion (ACB, 2011: 17).

The study found that the failure of the legislation in addressing persistent problems in resource trade such as the regulation of harvesting practices and skewed beneficiation processes has been attributed to the lack of human capacity and lack of familiarity in enforcing BABS. This is similar to studies conducted by Crouch *et al.* (2008: 361) and Wynberg (2004: 39) who argue that the ambiguity that exists in the BABS legislation has created loopholes that have made it harder to monitor compliance and enforcement. In response to BABS being a sufficient legislation the local government official argued that:

“I think so yes, but it just might be uninformed and under staffed. It is quite difficult to monitor and enforce because you do not have staff. So the case, like you have mentioned, they might have permits and they can hold of illegal stuff there is no way to really monitor the export. You cannot monitor the tonnes being exported because it first gets dried here and powdered there and then exported you know”.

In this regard, the study finds that BABS perpetually manifests itself within the state-industry-rural elite coalition. This finding is consistent with van Niekerk and Wynberg’s (2012) study who argue that the value chain of *p.sidoides* reflects a captive hierarchical system that has left rural communities dependent with access and control a unique characteristic of the elite. The “elite capture of benefits” (van Niekerk and Wynberg, 2012:

⁶⁵ See Chapter Five Section 5.4.3

541) remains central to the unsuccessful implementation of ABS provisions. Industry considers BABS as having been an effective instrument in facilitating trade of p.sidoides and other natural resources. It is evident that government and industry have a very strong and close connection. This is a running thread throughout the study. In this sense the local businessman noted that, “we have had a lot of meetings with the national government representative...we are meeting all the time to improve things”.

This concept of fair and equitable benefits has been grossly undermined with local harvesters still receiving a pittance. Herein, the study finds that from the onset of legal environmental reforms natural resources exist as sites of exploitation. Herein, biopiracy forms an innate part of valuation processes that seek to leave communities and the environment vulnerable. The study finds that the politicisation and commodification of natural resources and associated ITK have been shaped by unresolved power asymmetries as highlighted in Chapter Two and Three. The articulate control of access to natural resources and associated ITK has led to the development of an exclusionary and skewed beneficiation process.

9.5. CHIEFTAINCY AND THE PROCESS OF ACCESS AND BENEFIT-SHARING

9.5.1. Chieftaincy, Community Representation and Development

The role of chieftaincy is prominent in this case, acting as an elite structure within the Raymond Mhlaba Local Municipality. This section specifically focuses on chieftaincy in the Imingcangathelo Community Development Trust. The study addresses the role of chieftaincy in the p.sidoides trade, BABS, local community participation and development. This section also addresses harvesting activity with regards to wild versus cultivated p.sidoides. The overarching theme within this section is that due to the centralisation of the BABS process and harvesting activity chieftaincy in the area is effectively responsible for hindering the development of the community.

The discussion in the previous sections highlighted several issues concerning the role of chieftaincy. This includes chieftaincy as active stakeholders in the access and control of p.sidoides. They are in a close relationship with state-industry-rural elite coalition. Herein, it was argued that there is an on-going conflict between the Masakhane community and chieftaincy on issues of access and control of p.sidoides, other medicinal plants and the issue of land. Due to industry setting up relations with chieftaincy the beneficiation process has been skewed with the Masakhane community effectively being marginalised. This section

locates chieftaincy as a pivotal structure in the centralisation of decision-making regarding p.sidoides trade. More significantly, it highlights the complete lack of community engagement, empowerment and capacity building which is a prerequisite of BABS.

In recollection of the start of rampant harvesting of p.sidoides in the Imingcangathelo Community the representative of chieftaincy stated that:

“There was a period when pelargonium was being run by a few people from this village- the chieftaincy not even knowing. They did not even get in touch with the chief they were doing their own thing. In actual fact, they were stealing together with those guys who were buying from them. However, we normalised that by calling the provincial Department of Economic Affairs and drawing their attention to what was happening. Most unfortunately this was during the time when the buyers were saying they have enough resources it is no longer required now we can only buy after three or four years”.

“A meeting was called at Mngqesha for all the chiefs at the Great Place. They all work with King Sandile and it was discussed that it should be the chiefs as the custodians of the land that should decide on how trading should be conducted...The common approach was that, whoever wants to get any natural resources must get an agreement from the chief of that particular area but how that particular chief and his or her area conducts the trade solely depends on them”.

This immediate centralisation of the p.sidoides trade by chieftaincy is corroborated by the local businessman and the scientist respectively noting that:

“The controlling authority of that area is the chief, the chiefdom. The chiefdom has his Trust or his executive committee so we sit down and he calls his people in and enter into a benefit-sharing agreement with the chiefdom and a material transfer agreement. Once those two are in place for each of the areas then your application goes in supported by your benefit-sharing agreement and your material transfer agreement then you are issued a permit”.

“What has happened, apparently, is that there is this chieftainess who lives somewhere near Alice and she basically roller-coasted this whole thing. They said to her okay you are the chieftainess of this area you must take responsibility for it and we will only buy from you”.

The Bioprospecting Management Plan (BMP) for p.sidoides states that it went through various consultation processes before being gazetted. This included training workshops held in 2010 at the Mngqesha Great Place. This meeting was representative of the local and national state departments, industry, pelargonium harvesters, traditional healers and chiefs. The BMP (2012: 33) states that “these consultation processes took the format of training on South African Legislation including the Biodiversity Act and its regulations including the Biodiversity Management Plans for Species Norms and Standards and the Bioprospecting,

Access and Benefit-Sharing regulations”. However, the BMP does not give a clear indication of the role of the chiefs, the nature and extent of community participation. Emphasis is placed on the key stakeholder group and the Pelargonium Working Group, which is representative of state-industry-rural elite interests. However, the ACB (2011: 5) in objection to the BMP argues that the entire process has been highly exclusionary of various stakeholders and thus its foundational basis is flawed. Herein, both the ACB and Masakhane community have been excluded from the drafting of the BMP – this even though it is public knowledge that as interested and affected stakeholders in accordance with NEMA 1998 the Masakhane community and the ACB have been active agents in the p.sidoides case (ACB, 2011: 5-7).

Subsequently, the Imingcangathelo Community established their Development Trust in 2008. At present the study finds that p.sidoides trade has been the only viable project for the Trust - other reported potential projects include fruit tree production, vegetable production, poultry and piggery. Interestingly, the study finds that the Trust is a centralised structure constitutive of the royal family with hardly any local community representation. In relation to the Trust the representative of chieftaincy argued that:

“It is broad very broad indeed. In actual fact the Trust is nothing else, it means business it means nothing else but business. We are just very fortunate to have the pelargonium issue otherwise the idea is to embark on all projects that we can get so that our people are kept busy doing something as to boost the economy of the chieftaincy”.

For Roht-Arriaza (1996: 948) whilst the idea of a Trust is the most feasible, “a trust without effective input and participation by beneficiaries would be simply another form of appropriation”. In light of this, the representative of chieftaincy argued that, in order for communities to benefit from the trade there is a need for the establishment of sub-trusts within the different villages with the Imingcangathelo Community Development Trust, as the “mother body”, at the local level. However, the study finds that the sub-trusts have not yet been established and are unlikely to materialise as this threatens the authority of the chiefs. In this respect, the sub-trusts remain a utopian idea given the centralised position of the chiefs as this would require them relinquishing authority which would not be in their interest.

In this regard, it is important to highlight the issue of local community participation. There is a complete lack of community representation and integration which is a prerequisite of the CBD. This is problematic because of the marginalisation and exclusion of the Masakhane CPA. The representative of chieftaincy argued that community raised issues are addressed at

the levels of chieftaincy or local municipalities “depending on whether the people that have been voted into those positions are eager or are keen to listen to the people”. In light of this, the position of chieftaincy in taking responsibility with regards to community participation becomes highly dubious. This is made clear in the conflation of local community concerns with their participation in the p.sidoies trade. The question of local community participation is further exacerbated by top-down structures of communication. Herein, direct engagement with the chief is constituted through the Traditional Council which consists of community representatives. However, the study finds that the Traditional Council is a skewed power structure wherein 40% of the electives are elected by the community and 60% by chieftaincy itself with the latter consisting mainly of the Royal Family. This is exacerbated by access to knowledge and poor services in their areas.

It is important to realise that chieftaincy is not alone in the exclusion and marginalisation of local communities. The government plays a central role in facilitating the process of marginalisation constituting a triple-exclusion that is top-down. In this regard, the study finds that the control of decision-making processes with regards to natural resource appropriation in local communities raises concerns about the centralisation of knowledge indicative to the trade. This contradicts the Bonn Guidelines as Jeffery (2002: 799) argues that the state needs to take accountability in developing and implementing mechanisms that facilitate the participation of all stakeholders specific to ABS. More significantly, that these decisions and process are accessible to local communities in a manner which is understandable to them (Jeffery, 2002: 799). However, as the study finds opportunities of capacity building are often only accessible to the elite.

The state itself needs to take responsibility, the deliberate lack of knowledge and resources afforded to local communities leave them in a position of what van Niekerk and Wynberg (2012: 536) argue in their study as weak bargaining power, in a system which characteristically creates these inferior dependencies. Herein, the scientists argue that local communities are completely powerless and do not have the capacity to mediate and cannot fight the system. As argued by van Niekerk and Wynberg (2012: 544) in their study “the poorer sectors of society without financial capital and strong connections to industry and government agencies stand to be excluded”. With the lack of local community participation on all spheres of decision-making regarding p.sidoies, trade is problematic. Moreover, as argued by Morgera and Tsoumani (2010: 9) there is a need for community approval and

involvement – a requirement under the BABS regulations and subsequently the CBD. In this regard, how is the community supposed to have a voice when the community structures and BABS processes are so shrouded with elitism? In this regard, access and control of the p.sidoides trade remains highly centralised, top-down and exclusionary.

9.5.2. Pelargonium Sidoides Trade: The Rural Elite and Industry

The relationship between chieftaincy and industry is regulated through the BABS permit system. This study corroborates van Niekerk and Wynberg's (2012: 537) study that industry prefers to go into agreements with organised structures such as chieftaincy. In this case, the rural elite has entrusted the bioprospecting access and benefit-sharing process to industry with the representative of chieftaincy stating that:

“Parceval designed it as a veteran who knows all about these things. After having done that Parceval came with the agreement for us to read. Fortunately we were called by the National Department of Environmental Affairs together with the province. They took that benefit-sharing agreement and they read it through and they advised us here and there, you must not sign this thing if this one is not corrected. So Parceval needed to correct this and that you know. Even for the knowledge that we have the indigenous knowledge before the arrival of whites in this land our people our forefathers knew about this pelargonium and they used it for A B C. They need to pay us some royalties for the knowledge without the actual medicine that Parceval is getting from us”.

Given that industry authored the BSA it is a contravention of the BABS permit system which clearly states that “MTAs and BSAs have to be negotiated and agreed upon by the user and the provider granting the access...that a BSA has to be negotiated and agreed upon by the user and the relevant indigenous community” (ACB, 2009: 9). As argued previously, there is a complete negation of the participation of local communities in these negotiations, specifically, the Masakhane community. Similarly, the insufficient engagement in these negotiations on part of the rural elite indicates that the process was (and still remains) hierarchical. The study finds that the rural elite argue that the BSA goes through the scrutiny of governmental institutions to ensure that its content is fair and serves all stakeholders. However, as argued in this section the BSA has been proven to be an unfair system of benefit-sharing. This is exacerbated by the lack of government responsibility to local communities in ensuring their stakeholder interests are protected. This is especially concerning as the BSA is a legally binding-agreement. As argued by the ACB (2009: 28) even though the provisions set out in the benefit-sharing agreement negotiations are in line with the BABS regulations it is indicative of the “virtual monopoly” that has been created for

industry, wherein this material is only being sold to them. The study finds that the value chain of p.sidoides has been significantly altered with local industries no longer needing intermediaries in engaging in international and national trade. This is constitutive of the Bioprospecting Integrated Export Permit which allows for the processing and export of natural resources internationally. For a detailed discussion see Chapter Five Section 5.4.4.

It is currently unclear whether any amendments have been made to the BSA. On request of the benefit-sharing agreement there was no conclusive answer. In relation to the BSA it does not appear as if all stakeholders are familiar with and understand the contents of the agreement this was evident in the interviews. At the time of the interviews it was indicated that chieftaincy had not yet received a copy of the BSA. It was clear that the BSA was a one-sided affair and inherently top-down. Interestingly, when questioned about whether chieftaincy wanted harvesting permits and whether they could themselves have bioprospecting permits the local businessman argued that:

“That is what they want to do in their areas they want to create employment for their people. They want to have money changing hands in their area and they want to be able to develop. And there is nothing stopping anybody going through the process to apply for a bioprospecting permit”.

Theoretically, chiefs have the ability to circumvent industries and become direct suppliers. It is significant to note that local communities that do not fall under chieftaincy may also enter into harvesting permits. In this regard, the Masakhane Community having a CPA and falling on state-owned land this option should be feasible. The study finds that given the centralisation of harvesting activity and industry’s affiliation with organised structures such as chieftaincy, indicative of the van Niekerk and Wynberg (2012) study, the integration of these communities into the trade of p.sidoides will be a difficult task. This sentiment is resonates with the local businessman arguing that:

“...there is nothing to stop any individual from applying for the correct permits and applying to then start up a business and getting your customers getting your product correct and being able to supply. But you know as well as I do that it is very difficult for somebody in the rural areas to do that. So to answer your question it is going to take years of skills training and development to the people”.

However, the study finds that the rural elite are the loophole. The rural elite remain subservient to government and industry structures. As a structure of access and control they

have more power to dictate the terms of engagement but are undermined by industry. However, this process is limited by the value chain and market access. Without government support it is unlikely, thus these areas will remain hubs of biodiversity with local communities as suppliers.

9.5.3. Harvesting and Cultivation of Pelargonium Sidoides

At the time of the interview in 2014, it is reported by the representative of chieftaincy that there were four cultivation sites that are approximately 40 hectares in total. However, harvesting is still taking place in the wild, with the rural elite noting that once the site has fully matured harvesting will alternate between the wild and the sites. During, 2013 nothing had been traded with Parceval Ltd, however, Parceval Ltd. provided chieftaincy with seedlings for the sites. In this regard, the representative of chieftaincy reported that Parceval Ltd. has been integral in building capacity in the community further noting that:

“Parceval is supporting us with seedlings. Parceval has lots and lots of this pelargonium they have planted pelargonium in the Free State in the Western Cape and in Swaziland. They recently came from Nigeria you know so they are supporting us with seedlings and they also gave us the know-how as to how to grow seeds you know and then we get seedlings from those seeds and then we are also planting that rather than going to the veld and getting pelargonium to replant in the fields...They have also taught us, showed us in fact that you can also use these seeds and sow and resow them here. After having received that knowledge from them we are able of getting more seeds from the plants that we already planted and we also get seedlings from the Western Cape. Parceval gives us the seedlings gratis. When he wants anything or during harvest time if we need to harvest from those sites he will buy from us and the agreement is that he will pay us R20 per kg for what has been harvested from this site from the seedlings that he gave us”.

The argument by Roht-Arriaza (1996: 945) is illustrative of industry centralising trade through seed banks and cultivations sites that have been appropriated from local areas. Herein, seeds that were localised are now viable in a variety of different areas privately owned and controlled by industry. By having p.sidoides sites outside of the original area in which it is found undermines the BABS regulatory system. This is indicative of the van Niekerk and Wynberg (2012: 544) study in relation to Schwabe having cultivation sites outside South Africa has raised concerns in relation to compliance to national and international regulations. Herein, Mgbeoji (cited in GRAIN, 2007:1) argues that the aim of the west is not just to take resources from the south but more significantly to “build their own stores of genetic material so that they can usurp the developing world’s position as the genetic centres of the world”. In essence, the entire appropriation system is about power and control.

9.5. CONCLUSION

In conclusion, in relation to sustainable harvesting practices and conservation the study finds that *p.sidoides* remains an unprotected species even though wild harvesting has been proved not to be sustainably viable. Moreover, it has done little for conservation efforts instead focusing on the economic aspects of the commercialisation of *p.sidoides*. With, subsequent environmental reform and regulation on *p.sidoides*, cultivation methods suggested as an alternative to wild harvesting. Herein, so much emphasis is placed on the commercialisation phase that BABS does not place emphasis on conservation strategies which is indicative of the sustainable development argument of the three pillars where emphasis is on the economic potential. However, cultivation processes are subject to elite systems of access control which has made this trade more complex. The latter is fraught with a fragmented governance structure that presents deeper social and environmental injustices. These concerns are indicative of the ABS system that in the case of *p.sidoides* has not benefited the people on the ground (local communities). More specifically, the current regulation of *p.sidoides* is embedded within an elite capture of resources and labour. This capture has denied local community participation in decision-making processes, uprooted livelihoods and caused resource depletion. Traditional land-use patterns are indicative of a community understanding of how to utilise their resources. It is important however not to romanticise local communities in this regard but acknowledge that their knowledge has relevance in relation to resource conservation and utilisation.

Historically, biopiracy has been informed by illegal forms of appropriation, and the subsequent establishment of the IPR regime. With the mandate to give back through regulation reforms biopiracy manifests itself in legalised processes on part of the industrial elite both nationally and internationally to ultimately control the resource hubs in South Africa. On a broader scale, it needs to be noted that the start of the empire building happened prior to the CBD in light of this reparation should be paid to the countries from which resources were appropriated to build up the economies of developing countries. Northern countries should be reprimanded for their blatant theft of resources that built their economy which is subsequently denying these countries local rights over their land and resource through trade and intellectual property laws. Restorative justice cannot manifest in reforms that have been built on a fragmented structure that does not take into account past injustices of colonialism and apartheid that this system of unequal ecological exchange has evolved from. As discussed in Chapter Three concerns of access to land and resources as regulated

through legal systems and policy needs to be contextualised within its historical inheritances. It cannot be developed as if those structures of dispossession and marginalisation did not exist.

CHAPTER 10

CONCLUDING DISCUSSION

10.1. INTRODUCTION

The primary objective of this study was to explore access and control of biodiversity in the context of biopiracy with specific reference to the case of *pelargonium sidoides* within the Raymond Mhlaba Local Municipality. This case was revealing of the power asymmetries present on a localised scale, specifically at the level of state-industry-rural elite and local community.

Through the literature review, the thesis identified several thematic areas of concern that inform the appropriation of natural resources and indigenous knowledge on both an international and national scale. An extensive review of literature was conducted providing an all-endorsing critical discussion on the debate on the biopiracy-bioprospecting discourse. In this regard, the development discourse is located within the appropriation and trade of biodiversity and indigenous knowledge systems with the advent of access and benefit-sharing (ABS) legislation and policy both internationally and nationally. This area was further informed through the location of resource trade and local communities within the commodification paradigm – where these resources have been transformed from a public good to private property by industry.

Marx's Ecology and interrelated concepts play a significant role in merging the critique of development within the current capitalist dispensation. In the current political economy of South Africa no reconciliation is found within the processes of commodification, politicisation of resources and localised understandings of resource management and utilisation. This irreconcilable relationship is grounded within an age-old debate of development as grounded within exponential economic growth without taking into account social and environmental limitations. The Sustainable Rural Livelihoods Framework (SRLF) develops an understanding of how communities can effectively implement livelihood strategies to access their resources. However, as evident in the research, sustaining livelihoods in the current regime on access and benefit-sharing is complex, exacerbated by ambiguous legislation, unrealised development and resource conservation.

This concluding discussion firstly highlights the main arguments in each Chapter specifically the outcomes of the data analysis. Secondly, it provides a discussion of the theoretical implications of the research placing specific focus on Marx's Ecology and the SRLF. Further recommending solutions to the contentions within the study. Subsequently, the Chapter addresses possible future research within this field of social inquiry.

10.2. THE REVIEW OF LITERATURE AND EMPIRICAL FINDINGS

Access and control of biodiversity is such a contested and unresolved area on an international and local scale as evident in the p.sidoides trade and other highlighted cases in this thesis. Herein, at a provincial level the Eastern Cape exists as a resource hub and thus natural resource appropriation within the area is expected to continue – resulting in an enduring struggle over resources in the current commodification paradigm. As a result this gives a significant foundation for future research within this field at the local level. Specifically, this could include comparative cases that address the similarities and differences between other natural resources in the area and the p.sidoides trade.

Despite critics arguing that biopiracy has no definitive definition, scholars such as Shiva and Holla-Bhar (1996) and Mgboeji (2006) are vital in concretising the characteristics of biopiracy. Biopiracy is not only located within the more prominent discourse of intellectual property rights but within an internal system of resource exploitation and the marginalisation of the rural poor. This study argues that this discussion and scholarship is illustrative of the extent to which biopiracy has manifested in local communities. Biopiracy has moved beyond the parameters of illegal appropriation to form part of the capitalist regime, it is flexible and has taken a legalised form – “bioprospecting”. Within the “mandate to give back” (Hamilton, 2006: 7) and the subsequent legislative reform internationally and nationally, biopiracy now functions within legal forms of unequal exchanges, disposessions and exclusion rooted within the capture of access and control of resources by the elite.

Chapter Two *The Foundations of Resource Appropriation: Discourse, Power and Justice* is then significant – bringing to the fore that without a shift in the current understandings of indigenous contributions and conceptualisations of biodiversity no resonance can be found between western systems of appropriation and the developing world. As Odora-Hoppers (2002: 17) argues there needs to be a significant shift in power on the levels of “individuals and organisations in civil society, the scientific, especially the academic community and

policy makers”. This would require incorporating alternative ways acknowledging how indigenous/local communities understand their environment and their knowledge as invaluable to efforts towards resource conservation. Cock (2012: 6) further argues that there is a need for reconceptualising the way in which we understand biodiversity and the natural environment as not apart but uniquely integral to social and environmental relations. For Shiva (2007: 307) this means realising biodiversity as “practical natural resource” and that for local communities having access to their land and resources is integral to realising their rights and sustainable livelihoods in relation to their resources. Cock (2007: 47) similarly argues that the current sustainable development path has got nothing to do with biodiversity it only problematizes poverty. Essentially, there is a need to move towards the realisation of the rights of local communities and locate the environmental crisis as a problem of wealth (Cock, 2007a: 48).

The development discourse has undergone a process of historical reinterpretations. However, throughout the ages its core function has remained – rapid economic expansion. This is no different in the age of policies embedded in the ideals of sustainable development. Chapter Three, *The United Nations Convention on Biological Diversity*, posits natural resource appropriation and the acknowledgement of indigenous communities in the development of the international regime on access and benefit-sharing. The CBD as a watershed policy is considered significant in acknowledging indigenous communities, resource conservation and benefit-sharing (Amankwah, 2007: 23). However, the CBD has come under scrutiny for being a market-based convention on resource management rather than a convention on sustainability, environmental conservation efforts and social equity in access to resources (Escobar, 1998: 56; Shiva, 2010: 240). Herein, the CBD and its subsequent emergent policy frameworks have been critiqued for being contradictory especially regarding the harmonisation between the social, environmental and economic pillars of sustainable development.

Shiva (2010: 229), Clark and Foster (2010: 147) argue that for capitalism the degradation of nature can be controlled through technological and managerial fixes. This was the epitome of the agenda of the United Nations Conference on Environment and Development held in Rio 1992 (Sachs, 1994, 10). This misconceived solution was premised on the idea that through economic and technological development, specifically in developing countries, the problem of resource scarcity would be resolved (Shiva, 2010: 230). As a result authors such as

Escobar (1998: 56-58) argue that in an attempt to reconcile social and environmental injustices, the CBD offers a solution of resource management specifically through appropriate mechanisms which extends to the management of indigenous traditional knowledge (ITK) – however, equitable access and benefit-sharing remains unrealised in a majority of the cases of resource appropriation (Escobar, 1998: 56-58). This is significant as the CBD has come under scrutiny based on the very premise of its unmet objectives in cases of biopiracy – and issues on non-compliance to its objectives.

Several other concerns are brought to light in this regard – the issue of state sovereignty, ex-situ and in-situ collections, indigenous peoples' rights and knowledge and the intellectual property regime. These ultimately inform a disproportionate system of access and benefit-sharing from the onset. In relation to state sovereignty, the Preamble of the CBD contradicts itself – it subjects ABS to national legislation negating the rights of local communities (Jeffery, 2002: 763). The “controlling access” to natural resources in relation to local communities is vital both as a subsistence and livelihood base (Koutouki and von Bieberstein, 2012: 514). Through giving control over natural resources to the national government the relationship between local communities and biodiversity becomes dismantled (Koutouki and von Bieberstein, 2012: 520). Similarly, Roht-Arriaza (1996: 149) argues that centralising systems such as state sovereignty over resources not only impinge on the local rights of communities but on the ultimate conservation and preservation of such resources.

The concern over ex-situ conservation also comes in question as this very provision runs counter to the provision on state sovereignty. This is exacerbated by the issue that the CBD does not apply to natural resources appropriated prior to its institutionalisation. If this issue of prior dispossession and appropriation cannot be resolved, then how can there be a realisation of equitable sharing of benefits? This further fragments the CBD provisions. Herein, access and control becomes ambiguous as mostly developed countries now have control over seed and gene banks. A prominent question here is that if developed countries and big industry control the seeds of various natural resources why would they need the local communities? This idea of ex-situ collections does not just remove the agency of sovereign states it completely negates local communities. This is also evident in the case of in-situ collections where local communities are supposed to be acknowledged as integral stakeholders in conservation efforts but in practice are found at the periphery of decision-making processes

regarding their natural resources. Herein, the political and economic agendas of their environments are decided on their behalf and not inclusive of them.

Lastly, the intellectual property regime further implicates the CBD as a fragmented policy. Article 16(5) of the CBD realises that patents and intellectual property will have an effect on its objectives as a result obliges signatories “to ensure that such rights are supportive of and do not run counter to its objectives” (1992: 12). However, even though the CBD acknowledges the rights of indigenous communities, the IPR regime is completely negligent of these rights. These policy frameworks from the onset locate access and control on an internal scale in a disproportionate position. As argued by Amankwah (2007: 34) “it seems apparent therefore, that whereas the CBD seeks to promote in-situ conservation of resources, the TRIPS Agreement ordains their exploitation, asportation and depletion”. However, as above-mentioned, the CBD itself provisioning for ex-situ collections also makes its own objectives ambiguous – the critique of its unmet objectives cannot attributed to TRIPS alone. Seeking reparations for appropriations and acknowledgement of the rights of indigenous communities continuously exist in this unequal system where these rights are not realised (Roht-Arriaza, 1996: 963). As a result, both the CBD and the Nagoya Protocol have achieved a mixed performance record. “Overall, almost two decades after the CBD came into force indigenous peoples are still waiting for legal protection of the genetic resources that underlie their traditional knowledge and to share in the benefits therefrom” (Koutouki and von Bieberstein, 2012: 515).

This is indicative of the various international and national cases that were addressed in Chapter Four *International and National Cases of Biopiracy*. These cases are fundamental in illustrating the critiques inherent within the system of international resource trade. Biopiracy is real – governments and other vested interests deny its existence yet communities remain exposed and vulnerable to commercial infiltration.

In the South African context even though bioprospecting has been advocated as a win-win scenario where Wynberg (2002: 239) argues that “bioprospecting gives valuable opportunities for conservation, poverty alleviation and job creation” in reality these provisions have remained unrealised in bioprospecting activities and agreements in various cases within the country. From the onset as a seminal policy the White Paper on Conservation and Sustainable Use of South Africa’s Biological Diversity (1997) fell short in

conceptualising fair and equitable access and benefit-sharing arising from the commercialising and utilisation of biodiversity. This in turn, has advanced a fragmented system of administrative capacity and strategy to effectively regulate access to South Africa's natural resources (Wynberg, 2002: 240). This has been exacerbated by insufficient funding and poor political backing (Brownlie and Wynberg, 2001: 7).

The umbrella framework the National Environmental Act (NEMA) No. 107 of 1998 and its outcomes, the NEMBA (2004) and the BABS Regulations (2008) have been fraught with ambiguity and inconsistency. As a result, the regime on access and benefit-sharing within South Africa's permit system has been critiqued for its lack of public participation, insufficient strategies of monitoring, compliance, regulation and enforcement. Herein, there has been no marked harmonisation between the theoretical understandings and practical implementation of these legislations.

Chapter Five on the *Politics of the Environment in South Africa: Governance, Resources & Justice* is then significant in addressing this politicisation where no resonance is found with the local communities from which these resources are being extracted and the conservation of the natural resources as a whole. Communities such as the Masakhane remain locked in the prevailing historical legacy of unequal access to natural resources, dispossession, proletarianization on an unprecedented scale. Given that the CBD, its policy frameworks and the South African national legislation are evolving policy frameworks it could be a possible premise for future research addressing any transformative agendas towards social and environmental justice.

Chapter Six on *The Case of Pelargonium Sidoides* is important in locating South Africa's biodiversity legislation within the lucrative monopolisation of pelargonium sidoides. It significantly highlights that there is an international production market and a localised form of resource extraction and trade within the Raymond Mhlaba Local Municipality. Herein, the local municipality exists as the epicentre of dispossession, exploitation, unsustainability and marginalisation. On a local level natural resources are being appropriated but there remains a lack of development and redress of various social inequalities within the community. This as an observed outcome is lacking despite the benefit-sharing agreements that have been negotiated with the rural elite.

Several arguments emerge from Chapter Nine, *Data Analysis and Presentation*. Firstly, the current status of *p.sidoides* has been subject to a plethora of interpretations. Herein, the dominant narrative that has been advanced in the Bioprospecting Management Plan, reports by CITES, TRAFFIC and the Pelargonium Working Group remains that *p.sidoides* is an unthreatened species and therefore does not require protection. This is the case despite concerns by NGO's such as the African Centre for Biosafety, scientists and the local community that harvesting practices and the requirements of the industry have been unsustainable. This is a concern in terms of biodiversity conservation, yet legislation has been informed by the dominant narrative. This can be considered a reactionary "quick fix" manner of dealing with *p.sidoides* trade and resource conservation. There is a need to bridge the gap of these competing narratives and understandings. One can deduce, therefore that the sustainability of *p.sidoides* remains in doubt. Given these discrepancies and contradictory interpretations, it is significant to argue that within the current trajectory of the trade the concerns of rural livelihoods and resource appropriation will remain unresolved for years to come. This is especially significant in relation to policy and legislation where there is an indicative disjuncture and lack of public participation which has consequently affected the processes of access and benefit-sharing under the 2008 BABS Regulations.

This study provides an account of the local level resource/land contestation between the Masakhane Community Property Association and the Imingcangathelo Community Development Trust. The land question remains central to the Masakhane community in effecting their strategy for engaging in a sustainable manner in the *p.sidoides* trade. Without significant accountability, transparency and political will by the government as well as civil society support they will remain destitute. On the other end of the spectrum, the Imingcangathelo Community Development Trust have been characterised as a central component in *p.sidoides* trade and governance. Herein, the state-industry-rural elite coalitions have been effective in regulating access, control and processes of beneficiation. Several concerns are highlighted – uneven BABS negotiations which locates local communities in positions of "weak bargaining power" (van Niekerk and Wynberg, 2012: 535-536). Specifically, relating to issues of control over the cultivation, seeds of *p.sidoides* and the consequences it has in terms of regulating and controlling access. These areas produce significant starting points for research in relation to the current situation in the area.

The central components within this thesis converge to answer the umbrella question of access and control and the subsequent goals of this research. It is evident that access and control of biodiversity is predominantly regulated by the elite institutional forces of industry, government and mediatory organisations. This is attributed to productive and accumulative forces of the current political economy. Herein, public participatory processes have been systematically denied which has further exacerbated the problem. With regards to the case study this has emerged in key stakeholders such as the African Centre for Biosafety and the Masakhane community being systematically marginalised from the decision-making process regarding the Bioprospecting Management Plan for *p.sidoides*. There is a clear bias in who can be included in these policy formulations. This very process of denying this form of participation is in contravention of national legislation.

10.3. THEORETICAL IMPLICATIONS AND RECOMMENDATIONS

The revitalisation of Marx's Ecology in current debates is not only significant in relation to the critic of capital and industrial economic development but also its proposed resolution to the restoration of social and environmental justice. Herein, Marx's Ecology realised the globalising effects of capitalism in the development mentality of society both nationally and internationally. Especially, how capitalism infiltrates local spaces for processes of extraction, production and accumulation. This current system of growth is depicted as irreconcilable with proponents of social and environmental justice. Realising that currently sustainable livelihoods and natural resource appropriation exist in direct contention with economic development.

It is a significant critic of capital as the active driver of dispossession, marginalisation, exclusions of local communities and the exploitation of natural resources. Consequently, achieving sustainability that encompasses all social and environmental factors becomes increasingly removed and controlled through the capitalist rhetoric of development. Consequently, Marx's Ecology and subsequent scholarship proposes that there needs to be a shift in the managerial solutions offered to issues of social inequality and environmental degradation. This can be achieved in the marked re-orientation and localisation of how humans engage with nature specifically placing ecological limits on the productive power of the economy (Roht-Arriaza, 1996: 949). Marx's critic of the political economy highlights the fundamental structural fragmentation in biodiversity policy formulation and governance from its onset.

The agency of local communities becomes increasingly removed from the spaces that define the foundations of their livelihoods. The Sustainable Rural Livelihoods Framework (SRLF) is significant in the realisation of local livelihoods with sustainability entrenched in how resilient communities are in relation to vulnerability and how they overcome this through adaptation. However, the context of the South African political economy and the institutions involved in processes of access to basic resources, addressing concerns such as land redistribution and the control of capital has had a tremendous effect on how these communities mobilise themselves (Scoones, 1998: 4). In the case of the Masakhane community their struggle for land has lacked sufficient political backing and the centralisation of the p.sidoides trade presents yet another denial of access. Given that government institutions are central to claiming these rights means that there needs to be an “analysis of their influence on access to livelihood resources” (Scoones, 1998: 4). Without a proper assessment of these influences achieving sustainable rural livelihoods in the current economic dispensation will remain complex and unlikely to materialise.

Through the theoretical underpinnings the study offers a critical dimension of understanding the internal power dynamics at play – that inform not only access and control of pelargonium sidoides in the Raymond Mhlaba Local Municipality but resource appropriation on a global scale. In relation to the literature review it offers a theoretical understanding as to why the current policy dispensation is fragmented and flawed. In the South African context this could have a profound impact in the transformation of policies, processes and activities surrounding biodiversity and indigenous knowledge utilisation. Herein, the theoretical underpinning of the study recommends several solutions in relation to repairing the local, national and international governance of the biodiversity. With specific reference to the Masakhane community and how they can realise their livelihood strategy, conservation and utilisation of p.sidoides.

Redefining Socio-Environmental Interactions – It is important to realise that sustainable resource utilisation remains central to redefining the human relationship with nature. Given the current juxtaposition of debates in the case of p.sidoides this can only be realised through a more localised regulation and conservation of resources in the area. This is especially pertinent as the BMP (2013: 18) argues that currently there is no “formal monitoring” of p.sidoides on part of the government. However, the issue of localised regulation will remain subject to resolving the concern over traditional authority in the area.

Ultimately, as argued by Roht-Arriaza (1996: 949) the effective protection of natural resources is more feasible when predicated on local participation and engagement. More significantly, the idea of sustainability in this regard should be developed by placing limitations on economic policy as subject to environmental and social provisions. Cock (2007: 37) similarly argues that lack of engagement of the grassroots stakeholders such as the working class and local communities “reflects a denial of resource constraints on economic development”.

Democratic Decision Making – Negotiating power needs to be shifted to strengthen the position of local communities when engaging with industry. This also requires the decentralisation of governance and decision-making structures regarding pelargonium sidoides and other resources in the area. Thus, capacity needs to be built on a local level that is accessible to the people from the rural areas. This would effectively strengthen rural communities’ negotiating position in relation to the trade and advocate a more participatory decision-making process. As Cock (2004: 5) argues central to achieving environmental justice is to mobilise public participation within the political platform. Cock (2004: 5) further states that “the core notion of environmental justice as a powerful mobilizing force lies in this notion of rights - rights of access to natural resources and to decision making. The notion of rights is used to legitimize demands and claims”. A similar argument is advanced by Amankwah (2007: 34-35) but is more embedded in realising that this process is not just about capacity building but that there is a need to realise a way in which indigenous local communities can claim “control and ownership of the outcomes” of resource appropriation in their areas. It is in this regard that the decentralisation and localisation process is especially significant as there is a need for local communities and civil society as a whole to be integrated into the “political process” in what is referred to as “representative democracy” (Ntsebeza, 2005: 31).

Localisation and Government Accountability – Firstly, government needs to take accountability in relation to building capacity in local communities specifically in the Raymond Mhlaba Local Community. Roht-Arriaza (1996: 953) argues that there is a need “to focus more broadly on mechanisms to promote indigenous and local community rights to use, manage and control their local livelihood systems”. Secondly, the centralisation of resource governance given the current disjuncture on the national and international level needs to be problematized. For Roht-Arriaza (1996: 953) this requires “public, multilateral set of

agreements among states and communities governing access to indigenous and local knowledge and its products”. This process of decentralisation creates a further premise for local communities, interested and affected stakeholders to being pivotal in the decision making processes regarding resource utilisation. Roht-Arriaza (1996: 963) argues that any alternative order that seeks to remedy current debates on resource control and ownership develops alongside the need for localisation.

Protecting Indigenous People’s Rights and Knowledge – Theoretically, even though there have been efforts to acknowledge indigenous communities and indigenous knowledge systems they have been increasingly marginalised in the political agenda of natural resource appropriation. International instruments are weak and ineffective. This is evident in the day-to-day lived experiences of many local communities.

Roht-Arriaza (1996: 953-954) argues that there is need to amend the current provisions on intellectual property specifically with regards to patents – this would allow protection for collective rights of innovations and practices related to indigenous technologies and knowledge. This is not only related to arguments of access and benefit-sharing with regards to indigenous traditional knowledge but its access, control and commercialisation. Critical in this discussion is to recognise that, “negotiations and debates on protecting TK and rights of indigenous communities are being conducted at different forums” (Srinivas, 2012: 403). In this regard Srinivas (2012: 403) argues that on an international scale there is fragmentation within this regime, thus there needs to be a harmonisation of policies and strategies on these various platforms.

On a national level even though the Indigenous Knowledge Systems Policy of 2004 and subsequent National Recording System (2013) have been implemented as statutory bodies of IKS acknowledgement and protection, it is argued that the IKS policy falls short in addressing concerns about the “commodification of knowledge” (Green, 2007: 134). Herein, the central question remains, if there is no marked readdress of South Africa’s political economy how can we ensure that these policy frameworks will result in local communities receiving a fair-share from their indigenous knowledge and innovations? As Finetti (2011: 60) argues even though governments establish databases and policies it is important to question the core groups that advance these frameworks and who controls access to this documented knowledge. These concerns are further implicated in the politics of knowledge as

addressed in Chapter Two. As a result, navigating the body of indigenous knowledge systems is complex and needs to be theorised and further examined before policies can be effective (Green, 2007: 134). Given that this is an evolving area of scholarship it calls for a larger discussion on indigenous knowledge systems, which was not within the scope of this study.

Another concern that needs to be addressed is the issue of ownership (Roht-Arriaza, 1996: 953-954; Amankwah, 2007: 34). This is important in the case of communities wherein traditional leadership plays a central role as a structure of authority. This influences community relations and tensions as in the case of the Masakhane community and the Imingcangathelo Community Development Trust.

Land Redistribution – In the South African context any access and control of resources is predicated on access to land. As seen in the case study specifically the Masakhane community there is an evident link between natural resources, land and concerns over access, control and ownership. Land is then an intrinsic feature in relation to p.sidoides. Currently, the Masakhane community exists in a state of uncertainty with regards to their land claim. It is argued here that this will remain unresolved because of the strained relationship the Masakhane community have with chieftaincy in the area and the lack of government support. Ntsebeza (2005: 23) notes that the control over land remains central to the authoritative position of chiefs. As discussed in the data analysis the only way in which the Masakhane community can effectively form a sustainable strategy to access, harvest and process p.sidoides is for them to get their title deed. The Masakhane community is not an isolated case as evident in the failed realisation of the land reform programs in South Africa.

Given the current unresolved dispute over land, resources and rights raises concerns over attaining sustainable rural livelihoods. In this respect there is a need to address the integration of the agendas of social and environmental justice. For Castells (1997: 132) this means a re-emphasis on use-values against the dominance of private riches, power and technology. However, without appropriate qualitative transformation in the rhetoric that informs the development agenda these concerns will remain if not exacerbated in the near future. This creates a platform for localised interpretations and theorising in the study area in relation to (a) the Masakhane CPA land claim, (b) a follow-up on the Imingcangathelo Community Development Trust, access and benefit-sharing outcomes – the current status of the trade and benefit-sharing agreements, (c) addressing the role of chieftaincy in local communities and

(d) the process of public participation by **ALL** interested and affected stakeholders in policy and legislative processes regarding resource trade. With regards to these policy and legislative frameworks there is also a need to problematize the provision of resource utilisation for economic development – specifically due to the fact that development in local communities remains unrealised. Future research into these areas and other provincial cases could result in an alternative method in which we can engage with local communities and the politics of their environments.

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