Indigenous Knowledge for Sustainable Livelihoods: Evaluating Non-Timber Forest Product Value Chains for San Communities in Northern Namibia

Thesis Submitted in Fulfilment of the Requirements for the Cotutelle Dual Degree of

Doctor of Philosophy in Natural Sciences
of

The University of Cologne

and

Doctor of Philosophy in Geography

of

The University of Namibia

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From Nyango

Cologne, 2024

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Date of Defense: 27 June 2024

Abstract

The commercialisation of non-timber forest products (NTFPs) has been primarily promoted in the Global South for its potential to enhance subsistence and income opportunities for indigenous communities residing in or adjacent to forested areas. However, in practice, the traded NTFPs predominantly benefits companies in the Global North, leading to substantial income disparities and insufficient compensation for indigenous producers. This dissertation evaluates the integration of indigenous peoples as NTFP producers and knowledge holders into global value chains (GVCs) and regional value chains (RVCs), as well as the effectiveness of international legislation as a strategy to enhance their value capture within these chains. The dissertation's primary objective is to contribute conceptually to global discussions on equitable profit distribution from natural resources, focusing on vulnerable forest-dependent indigenous communities.

Using a mixed-method approach, including interviews, focus group discussions, participant observations, and secondary statistical data analysis, the study begins by assessing the impact of integrating San NTFP harvesters from northern Namibia into GVCs and RVCs on their livelihoods. It then evaluates the roles of international and national legislation in ensuring fair benefit-sharing for these harvesters and communities, while exploring their challenges in enhancing value capture and the requirements for value upgrading opportunities.

The findings reveal that, despite the increased global commercialisation and value of Namibia's NTFPs, including Devil's Claw export worth over 143 million USD annually, individual San NTFP harvesters earned an average of only 1,538 NAD (80 USD) in 2021. Furthermore, the benefit-sharing regulations and initiatives have not effectively translated into fair benefit-sharing; only a few Namibian NTFP-harvesting communities established benefit-sharing agreements with multinational companies. While communities with benefit-sharing agreements have established local processing facilities and community enterprises to benefit through partnerships, the San communities in Bwabwata National Park and Okongo Constituency, lacking such agreements, face challenges in setting up similar structures. This hinders their value capture and bargaining power, ultimately leaving them susceptible to exploitation by intermediate companies and individual traders.

In conclusion, this thesis emphasises the urgency of addressing persistent inequalities in benefit-sharing for indigenous and local communities in Namibia. Future research should

explore the potential for reforms in ABS regulation to rectify legal gaps and ensure compliance for all value chain actors engaged in the use of NTFPs. Future research should also assess the feasibility of increasing value capture within the producing communities in Namibia for highly valued and globally demanded NTFPs**.**

Acknowledgements

At the age of 13, following the loss of my dear mother, Tresia Ndilokelwa Hamunyela, I relocated to Oshikwiyu village in the Ohangwena Region, where I lived with my aunt, *Mee* Ndaufa. After school, I helped in selling at the family *Cucashop*, a social place where I began to understand ethnic dynamics in Namibian society (I had yet to encounter racial issues). It was during that time that I realised that my community faced fewer economic and livelihood hardships, and injustices compared to the San communities. Two San teenage boys had come to our village to tend to the livestock of a relatively affluent man in exchange for food and occasional pocket money. They did not attend school, and no objections were raised in the community, unlike if the children were Ovawambo. It is the responsibility of all citizens and the government to ensure that all children attend school as mandated by Article 20 of the Namibian Constitution. During summers, while we local children attended school, these boys herded the livestock. In other seasons, they returned to their families hundreds of kilometres away. Eventually, they ceased returning, likely due to the exploitation they endured. I often wonder what became of these two boys. My childhood interactions with them opened my eyes to their impressive knowledge of nature and the survival skills the San people possess, despite their lack of formal education and their marginalisation. These thoughts stayed with me for 14 years, inspiring my MA thesis on San cultures and livelihoods, particularly !Xun and Hai||om, and ultimately this PhD research on the !Xun and Khwe. Since the time I met the two boys, I have aspired to participate in policy discussions and applied research that could contribute to the improvement of the livelihood situations of the San. I hope this PhD marks the beginning of my personal capacity building to be able to do so.

My heartfelt gratitude goes to Prof. Javier Revilla Diez, my principal supervisor, for his unwavering advice and support throughout my PhD journey. I expressed my interest in studying San communities while finalising my MA thesis in Culture and Environment in 2019, and Prof. Revilla's flexibility allowed me to pursue this research beyond his C01 Future in Chains project. I also sincerely appreciate Prof. Matengu, my secondary supervisor, who, despite his busy schedule as Vice Chancellor at the University of Namibia, found time to attend meetings and provide valuable feedback. Their guidance has been invaluable to the successful completion of this PhD thesis. Additionally, I extend my heartfelt thanks to the examiners, Prof. Dr. Mark Vicol, Prof. Dr. Peter Dannenberg, Prof. Dr. Saka Jimoh, Prof. Dr. Daniel Schiller, and Prof. Dr. Niels Fold, as well as Prof. Dr. Sandro Jahn, the chair of the defense.

I sincerely acknowledge the fieldwork funding support provided by DFG through my study's affiliation with the Collaborative Research Centre (CRC) *Future Rural Africa* (TRR 228/1). Gratitude also goes to the Namibian National Commission on Research, Science, and Technology; and the Ministry of Environment, Forestry and Tourism for authorising this research. I am thankful to all the informants who generously shared their knowledge for this study. Additionally, I extend my profound gratitude to DAAD for the 2-year Research Grants - Bi-nationally Supervised Doctoral Degrees/Cotutelle, which enabled my stay in Germany. Moreover, I am deeply indebted to the University of Namibia for granting me relief from work responsibilities and supporting my professional development during my time in Germany.

I am profoundly grateful for the unwavering support I received from my mentors and work colleagues, especially Prof. Thomas Widlok, Prof. Martin Hipondoka, Prof. Fritz Becker, Prof. Godfrey Tawodzera, Dr. John Mendelsohn, Prof. Akira Takada, Prof. John Mfune, Prof. Ndeyapo Nickanor, Prof. Veikko Uahengo, Prof. Rosemary Shikangalah, Dr. Martha Akawa, Dr. Goodman Gwasira, Ms. Ndeshi Namupala, Dr. Romie Nghitevelekwa, Dr. Napandulwe Shiweda, Dr. Eliakim Hamunyela, Ms. Margaret Angula, Mr. Jona Heita, Ms. Ellen Kimaro, Mr. Andreas Amukwaya, Dr. Ewaldine Katjizeu and UNAM's former Department of Geography, History and Environmental Studies at large. I also appreciate all the support from the Department of Environmental Sciences.
I am sincerely thankful to Wilhelm "Kadokie" Kupinga, Rita Kanyemba and Saskia Sheehama for their continuous support and valuable input on my empirical data. Gratitude also goes to David Mushavanga for his inspiring stories, the delicious Papayas from his orchard, and for teaching me the art of San clicks and beekeeping.

I extend my heartfelt gratitude to all my fellow students, postdoctoral researchers, and affiliates at the University of Cologne with whom I engaged, particularly at our Geography Institute and during CRC meetings, retreats, and *jour fixes*. Their invaluable support and contributions through insightful discussions significantly influenced the completion of this work. Special thanks go to Dr. Carolin Hulke, Dr. Linus Kalvage, Susanne Weber, Han Luong, Justina Nangolo, Ledys Franco, Leoni Hesselmann, Mfundo Mlilo, Tom Schnurr, Dr. Hauke-Peter Vehrs, Dr. Gideon Tups, Dr. Jono Jackson and Christa van Der Wulp.

To my supportive family and inspiring friends throughout this journey, I am immensely grateful, especially to my extended family of *Ovakwamhalanga* and *Ovakwaanime* clans for

understanding my absence during celebratory and sorrowful events due to my study commitments. I extend my heartfelt gratitude to *Tate* Mwaanga and *Mee* Kaarina Ngondji, Dr. Justina Amakali, Nekulilo Neliwa, Dr. Nashilongweshipwe Mushaandja, Gotlieb Timo, Alice Indongo, Dr. Lovisa Nampala, Lovisa Amwenyo, Nicholene Likando, Laura Bréton, Dr. Pablo Gilolmo, Júlia Colomer, Eliee, Titus Shiti, Agnes Brühwiler, Ferran and Maria Catalan and their parents, Lavinia Haimbodi, Ndiholeomwene Shakela, Dr. Katrin Sowa, Hanna Repp, Victoria Shifidi, Dr. Namandje Nenghama, Dr. Hafeni Hamakali, Rosa Mbulu, Dr. Alina Uusiku, Browny and Rudolf Mutrifa, Prof. Nelson Mlambo, Sarah Moshana, Dr. Emily Mutota, Dr. Evelyn Breuer, *Mee* Emma Hashipala, Betty Kirchberger, Gloria Tjitombo, Veronica Mowa, Masello Motana, Teresa Cremer, Selma Hanghome, Asmaa Sbou, Karim Sghaier, Timoteus Nuugulu, Rufina *Kela* Nuwuses, Sackeus Kadhikwa and Keketso Motale. Your support has been instrumental in my PhD journey. To my *Chakalela* sisterhood, Dr. Ndapewa Ipinge, Zodidi Gaseb, and Nangula Uiras, and *Epongo likwetu*, Amalia Nangolo, your encouragement, laughter, and WhatsApp calls meant the world to me, especially during the challenging times of the journey. I am also grateful to my West African *sistahs*; Aisha Jandt, Zuhiratu Musa, and Latifat Odugbemi, for the memorable trip to Budapest.

I am grateful for the constant inspiration and motivation provided by my lovely little sisters, Hanyangha Decidelia and Dute Veronica Kautwima. Thanks to my dad, Bravo Erastus, for his moral support in pursuing my dreams and recognising the value of my personal growth, particularly significant in a society that often pressures African daughters to prioritise marriage and motherhood. To my stepdad, Johannes Kautwima, *onda pandula unene tate wange*; your constant presence and boundless support, especially after my mother's passing, hold a special place in my heart; words cannot fully express my gratitude. Additionally, I am thankful to my brothers Tangeni and Tulonga Erastus for their check-in chats, which have meant a lot to me, and to my little brother Tangi Erastus, whose innocence reminds me of the joy of exploration.

Although I cannot mention each person by name, I am truly grateful to everyone who helped make my thesis a reality. I am grateful for your support and collaboration.

This thesis is dedicated to Patricia Dinyando, my diligent fieldwork assistant and Khwedam translator, and my dear friend. I also extend my dedication to the spirits of my matriarchal ancestors, and most importantly to all the !Xun and Khwe San communities:

|Nganaku kaya !o kenjime ke ya !o juu. Kwe e makwa ma nge ||a ke me !aresi.

|An tcaka t'o om ti a kyava ma t'o om ||'yayimiki t'ako ti a llamka ma ti t'oo di kuri nta.

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ABS	Access and Benefit-Sharing
ACHPR	African Commission on Human and Peoples' Rights
AfDB	African Development Bank
BNP	Bwabwata National Park
DFID	Department for International Development
FGD	Focus group discussion
GPN	Global Production Network
GDP	Gross Domestic Product
GVC	Global Value Chain
ILC	Indigenous and Local Communities
IRDNC	Integrated Rural Development and Nature Conservation
IWGIA	The International Work Group for Indigenous Affairs
KII	Key informant interviews
MEFT	Ministry of Environment, Forestry and Tourism
NAD	Namibian Dollars
NTFP	Non-timber Forest Product
NGO	Non-Governmental Organisation
OPDMC	Office of the President's Division of Marginalised Communities
RVC	Regional Value Chain
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SDG	Sustainable Development Goal
SLA	Sustainable Livelihood Approaches
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation

USD	United States Dollar
ZAR	South African Rand

1 Introduction

For several decades, scholars have been exploring indigenous knowledge associated with non-timber forest products as a substance for sustainable rural development globally. The commodification of non-timber forest products (NTFPs), in particular, has gained considerable attention over the last four decades given its potential to improve the livelihoods of disadvantaged indigenous peoples and local communities, especially in the Global South (Martin et al., 2019; Chao, 2012; Marshall et al., 2006; Briggs, 2005). NTFPs can be defined as biological products that are not timber or wood products, derived from wild biodiversity in natural and inartificially altered settings (Sardeshpande & Shackleton, 2019). They encompass a wide range of products, including, medicine, fruits, nuts, resins, honey, insects, fungi and fibers. Despite their estimated annual value exceeding USD 50 billion in 2010, the commercialisation of NTFPs, which are primarily harvested in the Global South, largely benefits the Global North, while indigenous and local communities, particularly in Africa often receive minimal benefits (Morgera et al., 2014; Ten Kate & Laird, 2004). Remarkably, NTFPs from southern and east African regions generate revenues that surpass those from timber and arable agricultural products, offering potential benefits to the communities that engage in their harvesting (Shackleton & Pandey, 2014; Mogaka et al., 2001). However, many governments and other relevant organisations including funding agencies in the regions tend to overlook the role and potential of NTFPs in enhancing income generation and livelihoods for these communities (Shackleton & Pandey, 2014). There is a need to address this disparity and prioritise poverty reduction through NTFP value chain analyses.

Many African countries that produce NTFPs are predominantly integrated into low-skill and low-value segments of GVCs, which limits their opportunities for upgrading into technology-based and skill-intensive industries (Paremoer, 2018). As a result, RVCs have emerged as a complementary approach to GVCs and national policies (Paremoer, 2018). Still, the actual impact that both GVCs and RVCs have on value generated by local producers has been limited (Barrientos et al., 2016). For local NTFP harvesters integrated into GVCs, it is expected that GVC-linked firms offer opportunities for their long-term employment, regulated wages and local value creation, as well as ethical, fair trade, and improved labour conditions (Coe and Yeung, 2015; Goger et al., 2014; Shepherd & Stone, 2013). However, since these opportunities often involve low-skilled labour and conforming demands, GVCs, especially those governed

by a few lead firms or entrepreneurs, may not effectively distribute revenues with local actors (Te Velde et al., 2006). On the other hand, RVCs attempt to break dependence on dominant global markets, therefore potentially promoting local development, value addition and capture (United Nations Conference on Trade and Development [UNCTAD], 2020). Nevertheless, the complexity of establishing RVCs and regional market access challenges for local harvesters, especially for vulnerable indigenous communities, can hinder their value capture (UNCTAD, 2020). Therefore, legal frameworks play a crucial role in regulating trading within value chains, potentially enhancing value capture for indigenous communities (Schreckenberg et al., 2006).

While international frameworks like the Nagoya Protocol and BioTrade aim to ensure fair benefit-sharing for indigenous and local communities through ABS legislation, concerns persist regarding the enforceability of ABS clearinghouse mechanisms, primarily due to regulatory disparities among signatory countries (Bakouan & Sawadogo, 2023; McCune, 2018). The Nagoya Protocol's flexibility in allowing member countries to independently adopt ABS legislation introduces complexities when drafting and harmonising national ABS laws (Lee & Choo, 2022). This complexity poses particular challenges for many Global South countries that provide genetic resources, as they endeavor to develop these regulations without disrupting existing BioTrade activities (Suleman, 2017; Medaglia Cabrera et al., 2014).

In Namibia, the government began developing policies and regulations to assist community-based forest management shortly after the country's independence. The legislation emphasise the commercialisation of forest products to support rural livelihoods while simultaneously assuring conservation and sustainability through harvesting practice monitoring (Ministry of Environment, Forestry and Tourism, 2020). For instance, the Namibian government has been collaborating with national and international stakeholders since 1992, making it one of the first countries to participate in BioTrade, a United Nations (UN) initiative (Drews, 2020). BioTrade focuses on developing a global industry of the production of value-added NTFP commodities and services, promoting emerging market values for resource provider in over 20 countries across Africa, Asia, and Latin America, to potentially improve the livelihoods of vulnerable communities (Drews, 2020; Suleman, 2017). However, despite two decades of Namibia participating in the BioTrade initiatives, certain indigenous and local communities, particularly San people, continue to live under the poverty line with multiple challenges including lack of economic opportunities (National Planning Commission, 2018).

The San, recognised as earliest inhabitants and historical hunter-gatherers of Southern Africa, were initially sparsely distributed in the region with abundant natural resources (Suzman, 2001). After enduring centuries of genocide and persistent marginalisation, their regional population was reduced from 300,000 to under 130,000 (Chinsembu & Chinsembu, 2020; Hitchcock, 2020). Namibia has the second-largest population of the San, with an estimated total of about 38,000 (Dieckmann et al., 2014). The San, along with the pastoralist Ovahimba, Ovazemba, and Ovatwa groups, were granted indigenous status by the UN, and to a certain extent, the Namibian government (The International Work Group for Indigenous Affairs [IWGIA], 2023; Hitchcock, 2020). These groups in Namibia are also currently referred to as "marginalised communities" due to significant economic and social discriminations, necessitating targeted government support (UNDP, 2020). In recognition of their vulnerability, the national cabinet established the livelihood support programmes, under the Office of the Vice President of Namibia. The programmes are aimed at integrating them into socio-economic mainstreaming and empowerment initiatives aligned with Indigenous Peoples' rights to generate income and participate in various activities (Office of the Vice President, 2021). Despite these efforts, the San continue to endure absolute poverty, unmatched by that of any other ethnic group in the country (Nghitevelekwa et al., 2020; Dieckmann et al., 2014). These less effective measures prompt a need to re-evaluate and redirect strategies for poverty eradication among these indigenous communities.

While traditionally nomadic, the San developed extensive knowledge of their natural environments and historically sustained their livelihoods through foraging for food, medicine and bartering with neighbouring groups; however, this primary livelihood strategy has undergone significant transformations and restrictions (Dieckmann et al., 2014; Suzman, 2001; Widlok, 1999). Their knowledge, which cover a wide range of indigenous plants, has been appropriated through biopiracy and global commercialisation for over five decades without them equitably benefiting (Schroeder et al., 2020; Wynberg & Niekerk, 2018; Stewart & Cole, 2005). According to Hitchcock (2020), globalisation has negatively impacted the San, through land privatisation, tourism growth, changes in wildlife laws, expansion of extractive industries, and encroachment of commercial livestock industry, leading to reduced foraging land and local-level climate change. However, a few San communities have recently been granted partial user and management rights over natural resources through communal conservancies and community forests (Gragallo, 2020; Suzman, 2001). Therefore, the study critically evaluate the

potential of integrating San NTFP producers into higher-skill segments of value chains for enhanced income generation and livelihood improvement, particularly for Khwe and !Xun San harvesters in Bwabwata National Park and the Okongo Constituency.

While assessing the role of legislation for the inclusion of indigenous communities into value chains, the study aims to investigate the current and potential effects of commercialised NTFPs associated with San indigenous knowledge. It also aims to understand the factors that contribute to the limited benefits of their integration into regional and global NTFP value chains. By investigating these factors, the study contribute to a comprehensive understanding of indigenous communities' interaction with modern economic systems and identify potential avenues for equitable and sustainable development. This is achieved by addressing the following key research questions:

I. How do the commercialisation of NTFPs and the integration of indigenous peoples and their knowledge into GVCs and RVCs impact their livelihoods?
II. To what extent do international and national legislation ensure equitable profit sharing from NTFPs between their user industries and producing communities?
III. What are the requirements and challenges for establishing enabling structures to improve NTFP value capture for the San harvesting communities?

To address these questions, the dissertation proceeds to delineate fundamental concepts essential to the study. This involves exploring literature and theoretical backgrounds of prior research related to this study, linking the concepts of indigenous knowledge, indigenous peoples, value chains (both GVC and RVC), and sustainable livelihoods for contextualisation and to establish the theoretical basis. Therefore, this chapter on conceptual framework, essentially examines relevant strategies of enhancing value capture for indigenous and local communities who have been historically using NTFPs associated with their indigenous knowledge prior to their regional and global commercialisation

Chapter 3, which focuses on research methodology, describes the research design, population and sampling procedures, data analysis, as well as ethical considerations for this thesis. The chapter discusses the mixed-methods approaches employed for data collection and analysis through a case study, which integrates various data collection techniques, including semi-

structured interviews, focus group discussions, participant observations, and secondary statistical data.

Transitioning into the core of the thesis, chapter 4, 5 and 6 are standalone articles, each with a focus on one main research question. In particular, Chapter 4 evaluates the significance of commodified NTFPs and their potential to improve the livelihoods of the !Xun and Khwe San harvesters in Bwabwata National Park (BNP) and Okongo Constituency, comparing the livelihood impacts of the harvesters who are integrated into GVCs with those in RVCs. In Chapter 5, the focus shifts to analysing the effectiveness of the legislation on BioTrade, and Access and Benefit-Sharing (ABS) in regulating equitable profit distribution between NTFP users and producers, especially the vulnerable San communities, who harvest products, such as Devil's Claw (Harpagophytum spp.) and possess the traditional knowledge associated with their medicinal uses. Notably, Namibia is the world's primary supplier of this resource, mainly exporting to France and Germany, where hundreds of millions American Dollars are earned from its use. The last core chapter, Chapter 6, explores factors and challenges that influence the establishment of enabling structures, including processing facilities and cooperative formation, to improve value capture from NTFPs for San communities and thereby ultimately fostering sustainable livelihood opportunities.

Finally, Chapter 7 provides the synthesis of the study, connecting the empirical findings to the conceptual discussions and highlighting the overall scientific contributions. It also presents a conclusion, and offers practical recommendations for relevant stakeholders and future researchers.

2 Conceptual framework

In this chapter, the conceptual framework is presented. This serves to both guide and structure the thesis while clarifying concepts surrounding this research study. As such, the fundamental definitions in the context of the commercialisation of NTFPs for income generation among indigenous and local communities are discussed. The study further critically assesses the relevance of decolonising indigenous knowledge due to biopiracy and knowledge appropriation. These practices may resonate with colonial structures, often involving minimal recognition or compensation for indigenous and local communities linked to the knowledge, while the control over trade and profits remains in the hands of external actors, particularly European importers and traders. Subsequently, the study evaluates how the commercialisation of indigenous knowledge-based NTFPs through the GVCs and RVCs could be improved to ensure equitable benefits and restore justice for indigenous and local communities, through various value enhancement strategies. Finally, the chapter discusses both internal and external factors that affect indigenous communities in enhancing value capture from commercialised NTFPs as a result of globalisation, with the potential to promote sustainable livelihoods and rural development.

2.1 Defining indigenous knowledge and indigenous peoples

The concept of indigenous knowledge can be dynamic and contextual; therefore, it often differs from research disciplines and geographic areas. Indigenous knowledge may be referred to by various terms, such as traditional knowledge, traditional indigenous knowledge (or indigenous traditional knowledge), local knowledge, or traditional sciences (Bruchac, 2014; Lanzano, 2013; Senanayake, 2006). In one of the most comprehensive definitions, Eyong (2007) refers indigenous knowledge to "a set of interactions between the economic, ecological, political and social environments within a group or groups with a strong identity, drawing existence from local resources through patterned behaviours that are transmitted from generation to generations to cope with change" (p.122). Nooyo (2007) extends the definition of indigenous knowledge to encompass the experience that people in a given community have developed over time, based on their activities such as agriculture, food preparation, health care, environmental conservation, education and training. It incorporates specific practices on the use of traditional food and ethno-botanical of medicinal plants (Siambombe et al., 2018). Thus, indigenous knowledge is prominently used through non-timber forest products as sources of medicine, food and diet among others.

It is crucial to note that local indigenous knowledge holders mostly use extensive territories, enabling them to accumulate experience across large areas and extended periods of time. This is frequently unattainable or costly within conventional scientific knowledge (Asselin, 2015). The ownership of indigenous knowledge is often not clearly defined due the fact that its development and diffusion within the societies is influenced by communal norms, rather than legal frameworks that would separate the knowledge from its community or cultural origin (Bag & Pramanik, 2012, p.277). This implies that indigenous knowledge is often only managed collectively within communities, making it not only readily available but also susceptible to appropriation.

Indigenous knowledge is mainly associated with indigenous peoples. However, there are complexities involved in defining indigenous peoples, especially after the definition was internationalised to communities beyond the Americas. The concept was initially coined to refer to First Nations peoples, whose indigenous status in different regions of the Americas was unquestionable (Sanders, 1999). The definition was then expanded through international discourses in politics, law, and anthropology, drawing comparisons of indigenous peoples' structural positions within modern nation-states (Saugestad, 2001). Consequently, the term gained global preference over other terms, such as “tribes” (Béteille, 1998).

Defining indigenous peoples in the African context can be contested, with evolving meanings over time. Ndahinda (2014) explains that the term was used by the European colonisers in the mid-19th century to refer to precolonial African inhabitants as the original people of Africa. This was based on colonial geo-politics. However, indigenous identity on the continent has developed more recently into a legal framework to support and empower communities subjected to marginalisation (Ndahinda, 2014). With this relatively recent definition, indigenous peoples are frequently described as communities that have resisted historical injustices, such as forced evictions from their ancestral lands, exploitation for tourism and commercial gain, and/or the appropriation of their Indigenous knowledge (IWGIA, 2023). To mention but a few, these communities include the San of Southern Africa, Pygmies of Central Africa, the Maasai and Hadzabe in East Africa, and the Tuareg and Amazigh of North Africa (Shizha, 2013). According to African Commission on Human and Peoples’ Rights (ACHPR) and IWGIA (2006), applying the concept of indigenous should specifically address human

rights challenges across various socio-economic systems, encompassing the livelihoods of hunter-gatherers, pastoralists, as well as some small-scale farmers.

Despite the efforts of addressing discrimination and marginalisation of some of most vulnerable communities in African by granting them indigenous status, indigenous peoples' livelihoods remain threatened, with many still living in poverty.(Ndahinda, 2014) These communities not only face limited access to education but also experience dispossession of their lands and resources, compelling them to forsake traditional ways of life (Eversole, 2005). Over one million square kilometres of African forests, savannahs, pasturelands and croplands have been converted to protected areas, which are often perceived as a strategy for preserving the traditional land-use for indigenous people (Schmitz et al., 2012; Alarcón – Cháires, 2005). However, in practice, the management of these areas sometimes neglect or even restrict traditional activities of the communities, who have historically contributed to the conservation (Schmitz et al., 2012). Drawing practical experience, the traditional land-use activities that have been transformed into wildlife game reserves in Namibia, Zambia, Zimbabwe, Tanzania and Kenya over two decades have had an overall positive impact on involved local communities (Nattrass, 2021; Sakuda, 2004). However, the major challenge in these countries is that their government agencies are reluctant to grant these communities adequate rights over wildlife and its economic value (Nattrass, 2021).

2.2 Commodification of indigenous knowledge utilising plant resources

The transformation of indigenous knowledge, particularly that associated with the use of plant resources, has seen a shift from complete traditional communal subsistence use by indigenous and local communities to being integrated into profit-generating regional and global markets. Globalisation has accelerated the commodification of indigenous knowledge through international trade (Connell et al., 2017; Leonti & Casu, 2013). This transition of indigenous knowledge into a marketable asset has raised complexities concerning its nature as capital, its position within property commons, and its relationship with intellectual capital discourse (Orozco & Poonamallee, 2014). Notably, the knowledge regarding medicinal plants within indigenous communities has gained immense significance, becoming a crucial source of modern medicines and driving demand in sectors like pharmaceuticals, cosmetics, and nutraceuticals (Bag & Pramanik, 2012). This resulted in its relevance in health, food, lifestyle, and livelihood to increase exponentially. For instance, in pharmaceutical sectors, the herbal

medicine market, was estimated at US$15 billion in 2015, with projections of reaching US$ 115 billion by 2023 and US$5 trillion by 2050 (Carvalho, 2020; Zarsuelo et al., 2018). However, this market growth and increased demand raise concerns when indigenous communities are not fully integrated into value-generation processes and when their intellectual property rights are unrecognised. While the Global South countries rich in NTFPs have increasingly become targets for resource exploitation by companies from the Global North, this exploitation often results in the exclusion of indigenous people from profits generated (Newing, 2009). The increased demand could also lead to overexploitation, jeopardising the sustainable and local use of natural medicinal products by indigenous and other local communities.

Meanwhile, up to 90% of Africa's population, depend on traditional medicines for primary healthcare, but due to their increased global demand, this dependency has been significantly affected, simultaneously threatening intellectual property rights (Umaru et al.,2020; Wachtel-Galor & Benzie, 2011; McLaren, 1999). The loss of access to the resource and land rights further exacerbates the situation, which necessitates for protective measures at both national and international levels. At national level, policies aligned with local needs of indigenous communities should be prioritised, while internationally, basic framework to regulate the use of indigenous knowledge, preventing appropriation and ensuring equitable benefit sharing should also be implemented (Oviedo et al., 2004). This would potentially safeguard indigenous knowledge, its practicality in management and challenging appropriation as well as ethics in intellectual property rights (Orozco & Poonamallee, 2014).

The commercialisation of indigenous knowledge seems to be so far unbeneficial for indigenous people. Many indigenous communities face extreme poverty, intensifying the bargaining power imbalance between them and companies using their knowledge (Bavikatte et al., 2010). Even in cases where market access has created income-generating opportunities for indigenous people, it still poses the challenge of preserving traditional sustainable practices, cultural, spiritual, land rights, and customary values integral to their indigenous knowledge (Magni, 2016; Bavikatte et al., 2010). To address this, a model of innovative indigenous entrepreneurship that does not require formal education could produce long-term solutions; therefore, adopting an integrated approach that blends indigenous and modern knowledge systems is crucial to create user and ecosystem-friendly, low-cost, and sustainable outcomes

(Onwuegbuzie, 2009). In sum the commodification of indigenous knowledge through plant resources presents both opportunities and challenges, particularly in reshaping the rural livelihoods of indigenous communities.

2.3 Framing sustainable livelihoods and development

Defining sustainable livelihoods and development carries significant importance within the context of commercialising indigenous knowledge-based NTFPs to reducing poverty among rural communities. This significance particularly arises from the fact that sustainability forms a pillar in the implementation of the 17 universal Sustainable Development Goals (SDGs) established by UN member states. These goals frame relevant policies aimed at addressing global challenges by, including poverty, inequalities, responsible consumption and production resources, for social, economic, and environmental progress in present societies while fostering prosperity for future generations (Hák et al., 2016). All the UN member states have agreed to cooperate in order to achieve the SDGs by 2030.

The concept of sustainable livelihood is intertwined with a diverse set of key elements that encompass broader discussions regarding the nexus between poverty and the environment (Scoones, 1998). Initially introduced by the Brundtland Commission, also known as the World Commission on Environment and Development, sustainable livelihood emerged as a link between socioeconomic and ecological considerations, forming a coherent and policy-relevant framework (Krantz, 2001). Subsequently, it was expanded within the context of Agenda 21 during the 1992 United Nations Conference on Environment and Development (Krantz, 2001). To establish a definition of sustainable livelihood, it is essential to first grasp the essence of what constitutes a livelihood:

> "A livelihood comprises the capabilities, assets (including stores, resources, claims, and access), and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, enhance its capabilities and assets, provide viable opportunities for the next generation, and contribute net benefits to other livelihoods at local and global levels in both short and long terms" (Chambers & Conway, 1992, p.7).

In simpler terms, sustainable livelihood interconnects three crucial concepts: capability, equity, and sustainability (Solesbury, 2003). Capability is the ability of individuals to live with adequate opportunity to consider other options; it encompasses valuable actions and states of well-being, such as adequate nourishment, good health, dignity and community engagement (Mcneish & Eversole, 2005; Sen, 1993). On the other hand, equity seeks to eliminate unjust disparities while respecting and facilitating the unique factors that differentiate individuals (Damman, 2005). This implies fair distribution of benefits, costs, public funds, resources, and spaces, including natural resources (Lele & Jayaraman, 2011). Meanwhile, sustainability is the efficient and equitable allocation of resources within and across generations, operating within the confines of a finite ecosystem (Mensah, 2019). Sustainability could also denote conserving the natural forest rather than replacing them with alternative forms of landscapes (Lele & Jayaraman, 2011; Cruickshank et al., 2011).

Recently, the United Nations Development Programme (UNDP, 2017) refined the aforementioned definition, stating that the livelihoods framework (Figure 2-1) encompasses skills, assets (material and social), and approaches used by individuals and communities for survival. Integrating these definitions reveals that sustainable livelihood approaches (SLA), predominantly target the subsistence analysis of vulnerable communities, especially in rural areas of the Global South countries, where poverty and unsustainable resource exploitation are prevalent. The development of SLA is fundamental to strategy for pro-poor policy formulation, which emerged in research literature during the 1980s, gaining momentum in 1997 (Solesbury, 2003). SLA therefore adopt a holistic analysis of livelihoods, identifying strategic interventions in poverty reduction (Krantz, 2001). This is to address the root causes and solutions to poverty, encompassing the necessary resources, including physical, natural, social, and human capital alongside factors such as income, health, education, and vulnerability (Landell-Mills and Porras, 2002). To provide an analytical framework, SLA developed the sustainable livelihood framework, which functions as a people-centered checklist and clarifies the subtleties, primary influences, and interactions affecting livelihoods in poverty (Globalisation and Livelihood Options of People Living in Poverty, 2008; Department for International Development [DFID], 1999):

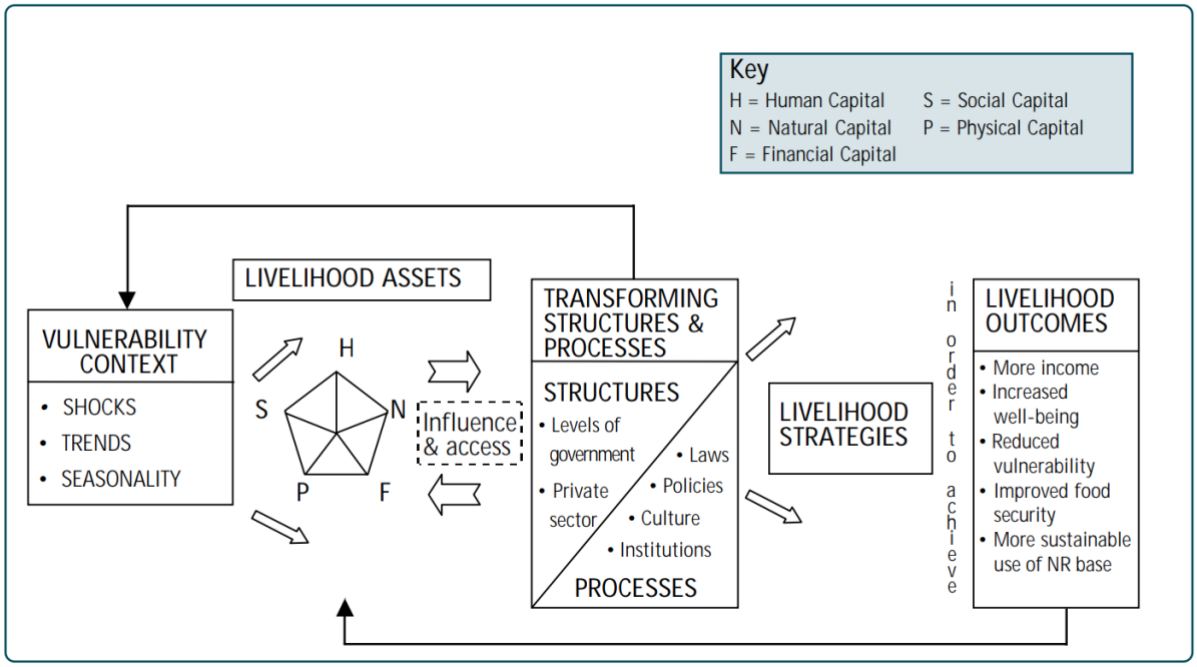

Figure 2-1. *Sustainable livelihood framework. Source: DFID, 1999*

Meanwhile, sustainable development entails collaborative efforts across all levels, involving indigenous peoples with diverse knowledge systems, to safeguard the planet's life support systems and fulfil present developmental needs, mindful of future generations (Eyong, 2007). A sustainable approach requires a longer-term development through value capture with more cautious policy initiatives to grow home-based lead firms and/or strategic partners through leveraging on the emerging home market (Coe and Yeung, 2015). Development that is primarily based on low cost and labour-intensive export orientation might be useful for the foundation of plugging into the structural mode of assembly platforms, but this is unlikely to be sustainable (Coe and Yeung, 2015). Consequently, development initiatives that leverage indigenous knowledge, including "non-scientific" practices overlooked by scientific researchers in the Global South countries, present innovative and sustainable models for development, aligning with ecological and social soundness (Senanayake, 2006). For instance, the successful commercialisation of forest products could significantly enhance the livelihoods of rural communities while ensuring the sustainable management of forest resources. This success hinges on the integration of indigenous producers into value chains spanning national, regional and global markets, ensuring a consistent supply to meet long-term demand (Schreckenberg et al., 2006).

Communities that depend on forests or biodiversity, the nexus of biodiversity (natural capital), indigenous knowledge (social capital), and the enabling environment (consisting of rules and market forces) promote sustainable livelihoods (Xu & Mikesell, 2003). This complex interaction demonstrates how biodiversity, including medicinal plants, local seeds and food, is influenced by indigenous knowledge, therefore fostering an economy rooted in the sustainable utilisation of biological resources (Treakle & Krell, 2014; Jianchu, 2003). As such SLA establishes a connection between communities and a conducive setting, which influences the outcomes of livelihood strategies (Serrat, 2017). Xu (2003) presents a formula to quantify sustainable livelihood:

$SL = B \times IK \times EP$

Where:

SL is Sustainable livelihoods

B is Biodiversity

IK is Indigenous Knowledge

EP is enabling environment

Several empirical studies explore the significant roles of sustainable livelihoods and indigenous knowledge in formulating and implementing sustainable development policies. In a study conducted in Malawi, indigenous knowledge is applied in various domains, including traditional medicines, social management, and crop protection systems. Practices such as utilising the Msangu tree species (*Faidherbia* sp.) to enhance soil fertility are observed, while the knowledge of medicinal herbs is applied across cultures to address diverse health concerns (Nooyo, 2007). Additionally, the SLA is employed to assess political and socio-economic settings, determining optimal resources for sustainable outcomes (Paksi & Pyhala, 2018). However, in many Global South countries, particularly in Africa, indigenous knowledge systems have long been overshadowed by Western theories, despite their potential to address the continent's development challenges (Noyoo, 2007; Senanayake, 2006). Therefore, to find alternative solutions to current pressing issues, such as reducing poverty for local sustainable development, it is crucial to explore the potential, value, and contribution of indigenous knowledge-based resources (Owuor, 2008).

2.4 The global production networks framework

Since its initial inception over three decades ago, the global production network (GPN) has been transformed to analyse the historical livelihood pathways, the challenges posed by power dynamics associated with uneven developments, and their effects on value creations and social relations among communities in rural areas (Vicol et al., 2019). Coe and Yeung (2015, p.1) define the GPN as an organisational arrangement comprising interconnected economic and non-economic actors, coordinated by a global lead firm, and engaged in producing goods or services across multiple geographical locations for global markets. This perspective views individuals, households, communities, firms, states, among others, as central actors within the economic network system. This study therefore employs GPN theoretical framework to explain power dynamics and historical injustice around the commodified products derived from indigenous and local communities. This analysis is triangulated with the decoloniality theory, which recognises the relevance of indigenous knowledge in empowering communities in the Global South (Ndlovu-Gatsheni, 2015). While the GPN provides descriptive patterns of imbalanced development in modern global economy (Coe & Yeung, 2015), the decoloniality theory emphasise local and transformative alternatives for development strategies in post-colonial and marginalised societies (Ndlovu & Makoni, 2015).

2.4.1 Distinguishing between GPNs, GVCs and RVCs

Income generation for local livelihoods may be significantly influenced by global economic inequalities and the structural development of production networks. The GPN, which transcends linear approach of value chain analysis (Table 2-1) fundamentally transforms the production and application of knowledge, with far-reaching implications for the theory of economic evolution (Yeung & Coe, 2015; Mahutga, 2012; Ernst & Kim, 2002). It offers contemporary theoretical viewpoints (Figure 2-2) to understand the reasons and mechanisms behind the diverse organisation and coordination of production networks across industries, sectors, and economies (Yeung & Coe, 2015). The GPN framework extends the GVC approach, which examines the uneven economic development of production activities that involve rural households, especially in the Global South (Vicol et al., 2019). According to Yeung and Coe (2015), GVCs focus on the value-added activities within the lead firm and the geographic location of economic activities to determine economic globalisation. However, this approach, concentrate on the national scale, paying little attention to local communities and their organisation, as well as how they are integrated into and influenced by transnational

production systems (Coe et al., 2004). Therefore, understanding the role of non-firm institutions in shaping value creation, enhancement, or capture through GPN is crucial, particularly in the context of indigenous people and other local communities.

	Global Commodity/Value Chains (GCC/GVC)	Actor–Network Theory (ANT)	Varieties of Capitalism (VoC)	Global Production Networks (GPNs)
Disciplinary background	Economic Sociology Development Studies Industry Studies	Sociology of Science	Political Science International Political Economy	Economic Geography International Political Economy
Object of enquiry	Inter-firm networks in global industries	Heterogeneous networks of association between human and non-human actors	Variations in national institutions and systems of capitalism	Global network configurations and regional development
Orienting concepts	Value-adding chains Governance models Organizational learning Industrial upgrading and rents	Relational networks Human and non-human actants Immutable mobiles Topological surfaces	Organization of production regimes Market-related institutions Modes of coordination	Value creation, enhancement, and capture Corporate, collective and institutional power Societal, network and territorial embeddedness Strategic coupling
Intellectual influences	World systems theory International business Trade economics	Sociology of science Poststructuralism	Classical political economy Institutionalism	Relational economic geography GCC/GVC, ANT, VoC

Table 2-1. *Theoretical background of the GPN approach. Source: Coe & Yeung, 2015, p 13.*

Although GPN and GVC are key concepts complementary to each other in globalised production, playing similar roles in analysing various value chain actors in global, regional, national and local economic development, they are distinct in their applications (Horner & Nadvi, 2018). A key difference may lie in their focus: GPN encompasses both intra-firm and inter-firm transactions, along with diverse coordination forms of multinational corporations with subsidiaries, affiliates, joint ventures, subcontractors, suppliers, service providers, and partners; it maps both the vertical and horizontal linkages between economic actors (United Nations Industrial Development Organisation [UNIDO], 2004; Sturgeon, 2001). Conversely, GVC maps the vertical sequence of events leading to the delivery, consumption, and maintenance of goods and services, outlining the connections that transform raw materials into final products (Horner & Nadvi, 2018; Sturgeon, 2001). Global value chain analysis, however, mainly focuses on the strategic global distribution of value-added activities and opportunities of specific product value chains (UNIDO, 2004). In essence, when analysing GPN and GVCs, it is important to note that GPN is often linked with flagship firms while GVCs are connected to specific products or services; therefore, GPN can engage various GVCs, while a GVC can also comprise multiple production networks (Hernández et al., 2014, p. 22).

Coe and Yeung (2015) outline the conditions and capitalist necessities that fundamentally drove the emergence of GPNs/GVCs as principal organisational features within the global

economic system. Initially, industrial capitalism was confined within national borders through Fordism, characterised by self-contained multi-domestic structural industry during the early 20th century; this was followed by "Second Industrial Divide," which significantly transformed the economies of North America and Western Europe (Coe & Yeung, 2015, p. 3). This shift is comparable to a more recent regional development, the RVCs. Although the RVCs lack a clear conceptual differentiation from GVCs, their empirical evidence on regional development outcomes suggests that regional integration, rather than global factors, has been the driving force of these outcomes (Hulke, 2022; Krishnan, 2018). Regional value chains have been shaped by improved regional logistics and trade agreements in the Global South, leading them to seek independent development paths away from major GVC regions since the 21st century (Pasquali et al. 2020; Horner & Nadvi, 2018; Drake-Brockman & Stephenson, 2012). For African trade markets specifically, RVCs hold immense potential for local economic development, necessitating national governments to facilitate broader access for local entrepreneurs by improving infrastructure, energy reliability, and cross-border mobility for trade (Nyadera et al., 2022)

Despite the recognition of the expansion of RVCs, understanding the driving factors for their dynamics remains understudied (Pasquali et al. 2020). According to Song et al. (2021), RVCs are a result of GVCs undergoing a substantial restructuring, wherein industries from various countries are taking different approaches to engage in GVCs, including proactive integration. Meanwhile, Krishnan (2018) applies spill-over effects and strategic diversification to clarify how GVC suppliers strategically diversify into RVCs, participating in multiple value chains with distinct governance structures to serve both Global North and South consumers. Hence, the classification of these structures reveals all of their differences. Following the UN's classification of countries into the Global North and South, RVCs can be trade arrangements such as North–North, as seen within the European Union, South–South, as as observed within Africa, or even North–South, exemplified by USA and Mexico (Horner & Nadvi, 2018). With advancements in network approaches like the GPN, imposing a container-like framework on RVC analyses might be seen as regressive; thus, acknowledging the linkages to actors beyond the direct scope of RVC is crucial (Hulke, 2022)

2.4.2 Applying the GPN to genetic resources from the Global South

Various studies have been conducted on GPNs in relation to the commercialisation of genetic resources from the Global South, such as medicinal and agricultural commodities, as well as tourism-related activities. In their Indian case study, Pauls & Franz (2013) applied the GPN framework to analyse the hidden embeddedness of intermediaries and the complexities of on-the-ground governance processes. This included exploring the potential of non-governmental organisations (NGOs), cooperatives and producer companies as catalysts to unveil obscured structures within illegal trade, by identifying structures and entities within medicinal plant production network that the potential rural economic development. According to Pauls & Franz (2013), not only do intermediaries exploit medicinal plant producers, leaving them unable to enhance their livelihoods due to meagre income generation, but trading in protected medicinal plants also frequently occurs illegally. This creates challenges across local, regional, and global organisational structures and institutions, which in turn influence the capacity of various actors to contribute value within the GPN. Intermediaries, using their strong societal and network connections, bypass state institutions, frequently inflate prices of unchanged products to maximise profits, leading to local producers receiving a mere fraction (5–20%) of the price paid by final stakeholders at the processing level for the plant material (Pauls & Franz, 2013).

Meanwhile, Neilson et al. (2020) examined the value creation of Indonesia's cocoa industry through a multi-sectoral network, both at the regional and global levels, utilising the GPN Framework. Despite not having the most suitable climate for cocoa cultivation like Ivory Coast and Ghana, which are the world's top cocoa bean producers, Indonesia, ranking third, achieves the highest yields and primarily focuses on cocoa grinding due to increasing domestic chocolate product demand (Beg et al., 2017). However, the presence of chocolate manufacturing within the country was overshadowed by global lead firms in the branded chocolate sector (Neilson et al., 2018). Cocoa and cocoa-derived products like chocolate, cocoa powder, and butter displayed intricate engagement points between lead firms and key value-capture nodes, forming complex supplier arrangements with numerous ingredient outputs (Neilson et al., 2018). Exploring the GPN within the Indonesian cocoa-chocolate sector highlighted the interplay between competitive dynamics and risks across lead firms engaged in cocoa farming, semi-finished cocoa processing, branded product manufacturing, and sales points (Neilson et

al., 2018). These connections significantly influence the network's nature and the distribution of value among chain actors.

In South Africa, a case study on flower production critically examined the institutional contexts of GPN through a postcolonial perspective. This study assessed the sustainable harvesting practices of Fynbos (‘fine-leaved bush’) flower species, which hold commercial demand on both regional and global scales (Hughes et al., 2015). The roles of colonial encounters were found pivotal in the commoditification of indigenous Western Cape flora. Both conservation efforts and the establishment of markets for fynbos were rooted in the concept of the Cape Floral Kingdom, originating from British imperialism and elite colonial settlers (Hughes et al., 2015). Hughes et al. (2015), further indicated that the NGO Flower Valley Conservation Trust has been collaborating with botanists, conservationists, and NGOs since 1999 to enhance fynbos conservation while empowering local communities to profit from natural resources and develop their skills within the farming and conservation sectors. This underscores the significance of the GPN in reevaluating value chains and production networks from historical and geographically sensitive perspectives.

Moreover, the application of the GPN framework to Namibia's agro-forestry products and services, and their distribution on both local and global scales, appears to be limited. However a relevant study by Kalvelage et al. (2020) focused on GPN analysis, specifically evaluating revenue generated through tourism that remained within the Zambezi region and how the established conservancies as local institutions enable communities to capture value from tourism. Their findings highlighted that approximately 20% of the generated value in the conservancies value was retained locally. Conservancies as pivotal actors in the GPN, enabled local communities to be involved in resource production, mediating strategic coupling processes, and leveraging regulatory and bargaining power to capture value (Kalvelage et al., 2020). This suggests that with such effective local institutions, communities could effectively generate more value from tourism-related activities and services, leading to systematic profits and sustainable livelihoods.

2.5 Decolonising indigenous knowledge through value chains

It is crucial to recognise the economic value of indigenous knowledge practices through which natural resources are commercialised and to fairly compensate indigenous peoples as holders

of such knowledge. Since the 19th century, global power dynamics, cultural hierarchies and colonial systems have allowed Western companies to appropriate and exploit indigenous knowledge, especially its economic values through the colonial division of labour (Oguamanam, 2008). Although this is frequently disputed, it is evident that some indigenous knowledge is used for profit generation by multinational corporations, particularly pharmaceutical companies (Connell, 2016). This arises debates over intellectual property. To rectify these injustices, the need to decolonise indigenous knowledge through relevant structures, such as value chains, has become crucial. This urgency has intensified due to the prolonged dominance of Eurocentric paradigms and capitalist sciences (Grosfoguel, 2007).

The concept of decolonisation encompasses various definitions, interpretations, aims and strategies (Bhambra, et al., 2018). Traditionally, decolonisation referred to the process through which dependent territories achieved constitutional independence and gained recognition as sovereign states on the international stage (Von Bismarck, 2012). This definition, which emerged in the 1930s, however, only partially addresses the consequences and solutions related to the appropriation of indigenous peoples' knowledge and resources. Tuck and Yang (2012) emphasise that decolonisation is not merely a metaphor but rather a civil and human rights-based endeavor for social justice, which seeks to rectify historical injustices such as repatriating indigenous land and livelihoods, acknowledging their disruption of land relationships.

Contrary to expectations after Global South countries gained their constitutional independence, the expansion of globalisation seems to have rather reshaped the context of exploitation, particularly in the extraction of resources. Gradin (2016) emphasises on the need to critically rethink of the concept of "value", particularly in the GVC framework, highlighting its controversial nature and political dimensions by relying on mainstream economic and business perspectives, therefore proposing a broader concept of value inspired by decolonial and critical viewpoints. For Africa, in particular, decolonial thinking of value should address systems that predominantly serve western inhabitants and descendants (Bulhan, 2015). According to Posthuma & Rossi (2017), the prevalence of exploitative labour has not declined but taken on new forms, which presents a challenge to revise and adapt the relevant regulatory frameworks to align with conditions in a GVC. Tuck and Yang (2012) exemplify how in recent times indigenous peoples experienced internal and external economic imperialism through forced relocations, contemporary forced labour, and natural resource

extraction. Moreover, the problems with labour standards in GVCs are particularly evident in the outsourcing of labour-intensive production in the Global South, where reports of abusive working conditions, such as those in garment manufacturing for well-known clothing brands, have been produced since the 1990s (Posthuma & Rossi, 2017).

One approach to address the unjust exploitation of indigenous knowledge by multinational corporations, which leads to profit generation without benefiting local communities, is to develop and implement legislation involving intergovernmental bodies and stakeholders, including indigenous community representatives. This legislation would regulate the use of genetic/biological resources associated with this knowledge and ensure the distribution of both monetary and non-monetary benefits between the producing communities and global users. The Nagoya Protocol, which pertains to access to genetic resources and the equitable sharing of benefits arising from their utilisation (commonly referred to as ABS), along with the BioTrade initiative, represents two legislative efforts introduced over the past three decades (Ruiz Muller et al, 2017). However, effectively implementing benefit-sharing through this legal framework has proven challenging due to the intricate integration required of indigenous knowledge, innovation, technology, research, biodiversity conservation, economic development, and equity for regulation (Ruiz-Muller et al., 2017; Shikongo, 2014; Wynberg, 2006). Consequently, indigenous and local communities participating as producers in GVCs (and RVCs) have yet to significantly or equitably benefit from such resource utilisation.
Essentially, decolonisation involves not only achieving independence and reducing Western influence in the Global South, particularly in Africa, but also establishing decision-making structures for holistic for rural livelihood development.

2.6 (Re)valuing forest products for indigenous communities

The practice of traditional community-based forest management, rooted in local and indigenous systems, has historically been for subsistence purposes, such as food, medicine, and raw materials rather than profit generation (Bayrak & Marafa, 2016). On the other hand, the modernly introduced forest management system initially disallowed the participation of local communities in forest management, which affected the subsistence, as well as possible opportunities to generate tangible economic benefits (Mogaka et al., 2001). However, the recent incorporation of indigenous communities and support of entities (such as government and NGOs), offer possibilities to formalise forest use rights to communities for income

generation, potentially shifting the power dynamics in favor of these communities (Bayrak & Marafa, 2016). The livelihoods of indigenous people may be improved by valuing local forest products and integrating local producing communities into economic markets, including global trade.

According to Campos Arce (2019), global forest loss has recently slowed, indicating the positive impact of involving local communities in forest manangement. In 2007, the Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiative began to combat climate change by having Global North countries compensate Global South countries for forest conservation, receiving carbon credits in return (Bayrak & Marafa, 2017). Despite the limited definition, REDD+ aims to protect against human rights violations and adverse effects on local forest-dependent communities and indigenous peoples (Agrawal et al., 2011). However, REDD+ also fosters the global commodification of ecosystems and 'neo-liberalisation of nature,' altering conservation motives toward monetary gains (Corbera, 2012; Bayrak & Marafa, 2017). This shift affects local and indigenous communities, pushing toward market-driven conservation, while many perceive forests holistically beyond just monetary value (Bayrak & Marafa, 2017). Limited access may negatively impact forest-dependent communities, including indigenous groups, through insecure land tenure and resource rights. REDD+ could potentially harm local communities, preventing subsistence use and causing unequal benefit sharing (Bayrak & Marafa, 2016).

While it is not always feasible to quantify the income value of forest, especially due to the nature of trade, which is often beyond the reach of government statisticians for records, it is reported that both non-timber and timber products contributed around USD 117 billion to the global economy in 2015 (Campos Arce, 2019; Broad, et al., 2014). Out of this estimated amount, high-income countries accounted for 41%, while low-income countries accounted for only 5%, which translates to a national gross domestic product (GDP) contribution of 0.1% and 1.4%, respectively (Campos Arce, 2019). NTFPs, which were once primarily consumed for subsistence are increasingly being sold at local, regional and global markets. In the Asia and Pacific regions, in particular, an estimated population of 200 million to 1 billion depend on NTFPs for income (Van den Boog et al., 2018; Broad et al., 2014). This demonstrates the relative importance of forestry in Global South countries and their dependence on forest products; yet, the value captured remains limited.

In most Southern African countries, the value of NTFPs far exceeds that of timber products and agriculture (Shackleton & Pandey, 2014; Mogaka et al., 2001). Such significance has perpetually transformed the assessment of forest values and their developmental potential, driving substantial progress in enterprise development, marketing, and some income generation among forest dwellers (Wollenberg, 1998). Simultaneously, however, globalisation and the global demand of forest products, as well as factors, such as climate change, pose significant challenges for many of these communities to rely on value capture for their livelihoods (Bayrak & Marafa, 2017). This often leaves local communities that are depended on the forest products vulnerable, with little to no economic benefits, negatively affecting their livelihoods.

The safeguarding of indigenous peoples' access rights to harvesting NTFPs while minimising ecological harm; this could be through communal land titles or collaborative management agreements (Van den Boog et al, 2018). Indigenous communities, along with other local communities, collectively manage over 30% of global forests (deMarsh et al., 2014). To ensure equitable benefit with these communities, commodified NTFPs should involve a comprehensive understanding of the value chain, identifying key actors receiving the largest portion of the consumer price (Haugen, 2011). This approach would evaluate whether indigenous communities receive a fair value out of the commercialisation. Pasiecznik et al. (2015) recommend that indigenous communities should form producer organisations to strengthen the economic value of their forest products. This would enhance their engagement with governments and funding organisations, market access and leadfirms.

As recommended by Pasiecznik et al. (2015), indigenous local producers should form producer organisations to increase production scale, enhance their market access and their bargaining position in these markets, ultimately strengthening their products' economic value. This would facilitate co-operation with governments, service providers, development organisations and companies to communicate with a multitude of individual operators. Furthermore, decentralisation and devolution of state powers can improve forest product value for indigenous communities by providing technical support, business development and financial services, and by simplifying administrative procedure (Mogaka et al., 2001; Pasiecznik et al., 2015). In essence, collective action, coupled with increased local decision-making power, could lead to improved economic benefits from NTFPs for indigenous communities.

3 Research Methodology

This chapter discusses the research methods used to conduct this study, which aims to evaluate both the current and potential impacts of commercialised NTFPs on the livelihoods of indigenous San harvesters from Bwabwata National Park and Okongo Constituency in northern Namibia. The study was carried out using a mixed-methods approach. This approach draws inspiration from similar research conducted in indigenous communities in South Africa, Brazil, and the Philippines (Schroeder, 2020; Matias et al., 2018; Morsello et al., 2012;). By integrating qualitative and quantitative methods, the research identifies the types of NTFPs collected by the San communities and their integration into the market through RVCs and GVCs. As a result, it assesses the economic and social contributions of NTFPs to the livelihoods of the harvesters' households. Moreover, with the chosen method, the research evaluates the effectiveness of implementing ABS regulations on genetic resources (including NTFPs), and also identifies the essential requirements for successful value enhancement among the San who serve as both producers and holders of associated indigenous knowledge. While specific data collection methods are detailed in each of the three stand-alone chapters, the overarching methodology is summarised in Table 3-1 to avoid repetition across chapters.

3.1 Research framework and design

A research framework depicting value chain stakeholders (Figure 3-1), which is in line with this study's research questions, was adopted from Wynberg et al (2009) to form the basis of the research design. This framework has been integrated into the research mixed-methods, aimed at enhancing the validity of research findings by facilitating a comprehensive understanding of the topic while drawing from both qualitative and quantitative approachess to present solid evidence (McKim, 2017; Brannen, 2005). Consequently, data collection processes involved mapping the NTFP value chains and engaging involved actors (harvesters, traders, exporters, importers, processors and manufacturers), as well as supporters (government, NGOs and funding agencies) of the commodification of NTFPs. The !Xun and Khwe San of northern Namibia served as a case study. Research within value chains provides essential contextual information into the products and trade dynamics; it integrates concerns related to poverty, the environment, race and/or ethnicity (Shackleton et al., 2011, Riisgard et al., 2008). This integration enables the exploration of opportunities for enhancing value chain development for vulnerable local producers

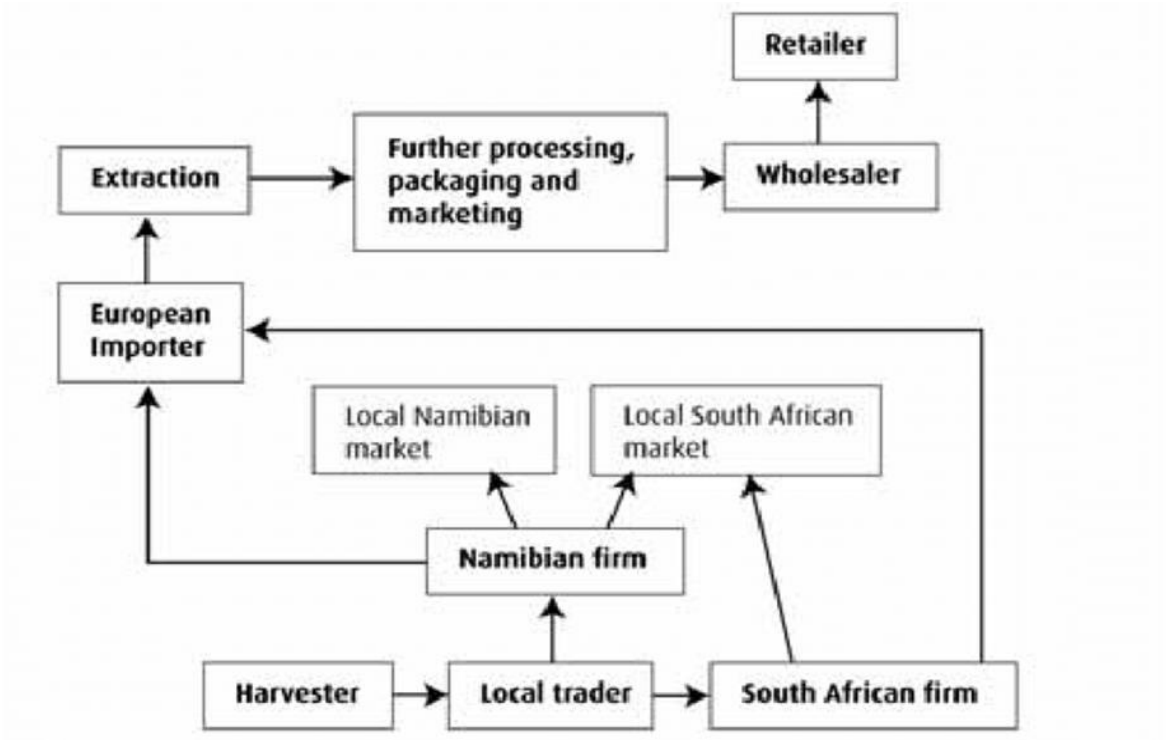

Figure 3-1. *Value chain stakeholders of NTFPs, particularly Devil's Claw. Source: Wynberg et al., (2009).*

To gather comprehensive insights into the outcomes and impacts of NTFP markets on indigenous San communities, various data collection methods were employed (Table 3-1). These methods included semi-structured interviews, key informant interviews, participant observations, focus group discussions (FGDs), as well as the acquisition of secondary data. Notably, interviews, FGDs and observations generated qualitative data, which served as the primary foundation of this research. Supplementary quantitative data was obtained from relevant government, non-government and community-based organisations, including demographics and overall earnings, as well as the quantities and values of NTFP exports. It is important to note that state institutions and other entities affiliated with value chains may facilitate value chain analysis through the provision of information, training, or engagement in research and development (Matias et al., 2018).

Semi-structured interviews were conducted with San harvesters, as well as with traced national and global actors within NTFP value chains, capturing a range of diverse perspectives and experiences. Complementing the interviews with the harvesters, FGDs provided collective opinions, concerns and experiences that individual harvesters had suppressed or overlooked. FGDs are crucial in research involving marginalised or vulnerable communities; individuals

may feel safer sharing their thoughts and experiences within a group setting (Potnis & Gala, 2020). The presence of peers and community members within FGDs created a sense of support and solidarity, reducing the fear of reprisal or judgment. In addition, the FGDs also served to cross-check and confirm some of the information gathered through in-depth interviews, hence increasing data accuracy.

Furthermore, with the exception of one global actor who was interviewed via Zoom, all other interviews were conducted in person within natural or workplace settings. These settings allowed for participant observation, enabling the exploration of NTFP-related activities in tandem with participants. By engaging in daily or routine tasks as a researcher, valuable insights were gained into the contexts, interactions, and dynamics inherent in NTFP trade and NTFP value chain settings. The key informant interviews with various stakeholders, including government institutions, NGOs, funding agencies, community-based associations, and cooperatives that play central roles in NTFP commercialisation, aimed to understand the dynamics of their influences on value chains and governance, especially market regulations. Key informant interviews are effective for gathering value chain data on market potential, system limitations, support services, linkages, partnerships, as well as insights into entrepreneurial leaders (Miehlbradt & Jones, 2007).

Data collection methods	Actor/organisation/institutes	Number of interviews/discussions	Event or organisation location
Qualitative Data			
Household interviews	Harvesters	23	Bwabwata National Park (Namibia); Okongo (Namibia)
Focus group Discussions	Harvesters	3	Bwabwata National Park; Okongo
Firm interviews	Namibian traders/exporters and retailers	3	Windhoek (Namibia)
	European importer/manufacturer	2	Avignon (France); Salzkotten (Germany)
Key Informant Interviews	Government and intergovernmental agencies • The Office of the President's Division of Marginalised Communities • Ministry of Environment, Forestry and Tourism (MEFT) • Access and Benefit Sharing Namibia Office	4	Okongo; Windhoek
	NGOs • Integrated Rural Development and Nature Conservation • NyaeNyae Development Foundation of Namibia • Namibia Nature Foundation	3	Bwabwata National Park; Windhoek
	Community associations/co-operatives • the Kyaramacan Association • Eudafano Women's Cooperative	2	Bwabwata National Park; Ondangwa (Namibia)
Symposiums	MEFT; Ministry of Industrialisation and Trade; Namibian Devil's Claw Exporters Association; and German Development Cooperation (GIZ)	4	Windhoek Geneva (Switzerland)
Quantitative Data			
Secondary data acquisition	the Kyaramacan Association, Okongo Constituency Office, MEFT, Namibian Statistic Agency, and NyaeNyae Development Foundation of Namibia	*N/A*	Bwabwata National Park; Okongo; Windhoek

Table 3-1. *Summary of the research methods. Source: Author*

3.2 Data validity and research questions

To ensure data validity, it is crucial to explicitly relate the data collected to the research questions. This study's interview guides and data collection methods were meticulously designed to address the three central research questions of this thesis:

I. *How do the commercialisation of NTFPs and the integration of indigenous peoples and their knowledge into GVCs and RVCs impact their livelihoods?*

Semi-structured interviews with San harvesters and key informants explored how NTFP commercialisation affects the economic and social well-being of these indigenous communities. In addition, FGDs illuminated collective experiences and challenges related to their livelihoods due to the regional and global commodification of NTFPs associated to their traditional knowledge.

II. *To what extent do international and national legislation ensure equitable profit sharing from NTFPs between their user industries and producing communities?*

Interviews with government officials, NGOs, and value chain actors, along with insights from symposiums organised by these stakeholders, examined the implementation and effectiveness of ABS regulations and other relevant legislation. These interviews and symposiums provided valuable perspectives into the governance and policy impacts on equitable profit-sharing

III. *What are the requirements and challenges for establishing enabling structures to improve NTFP value capture for the San harvesting communities?*

Focus group discussions, as well as interviews with firms and key informants (Table 3-1), contributed to identifying the necessary infrastructure, support services, and market access needed to enhance NTFP value capture for San harvesting communities. Observations and secondary data analysis presented successful model cases for other rural communities while highlighting the opportunities and challenges faced by San communities in establishing enabling structures for value enhancement.

By directly linking the data collection methods to the research questions, the thesis ensures that the gathered data is relevant and addresses the core objectives of the research. This approach not only enhances the validity of the findings but also provides a clear rationale for the chosen research questions and their interconnections within the broader context of NTFP commercialisation and its impacts.

3.3 Population and sampling

The population of this study comprises San NTFP harvesters in Bwabwata National Park and Okongo Constituency, national traders or exporters who sell these NTFPs to buyers both regionally and globally, as well as the global importers/manufacturers who source the NTFPs for the manufacturing industry or consumer market. These groups collectively constitute the value chain for the identified NTFPs, forming a network of actors through which products pass before reaching their final retail and consumer destinations. Notably, Namibia has only six active exporters who trade the NTFPs harvested by the San in the study area on a global scale (Nakanyete et al., 2023). They primarily trade these products to the largest markets, with the most established demands located in France and Germany (Nakanyete et al., 2023; Wynberg et al., 2009).

In the study areas, approximately 80% of the estimated total population of 6,700 residents in Bwabwata National Park (BNP) are identified as San, primarily Khwe (Jones & Dieckmann, 2014; Boden, 2020). Of the total residents, only an average of 852 harvesters were officially registered from 2019 to 2021 for the most traded NTFPs harvested in BNP, the Devil's Claw (Nakanyete et al., 2023). Meanwhile, the Okongo Constituency has a total population of 25,698 inhabitants, of which only 942 are identified as San, primarily Xun, (Nghitevelekwa et al., 2020). BNP and Okongo Constituency have a historical connection to the Khwe and !Xun communities, respectively, who were the earliest inhabitants and exclusively occupied these regions for generations as nomadic hunter-gatherers (Nghitevelekwa et al., 2020; Boden, 2020; Koot, 2016). Even today, most of these San residents rely on NTFPs for subsistence. Furthermore, it is worth noting that both areas are situated in the regions with the highest rainfall and woodland forests in Namibia. Despite receiving an annual average rainfall of 600–650 mm, the predominantly sandy soil that extends as deep as 150m and is characterised by low water retention capacity, makes it very challenging for crop farming (Atlas of Namibia Team, 2022; Shikomba 2020).

Different groups of participants in the study were mainly selected based on three criteria: (i) being Khwe or !Xun San NTFP harvesters, (ii) involvement in the NTFP value chains harvested by the San as external actors, and (iii) serving as a key informant from government agencies responsible for implementing legislation related to NTFPs trading, or from the NGOs or community-based organisations connected to NTFP harvesting. To accomplish this, snowball

and purposive sampling techniques were used to select these participants. Snowball sampling was used to select the San households engaged in NTFP collection while purposive sampling targeted key informants and Namibian traders/exporters. The snowball sampling approach was also used to interview the relevant European value chain actors after the ones identified purposively either did not respond to my interview request or rejected it. By utilising the well-known social networks of the targeted population, the snowball sampling technique establishes contact with a population that is difficult to reach or inaccessible, particularly the European importers and manufacturers (Valerio et al., 2016). However, this method is not always entirely effective or feasible. Therefore, other sampling techniques, particularly purposive sampling, can be applied, including the sampling of informants with specific knowledge or skills (Tongco, 2007). In the following stand-alone chapters, the contexts in which both snowball and purposive sampling techniques were employed, are discussed.

3.4 Data analyses and triangulation

The qualitative data analysis approach employed both content and thematic analyses, involving the identification, coding, structuring, and presentation of results into case studies. Content analysis categorises and quantifies text instances, recognising their complex symbolic relationships, while thematic analysis supplements content analysis by providing a systematic qualitative analysis of codes, considering their frequency and context (Joffe & Yardley, 2003). This analysis encompassed both deductive and inductive approaches, conducted manually and by importing transcribed interviews into MAXQDA. Codes derived from interview guides, existing literature, and newly emerging codes from transcribed interviews formed the basis of the analysis. Meanwhile, the analysis of quantitative data was done using Excel to generate descriptive statistics and graphical representations, summarising pertinent relationships.

The collection of data using a mixed-methods research design and its subsequent analysis through distinct approaches allowed for data triangulation, improving reliability and validity and therefore reducing biases. In this study, triangulation involved tracing NTFP value chains, from harvesting to final consumption and collecting data on the value generated and retained by each actor in value chain, along with primary and secondary data from relevant government officials, NGOs, and development organisations. This approach helps in clarifying the dynamics of NTFP commercialisation with high degree of consistency, thereby enhancing the credibility and validity of the study's conclusions (Igram et al., 2012; Jensen, 2009).

3.5 **Reflections of the research design**

For ethical consideration, data collection for this study commenced after obtaining ethical clearance from the University Research Ethics Committee of the University of Namibia (UNAM) as well as the necessary authorisation permit from Namibia's National Commission on Research Science and Technology (NCRST). This was accomplished by writing and defending a research proposal at UNAM, which was subsequently reviewed by NCRST and the Research Ethics Committees of the Ministry of Environment, Forestry, and Tourism, as they hold custodianship over the main research areas involved. Additionally, before conducting research within San communities, requests and permissions were addressed during focus group discussions (FGDs) or with San traditional representative in the case of Bwabwata National Park. Furthermore, each participants was provided with an informed consent in written form or verbally (for those cannot read), adhering to the principles of objectivity and respect for intellectual property, to ensure recognition and respect for indigenous cultural values, norms, knowledge, and sovereign rights.

While the overall research design effectively involved tracing and interviewing various relevant NTFP value chain actors to assess the impact of the NTFP commercialisation on San harvesting communities, a few factors may have limited the generation of relevant data. One particular factor is related to the availability of the !Xun San harvesters for interviews in Okongo Constituency. During my fieldwork in Okongo, I observed that many San residents in the villages of the Constituency faced communal land access rights challenges and other socio-economic problems. These challenges led to issues such as high alcoholism among the !Xun San, especially dependency on traditional alcohol consumption, to the extent that some even received payment in the form of alcohol for piece jobs. As such, the combination of their semi-nomadic lifestyle and alcoholism made it difficult to locate and interview as many San individuals as desired, despite numerous attempts to reach their settlements. Previous related studies have also highlighted these challenges, including their nomadic lifestyle due to poor living conditions, health issues as a result alcohol abuse and malnutrition, and various forms of violence such as physical or emotional abuse, discrimination and harassment based on their ethnicity (Ngodji, 2021; Pohamba-Ndume, 2016; Magadza, 2016). Thus, to conduct as many relevant interviews as possible, the research approach included in-depth semi-structured interviews with those I could locate, as well as holding focus group discussions at the sites where and when they received essential food parcels from the government.

Another factor that impacted my research design was the hesitancy of certain Namibian exporters, NGOs, European importers, traders, and potential key informants to supply me with the information I sought. These actors, whom I either interviewed and request information from regarding the actual or estimated economic value of NTFPs exported from Namibia, particularly Devil's Claw materials, or I hoped to interviews, displayed reluctance to openly share with me their information. Qualitative interviews carried out by researchers of different backgrounds can yield diverse results, especially in a post-colonial context characterised by ethnic and racial divisions (Stell & Fox, 2015). Therefore, as a black researcher, my data collecting phase with white value chain actors in Namibia and Europe may have impeded the scheduling of interviews or their trust to give private or important data despite the guarantee of anonymity. Contrary to what Kalvalge (2021) encountered, this could be attributed to a perceived cultural and racial divide.

While my original plan was to interview various companies, government institutions, and NGOs engaged in or providing support for Namibian NTFP trading in France, Germany, and Spain—three of the top five countries globally for Devil's Claw harvesting (Shigwedha, 2020)—I faced significant challenges. I spent up to four months trying to contact relevant Devil's Claw value chains actors both in Namibia and Europe, and despite sending up to six interview appointment requests, I only succeeded in interviewing one German and one French companies. To complement these interviews, I was fortunate to receive information about and attend an important European trade fair. During this event, a panel discussion involving relevant trading, government, and NGO stakeholders was held, focusing on "Enhancing the sustainability of the Devil's Claw supply chain in Namibia." This discussion directly addressed some of my research questions, and I was able to transcribe it for analysis. This participatory approach aligns with the perspective of Hennink et al. (2020), which emphasise the importance of embedding the study within the social context of stakeholders to how their perspectives and actions are shaped by social relations and cultural contexts.

Given these challenges, ensuring complete accuracy of quantifiable data and capturing all contextual meanings was not always possible. However, the employed mixed-method approach for data collection methods enabled triangulation and verification of data meanings, and therefore helped to minimise these limitations.

4 The impact of commodified non-timber forest products on the livelihoods of San in Northern Namibia

Nakanyete, N. F., Matengu, K. K., & Diez, J. R. (2023). The impact of commodified non-timber forest products on the livelihoods of San in Northern Namibia. *Development Southern Africa*, 1-17. https://doi.org/10.1080/0376835X.2022.2162855

This is the author's original manuscript of the published article.

Abstract

In Namibia, the commercialisation of non-timber forest products (NTFPs) is often promoted as a means to improve rural livelihoods, especially for vulnerable communities. This paper analysed how NTFP value chains are integrated into and contribute to the livelihoods of Khwe and !Xun San harvesters. Accordingly, the working conditions, employment and upgrading opportunities of the globally traded Devil's Claw were compared to those of regionally traded products, including Natal Oranges. A mixed-method approach was applied to collect data in Okongo Constituency and Bwabwata National Park. Findings revealed that while NTFPs contribute to the harvesters' income generation, the income is insufficient to sustain their livelihoods. Interestingly, the results of both regional and global value chain integration do not lead to improved livelihoods. Further research is needed to analyse the synergies between the government, traditional and local authorities, NGOs, and other institutions in implementing laws that promote equitable sharing of benefits from NTFPs.

Keywords: Global value chains; regional; value chains; indigenous communities; sustainable livelihoods; conservation

4.1 Introduction

The commodification of non-timber forest products has become widely promoted because of its potential to improve the livelihoods of disadvantaged indigenous or landless communities that are forest-dependent, especially in the Global South (Marshall et al., 2006; Chao, 2012; Martin et al., 2019). Of the global total, 1.14 billion (71.3%) people from low- to middle income countries live in or around forests and they can derive some benefits from forest products (Newton et al., 2020). In Southern and East African countries, non-timber forest products (NTFPs) were valued between US$ 30 and US$ 180 million in 2001, far exceeding the national income from commercialised timber products (Mogaka et al., 2001). Mogaka et al. (2001) reveal that this high return from NTFPs encouraged more than 90% of the countries in the region to improve their forest management through policies and legislation. In the 1990s, just after independence, the Namibian government adopted community-based forest management policies and legislation that have since been promoting the commodification of forest products for rural livelihood outcomes while monitoring the harvesting for conservation and sustainability purposes (Ministry of Agriculture, Water and Forestry, 2001; Alden-Wily, 2003; Ministry of Environment and Tourism, 2010; Ministry of Environment, Forestry and Tourism, 2020). The government, together with civil society organisations, promote the just and equitable utilisation of forest products through conservancies, community forests, and to some extent, national parks, particularly for the San people who live under poor agricultural and socioeconomic conditions (Alden-Wily, 2003; Gibson & Oosthuysen, 2009; Brown & Haihambo, 2015; Hitchkock, 2019).

This paper evaluates the significance that the value of commodified NTFPs adds to the livelihoods of the Khwe and !Xun harvesters in Bwabwata National Park (BNP), as well as the !Xun harvesters in Okongo Constituency (hereafter Okongo). The Khwe and !Xun are two of the six sub-ethnic San groups that are found in Namibia. The total San population in Namibia is estimated to be under 38,000 (Dieckmann et al., 2014). Collectively, the San are the most vulnerable indigenous people in Namibia, with their level of poverty unmatched by that of any other ethnic group (Dieckmann et al., 2014; Amnesty International, 2021). The two groups were purposively chosen for comparison based on their different levels of livelihood opportunities despite similar subsistence practices. For income, most of the !Xun households in Okongo rely on the government's social grants for vulnerable children or pensioners, who receive 250 or 1,300 NAD1 per month, respectively (Mouton & Dirkx, 2014; Petersen &

Ngatjiheue, 2021). Whereas in BNP, only 16.9% of the working-age Khwe and !Xun population is employed with monthly incomes ranging from 1,370–4,571 NAD, plus pensioners and vulnerable children who receive social grants (Paksi & Pyhälä, 2018). The San, as harvesters, collect NTFPs such as Devil's Claw, Natal Oranges, Manketti fruits, False Mopane seeds, Mobola fruits, wild honey, caterpillars, and Dioscorea tubers for commodification. Interestingly, two products are outstanding, namely, the Devil's Claw and Natal Oranges. The Devil's Claw is mostly traded globally, hence integrated into global value chains, in contrast to the Natal Oranges, which reach regional markets and thus can be considered integrated into a regional value chain.

Therefore, this paper aims to compare and contrast the impacts of the two value chains in terms of their conduciveness to opportunities for employment and upgrading, as well as the working conditions for the San NTFP harvesters. The paper makes contributions to the dynamics of value chains of non-timber forest commodities from and in the Global South, where socioeconomic disparities are high, by examining the effects of regional and global value chain integration on indigenous and vulnerable communities' livelihoods.

4.2 Commodifying NTFPs through global and regional value chains

The commodification of NTFPs is recognised as an effort to economically empower disadvantaged communities in the joint achievement of conservation and development goals (Neumann & Hirsch, 2000; Marshall et al., 2006). Since the late 1990s, the commodification of NTFPs has been given due consideration by national and international agencies; compared to timber production, NTFPs are expected to have fewer detrimental effects on the forest ecosystem (He, 2010). Moreover, global and regional markets have risen to create competition between local harvesters and external actors in value chains (Wollenberg, 1998). Value chains are productive activities that lead to the end-use of products or related services (Sturgeon, 2001:12). They can be described as a set of interdependent economic activities carried out by various actors in different strategic networks to better respond to consumer demand (Donovan et al., 2015). In principle, two types of value chains can be distinguished, namely, global value chains (GVCs) and regional value chains (RVCs).

GVCs are defined as 'a nexus of interconnected functions and operations through which goods and services are produced, distributed, and consumed on a global basis' (Kano et al., 2020:58). While the GVCs offer a global scope of trade patterns and governance structures (particularly

institutional policies and conditions), they do not consider non-firm organisations such as non-government organisations, trade or labour unions, and other agencies as significant factors influencing the economic development outcomes in different parts of the world, especially at a local level (Hess & Yeung, 2006; Neilson et al., 2018). Therefore, in this paper, GVC is paired with the global production network (GPN), which is defined as an organisational arrangement comprising of interconnected economic and non-economic actors, coordinated by global lead firms, and producing goods or services across multiple markets across the globe (Coe & Yeung, 2015:1). The GPN in relevance to commodified forest products effectively analyses power relations, values and embedment processes involved in GVCs and the position of local actors, especially concerning value capture and enhancement from international markets (Murphy, 2012). The GPN approach contributes to understanding the patterns of unequal development of global value chains. Therefore, GPNs are critical for recognising possibilities and challenges in inter-organisational networks, such as conflicting demands and low pay (Coe & Yeun, 2015; Sydow et al., 2021). The GPN agro-forest studies of Sub-Saharan Africa show that despite increased product exports, working conditions, social protection, employment and wages continue to deteriorate in the region while the GVCs become profitless for smallholders (Gereffi & Luo, 2014; Goger et al., 2014).

RVCs are rapidly becoming key features of twenty-first-century globalisation and they are projected to expand in the future as there has been an intensification of the valueadded in regional trade compared to global trade, especially during the COVID-19 pandemic (UNCTAD, 2020; Pasquali et al., 2021). RVCs are made up of suppliers and lead firms operating in a common geographic area with shared national or regional identities. They can be fragmented and vertically specialised into local or national processing industries serving local or regional markets (Horner & Nadvi, 2018; UNCTAD, 2020; Pasquali et al., 2021). In the context of this paper, RVCs are inter-firm and lead firm trading networks that exist within a country or across neighbouring countries. RVCs are frequently described in the southern and eastern regions of Africa as the expansion of retailers across the region (such as SACU or SADC) and their influence and ability for suppliers and workers to economically and/or socially upgrade (Barrientos et al., 2016). The expansion of RVCs can be considered an opportunity for small producers to gain access to large-scale value chains (Goger et al., 2014). However, such expansions do not guarantee fair benefits, especially for indigenous communities. Mogotsi et al. (2016) reveal that indigenous people tend to harvest forest

resources for other local traders in exchange for petty cash, thereby generating less income compared to the traders. RVCs in Africa are routinely embedded in or shifting to GPNs, where trade, production and labour patterns involve leading international corporations that process and source forest products to meet the growing global demands (Barrientos et al., 2016; Wardell et al., 2021).

4.2.1 GVCs and RVCs' potential livelihood impacts: The advantages and disadvantages for local communities

Since gaining momentum, GVCs and RVCs in the Global South have had a variety of development outcomes and trading barriers faced by actors in value chains (Horner, 2016; Horner & Nadvi, 2018). While some nations are advantageously increasing their specialisations in production through RVCs, the GVCs are equally growing in importance through intermediate trade or final products at the global level (De Backer et al., 2018). Consequently, it is important for researchers to critically evaluate RVCs' and GPNs' ultimate contributions to the advancement of understanding emerging aspects of trade and new geographies of development (Horner, 2016). Such an analysis not only offers researchers and policymakers opportunities to measure the value-added through trade but also identifies the contribution that each value chain makes to the final product (De Backer et al., 2018).

When it comes to the potentially positive effects of GVCs on the livelihoods of local and vulnerable producers such as NTFP harvesters, we address three main points (Table 4-1): First, the GVC-linked firms are likely to create employment opportunities and regulate wages in developing economies, particularly with the growth of the export market (Shepherd & Stone, 2013). However, because employment growth is primarily driven by unskilled labour and lower wages, the opportunities do not guarantee sustainable livelihoods, which 'comprise of the skills, assets (both material and social) and approaches that are used by individuals and communities to survive' (UNDP, 2017:2). This means that GVCs' participation does not directly result in producers upgrading to higher-paying jobs or improving their livelihoods (Goger et al., 2014). Second, because GVCs provide crucial positions for inter-firm coordination and governance configurations, they could positively influence value creation and capture at a local level (Coe and Yeung, 2015). The GPN framework presents partnership opportunities between the government, NGOs, research institutes and other agencies to enhance the livelihoods of smallholders by lobbying for incremental benefits (Shahidullah & Emdad, 2010; Pauls & Franz, 2013). Conversely, local value chain actors can only participate

in a global network if they conform to the demands of transnational corporations, which often results in lead firms in the GPN being exploitative (Murphy, 2012; Krauss & Krishnan, 2021).

Last and more recently, the GPN framework has positively contributed to discussions about corporate ethics, fair trade and social responsibility, with a focus on labour conditions (Lamb et al., 2019). Lamb et al. (2019) recognise that local actors in the GVCs of natural resources, unlike agriculture and manufacturing, often lack an international regulatory system for trade. Therefore, direct and indirect local actors connected to natural commodities are commonly neglected through their transformation and reassignment of value. To understand the GVCs' livelihood impacts and sustainability, studies should prioritise a holistic bottom-up analysis of how economic, environmental, and social upgrading and downgrading outcomes affect the less powerful value chain actors, rather than how global lead firms affect these actors (Krauss & Krishnan, 2021).

Impact	Positive	Negative
Employment and income	Global demand ensures employment opportunities and regulated wages	Local actors often have limited bargaining power, are minimally paid and are dependent on the middlemen; they require conformity while labour demands are seasonally-adjusted
Upgrading	Offers opportunities to learn new skills while enhancing value-added activities	Often value-added activities remain basic or generic, trapped in low-skill activities
Working conditions	Introduces health and safety standards with institutional policy support	High standards thus exclude or neglect potential local actors and lack an international regulatory system

***Table 4-1**. Potential livelihood impacts of GVCs. Source: Authors*

In comparison, RVCs in the Global South could break the dependence on dominant and developed markets, capital and technologies in the Global North, thereby stimulating local development and higher participation while also encouraging internal specialisation and industrial diversification within the region (UNCTAD, 2020: 162). Functional and industrial

upgrading provide opportunities to transition into new activities such as design, marketing, and branding, which opens the door to structural transformation (Horner, 2016). This creates new employment and skilled labour demands (Table 4-2), thus boosting efficiency and improving coordination and production integration in the region (Krishnan, 2018; Hulke & Revilla Diez, 2022). Despite the opportunities to diversify end markets, the demand for the acquisition of new skills increases the possibility of marginalisation due to the growth of stringent regional standards in RVCs, especially among producers (Krishnan, 2018). Furthermore, RVCs are more complex to establish in a country that attracts foreign and global investment in which it has a competitive advantage (UNCTAD, 2020). This implies that countries with limited RVCs are less likely to create lead firms for improved value capture in the country.

In Africa, the commodification of indigenous plants is often appropriated through research and development investments by western-based pharmaceutical corporations and other agents who rake in billions of dollars (Eyong, 2007). Until the early 2000s, the San and Khoi's indigenous knowledge of Hoodia gorginii and Rooibos was appropriated (Amusan, 2016; Wynberg, 2017). White farmers in South Africa continue to export 93% of Rooibos (Wynberg, 2017). This means that the value gained from NTFPs is not captured by the providers of the knowledge. Vicol et al. (2019) support the idea that RVCs through national markets are a substantial means to enhance value for local actors. To address the problem of regional market access for local and indigenous people, an effective innovation model is required to foster indigenous entrepreneurship and sustainable solutions based on indigenous knowledge in the lack of formal education (Onwuegbuzie, 2009).

Impact	Positive	Negative
Employment and income	Regional demand ensures a wider and variety of employment opportunities (from primary to tertiary activities of the value chain); it enables entrepreneurship	Insufficient demand, high vulnerability due to national crises; inadequately skilled workforce, and entrepreneurial capabilities
Upgrading	More appropriate enhancement of skills through learning by doing	Lack of support in training credits leads to the marginalisation of indigenous people
Working conditions	Standards are contextually embedded	Exploitation of vulnerable communities, women, and children through family work

Table 4-2. *Potential livelihood impacts of RVC. Source: Authors*

Moreover, while there appear to be no major differences in labour standards between GVCs and RVCs for smallholders and national firms, RVCs present an opportunity for learning to achieve international standards and safeguard sustainability (Kowalski et al., 2015). Meanwhile, working conditions and enabling rights, especially for indirect and low-skilled workers, are generally unsuitable across the RVCs and GVCs; specialised workers in the GVCs are compensated better than those in the RVCs (Pasquali, 2021). This was proven in a case study of regional and global embedded firms in Lesotho and Eswatini, where the working conditions in the GVCs were better than in the RVCs in terms of paid production bonuses, sick leave, maternity leave, and access to healthcare facilities (Pasquali, 2021). However, undesirable working conditions in RVCs, if reported, tend to be addressed by government inspections, policies and strategies more than in GVCs (Pasquali, 2021).

4.3 Data collection methods

To better understand how NTFP integration in RVCs and GVCs affects the livelihoods of San harvesters, data were collected using a mixed-method approach through semi-structured interviews, participant observations, focus group discussions (FGDs), and statistics from secondary data. This approach was adopted from related studies on NTFP-dependent indigenous communities in Brazil and the Philippines, where mixed-methods were applied to

determine the impact of NTFPs on livelihoods and to identify the relevant value chain structures, respectively (Morsello et al., 2012; Matias et al., 2018). As a result, 11 villages in BNP (Omega 1, Chetto, Mutciku, Buffalo, Mushangara and Mangarangandja) and Okongo (Okanyandi, Omwadi, Omauni East, Oshanashiwa and Onamatadiva) were purposively selected based on the availability of the Khwe or !Xun who are forest-dependent (Figure 4-1). Using BNP and Okongo as case studies, we aimed to identify various NTFPs that are collected by the San harvesters in the areas as well as to understand the contributions they make to their households' livelihoods. Therefore, 23 household interviews, 14 from BNP and 9 from Okongo, were conducted using the snowball sampling technique. This was done by identifying three San households that collect NTFPs for sale in both study areas and interviewing one informant in each household. Informants were then requested to recommend other San harvesters in the areas for interviews. The snowball sampling technique proved ideal for the San's small and dispersed population, which was hard to reach without references, especially in Okongo. In addition, three FGDs with 10–15 participants each were held in Omega, Mutciku and Onamatadiva. FGDs were conducted to validate the effects of NTFP value chains on employment and upgrading opportunities as well as the working conditions of the harvesters, which are discussed in the theoretical section. FGDs also provided an in-depth understanding of harvesters' experiences in the collection, use and trade of NTFPs.

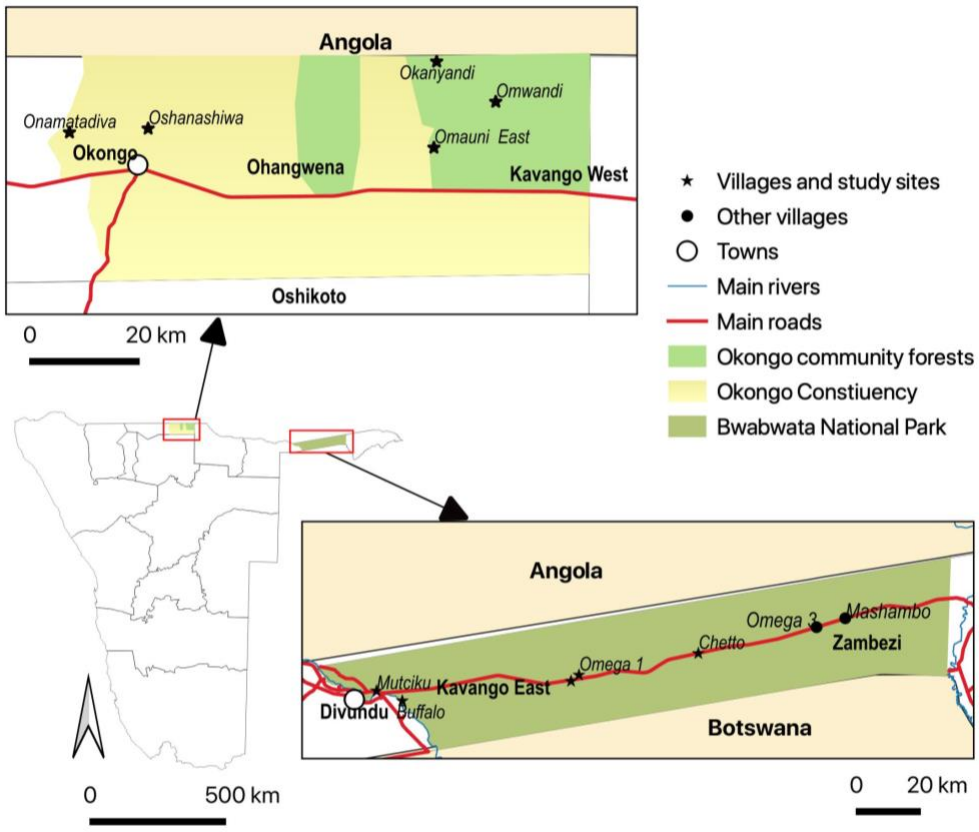

Figure 4-1. *Location of study sites in r elation to the layout of Namibia. Source: Authors, data from Namibia Statistics Agency*

Furthermore, five experts were interviewed as key informants to understand the value of NTFPs and livelihood strategies in the studied communities. The key informants were identified from the Ministry of Environment, Forestry and Tourism (MEFT), the Office of the President's Division of Marginalised Communities (OPDMC) in Okongo, and the Integrated Rural Development and Nature Conservation (IRDNC) in BNP. Moreover, secondary data, including demographics of the target population as well as NTFPs' purchasing data, were collected from relevant institutions and examined to support the empirical data collected, allowing data triangulation and effective analysis. Triangulation systematises and converts secondary data to maximise the depth of qualitative primary data analysis (Williams & Shepherd, 2017). The main data were collected between March 2021 and March 2022, with essential follow-up interviews continuing until September 2022.

Thematic and content analyses were used to identify the positive or negative impacts of the NTFPs from the transcribed interviews, using the research aim and value chain frameworks. Meanwhile, quantitative data were analysed using Microsoft Excel.

4.4 Description of the study sites

The Khwe and !Xun are two major San groups in the BNP and Okongo, respectively. In BNP, of the estimated 6,700 residents, the Khwe account for 80%, the Hambukushu 16%, and 4% account for the !Xun, Vagciricku, Vakwangali, Mafwe, Ovawambo and people from Angola (Jones & Dieckmann, 2014; Boden, 2020; Thomsen et al. 2021). All the residents of BNP strictly reside in the 'Multiple Use Area', where the Khwe and !Xun are primarily found in the settlements of Omega, Mutciku, Chetto, Omega 3 and Mashambo. Residents are prohibited from entering 'Core Areas', which are reserved for conservation and are patrolled by the Namibian Defence Force. Because there are few employment opportunities in the park, only a total of 108 (16.9%) of the working-age population are formally employed (Paksi & Pyhälä, 2018; Paksi, 2020). Meanwhile, it is uncertain how many of the total 25,698 inhabitants in Okongo are !Xun, although the Ovawambo are the predominant ethnic group (NSA, 2014). Due to their nomadic lifestyle, it has been difficult to collect reliable statistics on the !Xun population in the constituency; many !Xun frequently move in and out of Okongo (OPDMC key informant, personal communication, 25 February 2022). In recognition of this challenge, the constituency is estimated to have 882 San households that are scattered throughout 38 villages, and of these, 721 households belong to !Xun families and only 161 households belong to the Hai||om (Constituency Office, 2022). In 2003, the National Planning Commission reported that the !Xun population in Okongo was about 1,052 (Mouton & Dirkx, 2014). Only three local San were formally employed in the Okongo (Mouton & Dirkx, 2014).

Most San residents in both Okongo and BNP are forced to rely on social grants, piece jobs, and seasonal jobs because of the lack of sustainable income-based livelihood outcomes.

4.5 The Khwe and !Xun harvesters of NTFPs for global and regional trade

Forests continue to be a significant source of food and medicine for San communities in Northern Namibia despite their adoption of subsistence farming from their neighbouring communities, but to a lesser extent. The San hold traditional knowledge of forest resources, which is often preferred over modern food and as a source of income (Jones & Dieckmann, 2014; Heim & Pyhälä, 2020). As a result, most Khwe and !Xun households in BNP and Okongo harvest NTFPs for household use as well as for sale.

4.5.1 Employment opportunities, upgrading and working conditions in harvesting Devils' Claw for GVCs

Devil's Claw is the common name for two medicinal plant species, Harpagophytum *procumbens* and H. *zeyheri*. In addition to its various traditional uses by the indigenous San, including as an analgesic and anti-inflammatory medicine, Devil's Claw has been commercialised to treat arthritis, tendonitis, renal inflammation, and heart disease (Stewart & Cole, 2005; Smithies, 2006). In BNP, where Devil's Claw is also harvested, 72 residents, mostly Khwe, are formally employed by the Kyaramacan Association (KA), which is a community-based natural resource management (CBNRM) that was established in 2006 (KA informant, personal communication, 18 March 2022). The main role of the KA is to co administer the sustainable harvesting of Devil's Claw and tourism activities in the park together with the MEFT (KA, n.d.). The KA receives money and other benefits from the MEFT for resource management as part of benefit-sharing. In 2011, the KA received 1.9 million NAD from the ministry, which was used to formally recruit the majority of the KA staff (Jones & Dieckmann, 2014). The Khwe and !Xun mainly receive the benefits, not only because they are collectively the largest group in BNP but also because they frequently adhere to the park's regulations (for example, not keeping cattle in the park), which the KA is required to maintain (IRDNC key informant, personal communication, 5 September 2022). According to the KA informants, most of the KA employees earn between 1,600 and 3,500 NAD per month, while the five senior employees earn around 7,000 NAD per month. In addition, there are 12 KA board members, who are elected every 3 years and receive 1,100 NAD per month. The average monthly income in the KA is one of the lowest in the formal job sectors that are available in BNP (Paksi, 2020). However, respondents who are employed stated that they live a better life than they did before employment. During the fieldwork, the differences between employed and unemployed Khwe and !Xun were observable in their households; those employed often had supplementary sources of livelihood, including raising some goats and chickens.

Within the GVCs of Devil's Claw, the KA is an important actor in the value chains. One of the KA's functions is to promote the sustainable harvesting of Devil's Claw for the global market by training and registering harvesters for traceability, and negotiating a concession agreement and price with one exclusive buyer (Jones & Dieckmann, 2014). According to the KA respondents, Khwe and !Xun make up the majority of the registered harvesters. Since 2008, registered harvesters have been collecting Devil's Claw for ECOSO Dynamics (hereafter ECOSO), an exclusive buyer based on the concession agreement with the KA. The FGD

participants indicated that annual quotas of 25 tonnes (25,000 kg) of Devil's Claw are allocated by the MEFT for harvest in BNP. Before the 2008 concession agreement, harvesters were paid just between 8 and 16 NAD per kg of Devil's Claw. Harvesters collected Devil's Claw in an unsustainable manner, including harvesting the primary tubers needed for the plant's regrowth (MEFT, 2020). With ECOSO, the KA negotiated a price increase (Figure 4-2) to 35 NAD per kg in 2008 and 40 NAD per kg in 2014 (KA informant, personal communication, 18 March 2022). Today, ECOSO is the largest trader and exporter of Devil's Claw, accounting for 36% of the 3,278,612 kg exported between 2015 and 2018 from Namibia, mostly (93%) to Europe (Shigwedha, 2020). However, residents in BNP did not harvest or sell Devil's Claw in 2017 and 2018, as harvesting was not allowed due to the intensive patrolling by the anti-poaching unit in the park. Consequently, the harvesters lost an important source of income that contributes to the well-being of a large number of households (Paksi & Pyhälä, 2018).

When harvesting resumed in BNP in 2019, the purchase price of Devil's Claw remained at 40 NAD per kg until 2020. In 2019, only 619 of the 6700 BNP residents registered for harvesting and a total of 19,391 kg was sold, generating an income of 775,640 NAD for the harvesters (IRDNC, 2022; KA informant, personal communication, 5 September 2022). If we assume that all registered harvesters collected the allowed maximum of 100 kg per person, the average amount each harvester received would be 1,253 NAD. Meanwhile, no data was accessible to us regarding the quantity, value and income from Devil's Claw for the year 2020. However, IRDNC (2022) reported that the number of harvesters registered in 2020 increased to 1003. Interview respondents reported having earned, on average, 1,700 NAD in 2020. To understand how minimal the earnings are, we consider the minimum wage in Namibia's agricultural sector, which is currently 1,653 NAD per month or 19,836 NAD per year for unskilled employees working 45 hours per week (Matthys, 2021). Harvesters spent up to a month in the forest harvesting, cleaning, cutting, drying, and packing Devil's Claw. All BNP participants said that their income was low considering the labour and costs they incurred to harvest the Devil's Claw. Harvesters often need to pay for transport to and from harvesting sites, the collection of the harvest, as well as food for their stay in the forest. Furthermore, camping and collecting the products in the park can be life-threatening when harvesters encounter potentially dangerous wild animals, including lions and elephants. In 2021, harvesters demanded a 5 NAD increase to reach a price of 45 NAD per kg of Devil's Claw. When ECOSO did not meet their demand, harvesters went on strike and refused to harvest:

> ‘When ECOSO refused to increase the price to 45 NAD per kg, the KA management committee also refused to sign the purchasing agreement that allows them to purchase Devil’s Claw from here. They bought from conservancies in Tsumkwe at 50 NAD per kg but refused to increase our price. They even reward harvesters in Tsumkwe for excellent cutting, drying and packing of the products.’ -KA employee and harvester, Omega 1, BNP, 22 June 2021

Towards the end of 2021, ECOSO agreed to pay 42 NAD per kg, and the harvesting essentially resumed. According to participants from the KA, the 936 registered harvesters earned a total of 1.44 million NAD in 2021, which is equivalent to an average of 1,538 NAD per harvester. ECOSO also bought customised spades and a water tank to be used in the field during the harvesting. According to participants from the KA, the price was recently raised to 48 NAD per kg for the 2022 harvest year, and 1,245 residents registered as harvesters for this specific year.

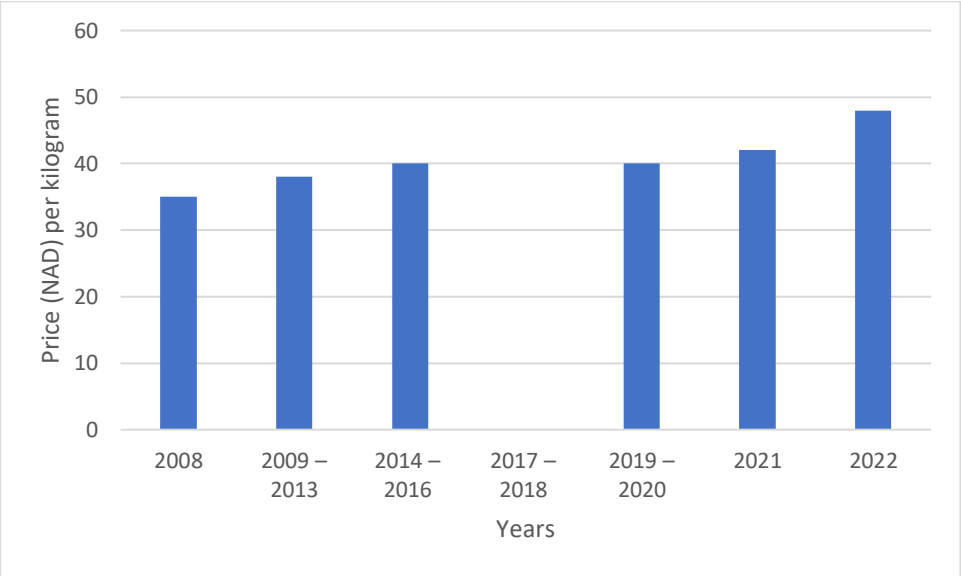

***Figure 4-2**. Price per kilogramme for Devil’s Claw harvesters over different years. Source: Authors, data from the KA Office in Mutciku.*

When it comes to economic and social upgrading, the Khwe and !Xun FGD participants indicated that the KA employees are seldom promoted. However, the association is supported by the MEFT, NGOs, and other agencies that offer yearly training on sustainable harvesting methods. The acquired training skills have so far not improved their income generation. One

participant cited the lack of recognised Khwe traditional leadership as the biggest impediment to their improved economic development:

> 'Governments, traders, researchers, NGOs, and other groups come here to absorb our ideas and use them more for their benefit.' –Harvester, Omega 1, BNP, 23 June 2021.

Meanwhile, no Devil's Claw is traded from Okongo; the !Xun residents only harvest Devil's Claw for personal consumption. As a result, there are currently no employment opportunities for the !Xun in Okongo in the Devil's Claw industry.

4.5.2 Employment opportunities, upgrading and working conditions in harvesting Natal Oranges and other NTFPs for RVCs

During data collection, no Khwe or !Xun were formally employed in the local or regional NTFP-related sector. However, interview participants both in Okongo and BNP reported that they harvest and sell various NTFPs, which provide a small and seasonal income for their households. Products such as Natal Oranges, Manketti kernels, False Mopane seeds, wild honey and edible worms are commonly sold in BNP and Okongo, although in varying quantities; whereas, Mobola Plums are only available in BNP (Table 4-3). Collecting these NTFPs is one of, if not the, primary source of income for the !Xun who do not receive government social grants in Okongo. According to the FGD participants, this income is mostly earned from Natal Oranges and Manketti kernels, which provide some harvesters with up to 500 NAD per season. The demand for Natal Oranges, which are harvested and sold between August and December, has increased. Participants typically sell Natal Oranges for three Namibian dollars each, with some buyers subsequently reselling them to customers in other regions of Namibia. Today, Natal Oranges are sold for 11.25 NAD at Spar Supermarket, a regional retail store, in addition to Namibia's open markets.

On the other hand, participants in BNP indicated that they mostly sell False Mopane seeds, Mobola Plums and Manketti kernels. Harvesters in Mutciku, Chetto and Mushangara reside in an ecosystem with a variety of fruit/seed-bearing trees in abundance, which generates them additional income:

> 'Sometimes, we can make up to 1800 NAD in one harvesting season. My family's only source of income is from harvesting NTFPs. I do not have an ID to register for the old age social grants.' -Harvester, Mushangara, BNP, 29 June 2021.

Omega 1's multiple-use areas do not have many fruit or seed-bearing trees. Residents used to get fruits and seeds from what became conservation core areas, where the anti-poaching unit enforces restrictions. As such, no foraging activities are permitted in core areas, despite the areas' abundance of NTFPs (Paksi & Pyhälä, 2018).

Product names	**Local uses**	**Average earnings for harvesters (in NAD/N$)**
Strychnos *cocculoides* (!nho; |uana; omauni; maguni; Natal/Monkey Oranges)	Pulp of the fruit eaten fresh and can be blended into juice	N$3 for each or N$50 for 30 kg
Schinziophyton rautanenii (|Xom; ||gxa; omanghete; Manketti)	Kernels are eaten raw or cooked to make stews; the fruit's pulp is used to make a traditional gin	N$10 per 250g of kernels or N$10 for 12.5 kg of fruits
Seeds of Guibourtia coleosperma (tceu; |ui; eesii; False Mopane)	Cooked to make stew	N$10 per 250g
Dioscorea species (dinga; sha'a; omambibo)	Tubers are cooked or eaten fresh to quench thirst	N$ 10 per bundle
Cucumis *mutelifas* (|'a; menge; omanyoshwa; African horned cucumber)	Fruits are peeled and freshly eaten	N$2 each
Parinari *curatellifolia* (naxane; mobola plums)	Fruits are eaten fresh; their kernels are also edible	N$20 per 500g
Wild honey (ǂIpa, ||aua, omaadi eenyiki/owishi)	Eaten raw or diluted with water for drinking; it is also specially fed to babies whose mothers produce insufficient breast milk	N$20 per 50ml
Cirina forda (olele; edible worms/caterpillars,)	The dried larva is cooked for consumption	N$20 per 50g

Table 4-3. *NTFPs harvested in Okongo and and BNP by the Khwe and !Xun for local or regional trade. Source: Authors*

Due to the common practice of illegal fencing in Okongo, harvesters who live far from the community forests have limited access to forest resources. Such fencing further worsens poverty among the !Xun (Dieckmann & Dirkx, 2014). Participants in the FGD revealed that they are frequently restrained from harvesting NTFPs on the fenced-off land for their own income; instead, they are compelled to do so for those who fenced-off the land, often at a lower or no price. !Xun harvesters are sometimes paid in kind, in the form of food, second-hand clothes, or even a jug of alcohol (Mouton & Dirkx, 2014). Some harvesters travel to Omufitu Wekuta or Okongo community forests, or areas in Angola, to collect the products for sale. However, the community forests are more than 50 km from Okongo Town, where a market is located. This makes it costly for the !Xun harvesters to afford transportation to the market to generate better income from NTFPs. In addition, no training is provided to those that harvest NTFPs for the local or regional market in Okongo and BNP. Participants from Okongo, in particular, feel they are less empowered and lacking the capacity-building skills that are necessary to improve their products' value for better income. !Xun residents in the villages of Okongo considered themselves worse off, except for those of the Ekoka Resettlement Project, who are reported to be better off because they frequently receive training and support for various income-generating activities (Mouton & Dirkx, 2014).

4.6 Discussions

While the commercialisation of forest products is promoted to improve rural livelihoods and local incomes for vulnerable communities, the majority of !Xun and Khwe San harvesters in Okongo and BNP see little to no impact. This holds true regardless of the value chains in which the San harvesters participate, and as a result, neither GVCs nor RVCs substantially enhance the harvesters' livelihoods. While the global trade of Devil's Claw offers 72 formal jobs and training on sustainable harvesting practices, only a small number of Khwe and !Xun receive income from harvesting Devil's Claw. The harvesters' income does not transform their standard of living into a sustainable livelihood. The income for harvesters in BNP is 4,000 NAD lower compared to harvesters in the neighbouring Balyerwa Conservancy and Lubuta Community Forest, where there are no resource management structures, harvesting is unsustainable and communities have no socio-cultural connection to Devil's Claw (Lavelle, 2019). Additionally, for NTFPs integrated into RVCs, factors including a lack of training in value enhancement, the products' seasonality and distribution, as well as the inability to afford

transportation, lead to low-income generation for San harvesters. These limitations have also been discussed in other studies (Amusa et al., 2017; Matias et al., 2018).

While harvesting NTFPs for commodification does not directly improve the livelihoods of the Khwe and !Xun San in BNP and Okongo, it may complement their other sources of income like piecework and social grants. Compared to !Xun in Okongo, the Khwe and !Xun in BNP appear to have better livelihood diversification options as there are employment opportunities in the tourism industry, community-based organisations and government organisations. However, formal employment is not available without educational qualifications, and the Khwe and!Xun populations still have low levels of education (Jones & Dieckmann, 2014). Employment opportunities for the Khwe and !Xun in BNP have been slightly improved by the KA, which is a unique CBNRM; however, such selforganised associations do not exist in communities that are located in the community forests of Okongo. This could explain why livelihood strategies established in BNP do not exist in Okongo communities, where the MEFT is also not essentially involved.

4.7 Conclusion

NTFPs have some positive impacts on the livelihoods of rural communities. However, the findings of this study revealed that the incomes generated from NTFPs by the Khwe and !Xun San harvesters in BNP and Okongo are unsatisfactory. Neither the GVCs of Devil's Claws nor the RVCs of Natal Oranges and other NTFPs make a significant contribution to the livelihood outcomes of the harvesters. Of the 6700 BNP residents, only 72 are formally employed by the KA, of which the majority are Khwe. In Okongo, however, no !Xun resident works in an NTFP related industry or earns an appropriate living from NTFP harvesting. In order to improve the bargaining positions of San harvesters, initiatives on value enhancement for vulnerable communities that allow them to make better incomes must be taken into account. Therefore, the study recommends that further studies be conducted on the role that policies and governance play in ensuring the fair and equitable sharing of benefits from indigenous knowledge-based forest commodities.

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5 Rich resources from poor communities: An analysis of Namibia's Access and Benefit-Sharing legislation

Nakanyete, N. F., Matengu, K. K., & Diez, J. R. (2023). Rich resources from poor communities: An analysis of Namibia's Access and Benefit-Sharing legislation. *Environmental Development,* 49, 10094. https://doi.org/10.1016/j.envdev.2023.100943.

This is the author's original manuscript of the published article.

Abstract

Since pre-independence, Namibia has faced wealth disparities and unfair distribution of benefits arising from natural resources. Producers, who hold traditional knowledge related to genetic resources, continue to endure poverty. In response, the Government of Namibia collaborated with various stakeholders to develop access and benefit-sharing policies and regulations. This study aimed to investigate the effectiveness of access and benefit-sharing legislation in distributing monetary and non-monetary benefits from users of non-timber forest products to indigenous and local communities who produce them. To achieve this, we integrated the access and benefit-sharing approaches with the value chain framework to identify gaps in the implementation of benefit-sharing. We employed a mixed-methods approach, incorporating semi-structured interviews, participation in symposiums, and statistical data analysis. Our findings revealed that despite the established legislative measures aimed at improving the benefits for Namibian producers, the actual sharing of the benefits remains unsatisfactory. Only a few communities that harvest non-timber forest products had benefit-sharing agreements or joint patent ownership with global or regional industries. Moreover, the San communities, who received incentives from the Devil's Claw manufacturer in 2021, did not enter into any benefit-sharing agreements until March 2023. We suggest that the recently implemented access and benefit-sharing regulations may not fully address the benefit-sharing issues overlooked by previous policies and initiatives. Therefore, we recommend further studies in exploring the potential of establishing efficient non-timber forest product processing facilities to economically empower communities. This, will ultimately contribute to national economic growth and the achievement of sustainable development goals.

Keywords: Natural resources, indigenous natural products, Nagoya Protocol, value chains, sustainable livelihoods, rural development

5.1 Introduction

Genetic resources are valuable materials derived from plants, animals and microbials (Medaglia Cabrera et al., 2014). Most plant genetic resources, particularly non-timber forest products (NTFPs), are harvested from the Global South; however, they are often appropriated by the Global North without providing adequate benefits to the communities where they are sourced (Odek, 2017). Consequently, users in the Global North earn substantially more than the providers and knowledge holders of the NTFPs from the Global South (Watanabe, 2015). Although the annual value of NTFPs, particularly pharmaceuticals and foods, is estimated to be more than USD 50 billion, much of the revenue generated from their commercialisation remains in the Global North (Morgera et al., 2014). In Africa, for example, producers who hold extensive knowledge of various NTFPs often receive negligible benefits from their commercialisation (Ten Kate & Laird, 2004). The producers cannot afford the high costs and stringent regulatory requirements for processing materials into value-added products before they are sold to the consumer (Laird, 2013; Wynberg, 2013). This leads to a significant loss of revenue for these communities.

Recently, tensions have arisen between firms and various influential stakeholders, including communities, activists and NGOs, concerning the regulation of sharing monetary and non-monetary benefits derived from natural resources, particularly through access and benefit-sharing mechanisms (Odziemkowska & Dorobantu, 2021; Sirayaka, 2020). Benefit-sharing systems, such as the Nagoya Protocol on Access and Benefit-Sharing (ABS)[1] and its interlinked BioTrade initiative aim to balance the rights of genetic resource provider countries and the user countries, potentially increasing the value of biodiversity through conservation and sustainable commercial use for research and development (Sirayaka, 2020; Tran et al., 2016). However, the anticipated benefits, particularly for indigenous and local communities (ILC) closely linked to the genetic resources that are also associated with their traditional knowledge, remain unrealised, especially in regions with inadequate political representation of indigenous peoples (Heinrich et al., 2020). While the Nagoya Protocol seeks to ensure fair benefit-sharing for ILCs through prior informed consent and ABS agreements, concerns arise about the ability of ABS clearinghouses to enforce these agreements due to ongoing difficulties in harmonising

[1]Fully referred to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation.

regulations among signatory countries (McCune, 2018). Meanwhile, BioTrade, promoted as a sustainable and fair market strategy for poverty reduction, has often disadvantaged ILCs in resource-providing countries while benefiting the wealthy, who have the means to acquire the required technologies and certification for product quality and traceability (Bakouan & Sawadogo, 2023).

In Namibia, where income inequality is the second highest in the world and over a third of the population lives in poverty, ILCs that rely on NTFPs for their livelihoods do not effectively benefit from regional and global users of the resources (Namibia Statistics Agency & World Bank, 2017; Wynberg & Niekerk, 2014). Indigenous communities such as San often have no direct market reach and are dependent on traders and exporters who buy and sell these products, notably to global firms (Nakanyete, 2023). Indigenous and local communities also typically have little to no means of negotiating for improved trade agreements or influencing opportunities to establish local manufacturing firms. Since 1992, the Namibian government has collaborated with national and international stakeholders on initiatives to promote sustainable commercialisation of genetic resources and improve the livelihoods of vulnerable communities (Drews, 2020; Drews et al., 2008). The United Nations Conference on Trade and Development's BioTrade initiative facilitated Namibia in creating a sustainable NTFP industry (Suleman, 2017). Additionally, the government has recently implemented ABS regulations to enforce the equitable distribution of benefits to communities that provide resources and associated traditional knowledge. According to the ABS Act[2], equitable benefit-sharing includes monetary and non-monetary benefits like employment, royalties, intellectual property rights, trust funds, participation in product development, research access, training, infrastructure and technology.

In this paper, we develop an ABS-value chain framework to analyse the implications it has on enhancing the economic and social benefits for ILCs involved in NTFP production. Due to its critical role in influencing benefit-sharing outcomes, value chain analysis attracts considerable interest from policymakers, scholars, and funding organisations (Gereffi & Lee, 2016). Global value chains (GVCs) analysis, in particular, could offer insights into the international trade patterns between the Global South and the Global North (Najarzadeh et al., 2021). In addition, the governance structures are complex and multifaceted, encompassing national and

[2] Access to Biological and Genetic Resources and Associated Traditional Knowledge Act, 2017.

international regulations as well as different types of public, private, and social governance (Gereffi & Lee, 2016). Therefore, we evaluate the monetary and non-monetary benefits that Namibia's NTFP producers gain from their integration into global and regional value chains as well as the effects of governance structures in ensuring benefit-sharing. Our hypothesis indicates that impactful agreements are more likely to be established when all ABS and value chain partners, including the government, communities, firms, and NGOs, negotiate collectively. As such, the paper discusses reasons for the inefficiency of benefit-sharing legislation in so far addressing income inequalities between users of genetic resources and NTFP harvesting communities. Our study, thus, contributes to broader debates concerning economic inequalities in the use of natural resources, with particular emphasis on quantitative and qualitative data that highlight the value of plant genetic resources.

This paper comprises five sections, including this introduction. Section 2 defines ABS and BioTrade concepts and presents our integrated ABS-value chain framework. Section 3 outlines our data collection methods. In section 4, we present empirical findings on the impact of ABS in Namibia, including its influence on the valuation of NTFPs for indigenous and/or local producers, the status of benefit-sharing agreements, as well as a case study on the impact of Devil's Claw trade on indigenous San communities. Finally, in Section 5, we summarise the significance of ABS legislation and propose an approach for ILCs to enhance their position in benefit-sharing negotiations.

5.2 Defining preconditions and principles of BioTrade and ABS

Intergovernmental discussions on the regulations of genetic resources, which started in the 1980s, led to the adoption of the Convention on Biological Diversity (CBD) in 1992 (Muller et al., 2017). Initially, the CBD’s objectives only addressed biodiversity conservation; however, the majority of the Global South states opposed this, prompting the inclusion of sustainable resource use and fair trade and benefit-sharing (Greiber et al., 2012; Secretariat of the CBD, 2011). This shift enabled the launch of BioTrade in 1996, a United Nations (UN) initiative supporting value-added biodiversity products in over 20 Global South countries (Sanderson et al., 2018; Ruiz Muller, 2017). BioTrade covers various value chain stages, enhancing emerging markets (Ruiz Muller, 2017; Oliva et al., 2020).

In 2014, the Nagoya Protocol on Access and Benefit-Sharing (ABS) came into effect, to improve the economic and social benefits of genetic resources for local producers and associated traditional knowledge holders (Secretariat of the CBD, 2011). Parties of the Nagoya Protocol from the Global South made the adoption a precondition for ILCs to participate in the approval of access to genetic resources for sustainable use (Buck & Hamilton, 2011).
The ABS has been ratified by over 139 member states and the European Union (Secretariat of the CBD, 2023). It necessitates states to establish regulatory laws for access and use of genetic resources and traditional knowledge (Ruiz Muller et al., 2017; Secretariat of the CDB, 2010). States that provide genetic resources must develop national ABS standards, while states that use the resources establish compliance procedures to ensure fair benefit-sharing through prior informed consent and mutually agreed terms (Kamau, 2022; CBD Secretariat, 2010).

Essentially, BioTrade and ABS share common objectives in promoting fair and equitable benefits along value chains, with BioTrade encompassing a broader scope of biodiversity and sustainable tourism, while ABS focuses on genetic resources (Table 5-1), but both systems must adhere to relevant laws and regulations.

BioTrade	**ABS**
Voluntary system	Mandatory regulations
Direct and indirect use of biodiversity and ecosystem	Access and use of genetic resources
Monetary and non-monetary benefit-sharing to all actors along the value chain	Fair monetary and non-monetary benefit-sharing with provider states and/or traditional knowledge holders
Requires prior informed consent regardless of the involvement of research and development activities	Requires prior informed consent when research and development activities are involved
Implementation guided by BioTrade principles and criteria along with private standards	Mutually agreed terms define conditions for access and use of genetic resources, biochemicals and derivatives
No explicit laws, but influenced by sectorial laws and regulations including ABS	Governed by national, regional and /or international laws and regulations on ABS

Table 5-1. *Activities involved in BioTrade and ABS. Source: Authors, information adapted from Vivas Eugui & Ruiz Muller (2018).*

5.2.1 Challenges to implementing national ABS regulations

Owing to the Nagoya Protocol offering member states the flexibility to adopt ABS legislation, drafting national ABS laws and harmonising them with BioTrade projects present various complexities (Lee & Choo, 2022). This implies that there is no consensus-based international law that addresses and implements the equitable and fair sharing of benefits. Consequently, each state has the responsibility to develop and implement its ABS policies and regulations (Ruiz Muller et al., 2017). However, it remains challenging for most countries providing genetic resources in the Global South to do so without impeding already-existing BioTrade activities (Suleman, 2017; Medaglia Cabrera et al., 2014). Meanwhile, numerous countries in the Global North transitioned from providers to users of genetic resources, making ABS compliance measures difficult to implement because national laws would then violate the principles of prior informed consent and mutually agreed terms (Mahop, 2022; Morrison et al., 2021).

Furthermore, member states encounter legal challenges in defining ABS-related terms, such as what constitutes genetic resources' ownership, access, utilisation, traditional knowledge, and fair and equitable benefit-sharing (Kamau, 2019; Ruiz Muller et al., 2017). Ambiguity, particularly in the definition of access and use of genetic resources, requires the reconciliation of contradictory principles, namely, adaptability to deal with rapid advances in biotechnology and knowledge, and precision (Rabitz, 2017; Tvedt & Schei, 2014). Although the CBD definition appears to assure the ABS operational system, not all governments have formalised this definition into their ABS national laws. In China, for example, the definition is only adopted in animal husbandry and seed laws, but not in natural resources law (Zheng, 2019). Additionally, the Nagoya Protocol is the first international framework to refer to traditional knowledge in the context of benefits arising from genetic resources (Tvedt & Schei, 2014). Consequently, the incompatibility of indigenous or local customary law with legal principles of ownership rights in Western law often impedes the effective implementation of ABS systems (Avilés-Polanco et al., 2019). As such, traditional knowledge is frequently misappropriated through biopiracy and patents issued to industries since ILCs' knowledge and processes are not recognised in the Western-based system of intellectual property rights (Medaglia Cabrera et al., 2014; Wallbott et al., 2014).

5.2.2 The ABS-Value Chain Framework

Implementing ABS is a complex task that involves combining traditional knowledge, innovation, research, biodiversity protection, economic development, technology, and equity into a comprehensive, coherent, and effective policy (Wynberg, 2006). To address this complexity, we recommend a framework that incorporates value chain actors into national ABS negotiations to ensure equitable benefit-sharing interventions from all key actors involved in the use of genetic resources and associated traditional knowledge (Figure 5-1). The ABS value chain framework can provide strategies through the negotiations on what constitutes fair sharing of benefits from each of the actors. ABS tends to prioritise market-driven approaches in addressing transnational governance and legal disparities, incentivising biodiversity conservation, and enhancing justice for ILCs through employment opportunities and labour arrangements, while empowering them as actors within value chains (Wynberg, 2023; Peterson, 2017). For associated traditional knowledge with traceable origin, in particular, ABS negotiations should include the associated ILCs, the government, involved companies and other institutional stakeholders to provide transparency, legal certainty and fairness in terms of equal participation (De Rooeck, 2020; Sirakay, 2020).

Incorporating a value chains perspective in ABS implies that value actors such as traders, exporters, importers, manufacturers and retailers should be directly engaged in negotiations with the government and indigenous and local communities (ILCs) as providers of genetic resources. These negotiations would resolve the globally neglected issue of benefit-sharing within complex value chains by determining whether it should occur at the end of the chain or individual steps, addressing challenges related to bureaucratic paperwork and the due diligence required to define contributions by each value actor (Michiels et al., 2022). Additionally, collaboration with other stakeholders like non-governmental organisations (NGOs) and academic institutions is also essential, particularly in research. Policies, including the ABS, must be supported by reliable research on benefits transfer to effectively ensure equitable benefit-sharing (Luswaga, 2023). By doing so, the framework can address current gaps in the legal duties of value actors and alleviate the bottleneck that these gaps produce in benefit-sharing.

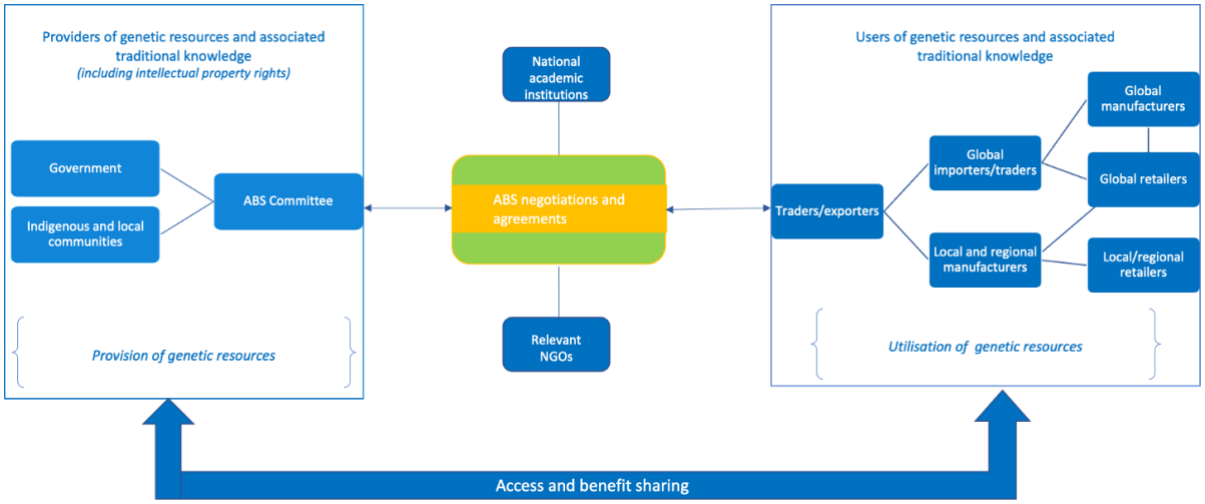

Figure 5-1. *ABS value chain framework. Source: Authors.*

5.3 Methods

According to Morrison et al. (2021) and Avilés-Polanco et al. (2019), studies of this nature should examine national ABS regulations, the stakeholders involved in their implementation, as well as the effects of benefit-sharing on ILCs. For this purpose, we adopted a mixed-method approach to analyse the impact of BioTrade and global value chains on ILCs engaged in NTFP production, as well as the mechanisms for implementing ABS regulations in Namibia.

Our data collection involved semi-structured interviews with informants representing government agencies, NGOs, and various actors in NTFP value chains such as traders, exporters, global importers and manufacturers. We interviewed seven key informants from the Ministry of Environment, Forestry and Tourism (MEFT), Nyae Nyae Development Foundation of Namibia, Namibia Nature Foundation, and the Kyaramacan Association, a coalition of harvesters. We also conducted interviews with three Namibian Devil's Claw traders, two of whom were exporters. Additionally, we interviewed two importers from Germany and France who also operated as traders and manufacturers.

Furthermore, we participated in three symposiums[3] focusing on ABS regulations and ABS-BioTrade activities, where talks were delivered by experts from organisations such as the Ministry of Industrialisation and Trade, the German Development Agency (Gesellschaft für Internationale Zusammenarbeit), BioInnovation Africa, and Devil's Claw exporters and importers. These symposiums provided valuable insights for our analyses. Moreover, we

[3] a national workshop on Devil's Claw BioTrade on 4 November 2021, the launch of the ABS Act and Regulations by MEFT and stakeholders on 25 November 2021, and an international conference session on improving the sustainability of the Devil's Claw supply chain on 22 May 2022.

collected statistical data from the Namibian Statistic Agency, the Kyaramacan Association, and the Nyae Nyae Development Foundation to assess the value of NTFPs and the monetary and non-monetary benefits shared with ILCs by the involved value actors.

For sampling, we employed both purposive and snowball techniques. Purposive sampling was used to select the relevant key informants and Namibian traders. While European importers/manufacturers and NTFP value actor specialists were identified through purposive and snowball sampling, six of those we contacted either did not respond to our requests for interviews or declined them. Ultimately, using a referral-based approach, we were able to conduct interviews with the two importers.

Data collection was carried out from June 2021 to March 2023. Qualitative data were transcribed and analysed using MAXQDA, employing coding by theme. Quantitative data analyses were conducted using Excel primarily for descriptive purposes.
Ethical approval for our research methods was obtained from the University of Namibia, the Ethics Committee at the National Commission on Research, Science and Technology, as well as the MEFT.

5.4 Addressing ABS in value chains of NTFPs from Namibia

Based on the data collected from the Namibia Statistics Agency, the trade and value of NTFPs harvested by ILCs have increased over the last two decades. The value of NTFPs increased from NAD[4] 9.86 million in 2004 to NAD 128.7 million in 2022 (Figure 5-2). The extent to which ILCs have been able to capture and benefit from this value was not disclosed. However, 43% of ILCs are reported to be multi-dimensionally poor and receive no monetary or monetary benefits (Namibia Statistics Agency, 2021).

[4] The exchange rate between the Namibian dollar and the US dollar was 18:1 at the time of our data analysis.

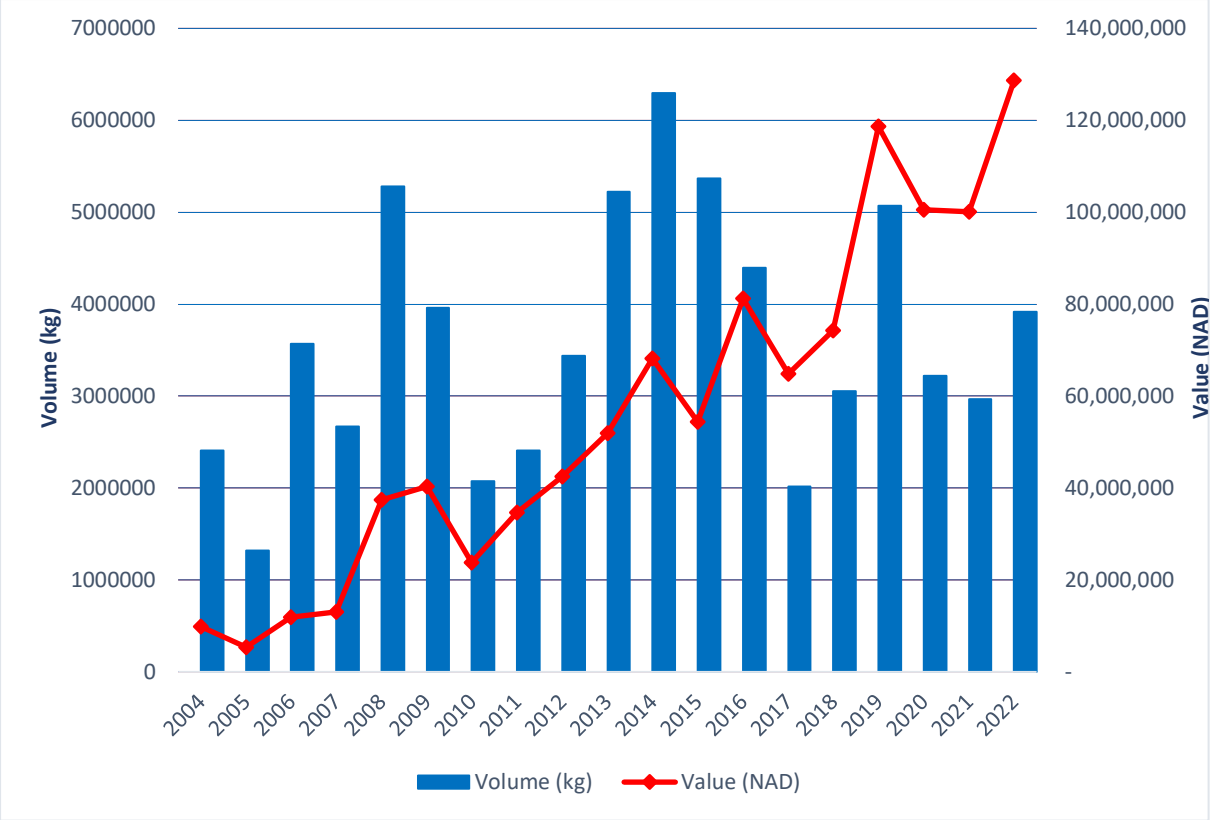

Figure 5-2. *Total export volume and value of non-timber forest commodities harvested by ILCs over the years. Source: Authors, data from the Namibia Statistics Agency.*

Namibia is recognised as one of the first three countries in the world to have developed comprehensive BioTrade projects, which aimed to create economic opportunities for ILCs by connecting them with global markets (United Nations Environment Programme, 2012). Consequently, Namibia has been involved in a series of ABS-compliant BioTrade projects since 2006 (Drews, 2020; El Mohamadi, 2022). These projects have established GVC corporations between Namibia and European countries, leading to an increase in the export value of NTFPs for pharmaceuticals, cosmetics and nutrition (Table 5-2). According to the BioInnovation Africa coordinator, the projects aimed to maximise the use of biodiversity endowments while promoting sustainable development through conservation and rural livelihoods and employment. As a result, the BioTrade partnerships between Europe and Namibia were founded on innovative approaches to equitable benefit-sharing:

> "These projects are executed in Namibia given the abundant diversity of plant species with a range of traditional uses, which are considered to offer some source of innovation for natural ingredient products and an opportunity for local development and conservation. [project coordinator, BioTrade Workshop, 4 November 2021]"

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commodities	Pharmaceutical and related plants	Oils	Melons	Live plants	Fruits	Natural gums and resins	Other products	Total (NAD)
2004	3,875,346	428,888	3,875,346	1,543,702	136,092	3,697	600	**9,863,671**
2006	5,176,050	931.223	5,198,100	430,227	137,260	718	17,000	**11,890,578**
2008	15,908,084	10,944,223	8,679,204	1,539,010	170,704	176,521	51,560	**37,469,306**
2010	7,432,477	298,573	8,258,654	7,238,656	333,465	128,070	50,669	**23,740,564**
2012	24,564,128	2,468,580	9,835,313	5,377,924		222,133		**42,468,078**
2014	30,648,299	17,378,877	6,011,927	13,581,001	5,297	551,464		**68,176,865**
2016	43,543,572	22,886,087	14,475,675	187,247	45,677	82,747	5,714	**81,226,719**
2018	50,226,377	10,243,178	13,509,547	49,355	89,537	30,662	120,733	**74,269,389**
2020	66,102,164	7,836,273	11,741,131	1,123	14,926,916	574		**100,608,181**
2022	68,011,358	12,732,970	25,141,400	156,715	20,887,927	403,875	1,315,813	**128,650,058**

Table 5-2. *The value (in NAD) of exports of* non-timber forest commodities over the years. *Source: Author, data from the Namibia Statistics Agency*.

Before the BioTrade initiative, industries that utilised Namibia's genetic resources failed to recognise ILCs for their knowledge, innovations and practises. When the traditional knowledge-based Devil's Claw, Hoodia, Marula, Manketti, Ximenia (*Ximenia* spp.), Kalahari Melon (*Citrullus vulgaris)* and Namibian Myrrh (*Commiphora wildii*) were first commercialised for regional and global markets, the knowledge associated with them was misappropriated through biopiracy and the granting of exclusive patents to industries. In 2007, BioTrade projects were reported to have benefited 42,720 producers of NTFPs in Namibia (United Nations Environment Programme, 2012). A number of these beneficiaries came from ILCs with whom BioTrade industries negotiated benefit-sharing agreements and patent co-ownership was granted. Notably, the Eudafano Women's Cooperative became the first cooperative in the world to co-own a patent with a multinational company (Ministry of Environmental and Tourism, 2010). This cooperative collaborates with over 2,500 rural women in northern Namibia to collect Marula fruits and Kalahari Melon for oil processing (Eudafano Women's Cooperative, 2022). The cooperative packages and exports finished products to industries in Europe, the United States, and South Africa, generating recent

revenues of up to USD15.4 million in the past five fiscal years (Whiteside, 2022; Eudafano Women's Cooperative, 2022).

Although ILCs actively participate in NTFP value chains and contribute their knowledge of use, only a limited number receive a share of profit (Mosimane & Silva, 2015; Wynberg & van Niekerk, 2014). For example, the first BioTrade corporation involving indigenous Ovahimba communities and international companies from South Africa, France, and Germany resulted in only 319 people benefiting from the commercialisation of Namibian myrrh (Chinsembu & Chinsembu, 2020). According to Chinsembu & Chinsembu (2020), myrrh resin harvesters received a total of USD 35,000 between 2007 and 2008. In 2010, an ABS agreement was signed between a South African company and five Ovahimba communities, which led to the establishment of a Trust[5] and a processing facility for the production and sale of myrrh essential oils to multinational companies (Chinsembu & Chinsembu, 2020; Kunene Conservancy Indigenous Natural Products Trust, 2018).

Agreements for benefit-sharing between producers and other value chains are often influenced by social, cultural, and political factors in addition to ABS regulations (Heeren-Hauser et al., 2020). It should be noted that the shared benefits with indigenous and vulnerable communities, particularly for traded raw materials, tend to be lower.

5.4.1 The impact of multi-stakeholder governance on the implementation of ABS Regulations

Since gaining independence in 1990, the Namibian government has been promoting the sustainable use of NTFPs for rural development and poverty alleviation, in accordance with its Constitution, emphasising ecosystem and biodiversity conservation for present and future generations (Namibian Constitution, Art. 95 (I)). To fulfil this commitment, the government established a National Biodiversity Strategy and Action Plan, serving as a foundational framework for subsequent national policies and laws (Table 5-4) that govern the sustainable access and use of genetic resources *(*Heeren-Hauser et al., 2020; Republic of Namibia, 2014). In addition, the Indigenous Plant Task Team, composed of stakeholders from the government, intergovernmental institutions, NGOs, community organisations, unions, academia and donor agencies, was established to oversee the commercialisation of NTFPs, permits acquisition and benefit-sharing agreements, as well as strategies for the ILCs' long-term economic

[5] Kunene Conservancy Indigenous Natural Products Trust

opportunities (Suleman, 2017; Drews et al., 2008). However, these governance structures have not significantly improved the participation of ILCs, especially indigenous communities, in regulation development and benefit-sharing negotiations (Wynberg, 2023). This is because legal regimes have only given indigenous communities nominal regard, giving little consideration to their perceptions regarding commercialisation or agreement negotiations (Chaturvedi, 2009; Vermeylen, 2008). Due to their limited involvement and institutional support, some NTFPs associated with traditional knowledge were patented and licenced to international companies, without following the proper ABS process, including obtaining prior informed consent from ILCs and establishing benefit-sharing agreements (Cossa, 2022; Vermeylen, 2008).

Event	Year
Creation of the Diversity Programme	1994
Inauguration of BioTrade Working Group; Initiation of ABS policy formulation	1998
Formation of the Indigenous Plant Task Team; Passing of the Forestry Act	2000
Implementation of the first National Biodiversity Strategy and Action Plan	2001
Chairing the first round of negotiations under the ABS regime	2004
Resumption of the drafting of the ABS bill	2006
Establishment of the Interim Bioprospecting Committee	2007
Adoption of the Nagoya Protocol; Adoption of the Policy on the Utilisation of Devil's Claw Products	2010
Resumption of the drafting of the ABS bill (third time) National consultation on the proposed ABS bill	2011
Adoption of Industrial Policy	2012
Implementation of the second National Biodiversity Strategy and Action Plan	2013
Ratification of the Nagoya Protocol; Establishment of the ABS legal system	2014
Passing of the Access to Biological and Genetic Resources and Associated Traditional Knowledge Act	2017
Implementation of the Act and Regulations on Access to Biological and Genetic Resources and Associated Traditional Knowledge	2021
Ratification of the SADC Protocol on Industry	2022

Table 5-4. *An overview of ABS-related legislation and activities developed in Namibia. Source: Authors, information adapted from Suleman (2017) and Shikongo (2014).*

The governance stakeholders recognise the need for amendments in international and national regulations due to the limited contribution of NTFPs to improved income for ILCs and the gross domestic product (Ndeinoma, 2018; United Nations Environment Programme, 2012). Consequently, pro-poor approaches were introduced aimed at empowering disadvantaged ILCs by integrating them into a green market economy. This involves strengthening community-based natural resources management in conservancies, community forests and national parks that cover 20% of Namibia's land area (MEFT/NACSO 2022; Heeren-Hauser et al., 2020; United Nations Environment Programme, 2012). After Namibia ratified the Nagoya Protocol in 2014, the government passed the ABS Act in 2017, and the ABS regulations came into force in 2021 following their scrutiny by ABS-aligned government agencies[6] and influential stakeholders, particularly international institutions, NGOs and research institutes. Furthermore, ABS-aligned trade policies, such as the Industrial Policy, the Growth-at-Home Strategy and the SADC[7] Industrialisation Protocol, were implemented to strengthen NTFP value chains in the pharmaceutical, cosmetic, and nutraceutical industries, to reduce income inequality and increase local employment opportunities (M. Humavindu, personal communication, 25 November 2021). This has resulted in over 40 Namibian NTFP export businesses, with a 38% increase, facilitated by the BioInnovation Africa project, which focuses on fostering BioTrade business partnerships between Namibia and Europe (Drews, 2020; German Development Agency, 2020). However, these business partnerships primarily serve those who can afford the necessary technologies and required certifications, rather than benefiting disadvantaged ILCs (Wynberg, 2023).

The ABS office system has been operational since 2022, although it had minimal staff at the time of our data collection. According to the ABS specialist, since the ABS regulations went into effect, the office received a relatively high number of applications, but only a small number of genetic resource-users complied with the regulations. It was observed that the majority of applicants, especially those with extensive trade and export experience, failed to provide the required documentation as stipulated by the regulations:

> " During the application process, the office diligently assisted each applicant with thorough evaluations and provided regular updates on the status of their applications. Given that this was the first round of applications, the office took great care to ensure compliance and avoid any legal complications. However, many applicants, particularly from the Devil's Claw industry,

[6] MEFT, the Ministry of Justice and the Ministry of Industrialisation and Trade.
[7] Southern African Development Community

> failed to submit the required information and documentation in accordance with the ABS Regulations." [ABS specialist, Windhoek, 23 February 2023]

It is crucial for applicants to adhere to the ABS regulations by providing all relevant information regarding their supply chain, including third-party utilisation of commodities in material transfer and benefit-sharing agreements.

5.4.2 Devil's Claw benefit-sharing agreements: A case study of San communities

Namibia is the largest supplier of Devil's Claw (Harpagophytum procumbens and H. zeyheri) in the world (Brendler, 2021). The San communities, who are the first inhabitants, have a long history of using this plant for medicinal purposes and possess traditional knowledge about it that spans centuries or even millennia (Wynberg & Chennells, 2009; Krugmann, 2001). However, the commercialisation of Devil's Claw in the 1950s, mainly for treating arthritis and inflammation in the Global North, led to one of the earliest cases of biopiracy in Namibia (Wynberg, 2004; Krugmann, 2001). Simultaneously, companies in Germany and the United Kingdom acquired extraction and processing patents, resulting in a significant increase in trade volume, reaching nearly 700 samples per year by the end of the 20th century (Krugmann, 2001).

For almost five decades, indigenous communities' traditional knowledge of Devil's Claw was appropriated through biopiracy (Chinsembu & Chinsembu, 2020). However, a donor-funded project called "Sustainably Harvested Devil's Claw" developed a benefit-sharing agreement for Namibian harvesters (Cole & du Plessis, 2001). The agreement was first implemented in the Omaheke Region in 1999 and benefited only 328 out of the targeted 10,000 national harvesters. The primary beneficiaries were the Ju|'hoansi and Nharo San communities, who received a direct payment of NAD 12.00/kg, an additional bonus of NAD 1.00/kg, and assistance in the form of weighing scales and storage facilities from the exporter for their sales in 2000. As a result, their income increased by at least 50% and, in some cases, by as much as tenfold, despite only earning an average of NAD 375 per harvester (Cole & du Plessis, 2001).

H. procumbens was ranked as the third most used medicinal plant in Germany in 2001, generating sales of approximately USD 34 million in that country alone (Lavelle, 2019). Meanwhile, the international trade value of dried Devil's Claw materials was USD 100 million per 700,000 kg in 2004 (Wynberg, 2004). According to MEFT data, Namibia exported a total

of 6.686 million kg of Devil's Claw between 2015 and 2021 (Figure 5-3). The majority of this total (91%) was exported to European countries, with France as the largest importer (43%), followed by Germany (25%), Poland (16%), Spain (5%), and Italy (2%). Only 5% of the total was sent to China, 2% to South Africa, and the remainder to other countries. While the current global trade value is not publicly available, projecting from the 2004 value, the exported quantity of Devil's Claw would have an average annual value exceeding USD 143 million. Despite the efforts of the Sustainably Harvested Devil's Claw project, the San communities involved in Devil's Claw harvesting did not directly trade with industries in the Global North. Instead, they work with intermediate companies, such as exporters, earning income that is inadequate to significantly improve their livelihoods. Only a few community members are employed in the industry, mainly as co-administrators of sustainable harvesting, typically earning less than 3,500 NAD per month. Meanwhile, community members who harvest and add value by cleaning, cutting, drying and packing the materials for exporters earn an annual average of just 1,538 NAD per harvester (Nakanyete et al., 2023). Notably, the exporters only consisted of five white Namibians and one white South African, which seems to demonstrate a legacy of post-colonialism. Our interview with a local trader, who unsuccessfully attempted to become an exporter of Devil's Claw, revealed that:

> “Entering the Devil's Claw export market is a challenge for new or indigenous exporters. Importers prefer to do business with these established exporters, even if the new exporter is competent or offers lower prices. Local traders have tried to enter the market, but it has proven impossible. Some have managed to obtain the necessary permits and supplies, but finding customers in Europe has been difficult. [Local trader, Windhoek, November 2021]

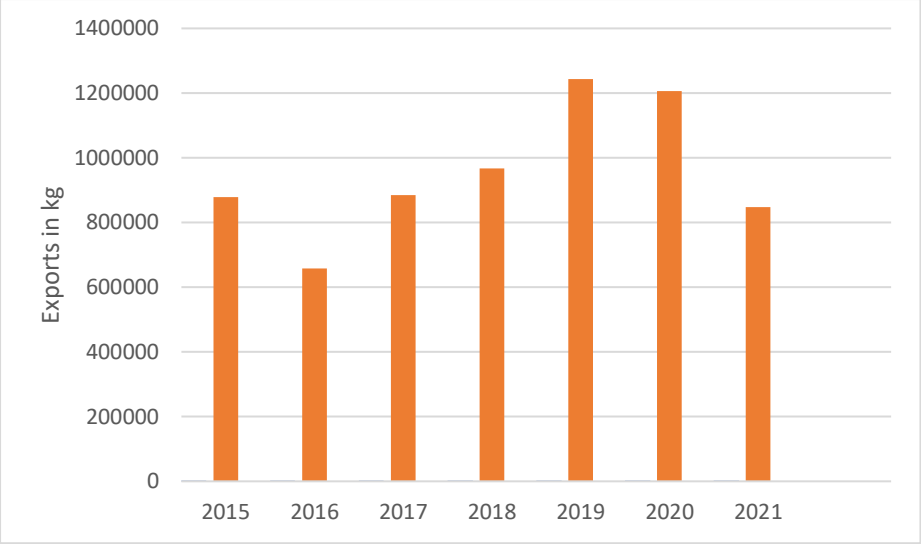

Figure 5-3. *Devil's Claw exported from Namibia between 2015 and 2021. Source: Authors, data from MEFT.*

Most of the experts and value actors interviewed confirmed the growing market demand for Devil's Claw. Despite this, only Nyae Nyae and N≠a Jagna conservancies received better rates per harvester, management fees and bonuses during our data collection (Table 5-5). A German company purchased Devil's Claw from these conservancies to process and/or trade it as tea/infusion and capsules for human and animal consumption. Through the exporter, the company paid a bonus of €0.50[8] to the involved San communities for each 148g Devil's Claw package sold. Additionally, for every 1 kg bag of Devil's Claw horse powder purchased, the company donated €1 to an animal foundation in Namibia.

Compared to other harvesting communities in the country, the remuneration for the two conservancies was the highest. Both the exporter and importer, who acquired the products from the conservancies, stated that they paid more due to the conservancies offering first-grade H. procumbens that were certified Fair for Life and organic. According to the informant from the Nyae Nyae Development Foundation, the well-organised communities received support from the NGO in contract negotiations and were provided with market information to prevent exploitation, resulting in a favourable price structure.

[8] The exchange rate between the Euro and the Namibian dollar was 1:19.8 at the time of our data analysis.

Communities	No. of harvesters	Quantity harvested (kg)	Total income of harvesters (NAD)	The rate paid to harvesters (NAD/kg)	Management fees (NAD//kg)	Total Management Fee (NAD)	Bonus to Harvesters (NAD)	Total Income (NAD)
Nyae Nyae Conservancy	608	25,264.40	1,339,013.20	53	13.38	338,257.60	130,241.00	1,807,511.80
N≠a Jagna Conservancy	782	23,259,50	1,069,937.00	46	10.87	253,035.60	105 431.50	1,428,404.10
Bwabwata National Park	936	34,257	1, 438,794	42	8	274,054	0	1,712,848.00

Table 5-5. *Devil's Claw volume and revenue generated by San communities in 2021. Source: Authors, data from the Nyae Nyae Development Foundation and the Kyaramacan Association.*

Devil's Claw harvested in Bwabwata National Park was also certified organic, with the harvesters organised under the Kyaramacan Association. However, the community received a lower rate per kilogramme, a reduced management fee, and no bonus. The Kyaramacan Association informant highlighted the lack of representation of the Khwe and !Xun San communities in traditional authorities and the lack of support from NGOs for contract negotiations, as observed in the conservancies. When inquired about the lack of bonuses for this community, the relevant exporter did not provide any justification.

Although none of the companies disclosed their profit from Devil's Claw sales, the German trader indicated that the products accounted for approximately 20% of their total income. Furthermore, the trader expressed confidence in the ongoing process of getting their products into regional retailers, foreseeing that it would lead to self-sufficiency for the business.

Meanwhile, the informant from the French importing and trading company, which also processed Devil's Claw, expressed the view that no industry, including their own, shared benefits with the San communities due to the lack of national ABS regulations at the time. The informant shared their company's social initiative of building a kindergarten in the Zambezi Region, which would provide mothers harvesting Devil's Claw with greater flexibility to drop off their children and go to work. While this may benefit local communities, it may not necessarily benefit the San, as they constitute a minority in the region and are not the majority of the harvesters there.

The informants from both the German and French firms reported ongoing efforts to improve benefit-sharing with San communities, especially in light of the recent ABS regulations. However, no ABS agreements were signed with any San communities until March 2023 when the Nyae Nyae and N≠a Jagna conservancies signed their first agreement. Meanwhile, the

Bwabwata communities did not have an ABS agreement until the end of our data collection.

5.5 Discussion and conclusion

Since the adoption of Namibia's first National Biodiversity Strategy and Action Plan, as well as BioTrade and ABS programmes nearly two decades ago, there have been expectations that ILCs would receive fair profits and other benefits from the use of genetic resources, including NTFPs associated with their traditional knowledge. However, our findings confirm that the ILCs as producers in both regional and global value chains of NTFPs have had little impact on their livelihoods. Instead, it is the global users who profit significantly, while various communities where the resources are primarily extracted endure poverty (Wynberg, 2004). To address this challenge, the national ABS regulations, which came into effect in 2021, aim to increase legal certainty regarding the rights of ILCs over genetic resources, ensure fair benefit-sharing, and establish mechanisms to penalise offenders who contravene or fail to comply. However, compliance challenges experienced thus far with the regulations, particularly in acquiring information from national value chain actors and their global trading partners, the ABS regulation is unlikely to readily lead to a transformative reduction in benefit-sharing inequality. This challenge is compounded by the fact that indigenous San communities and the global genetic resource-user firms were not directly involved in prior ABS discussions. To ensure inclusivity, transparency and fairness in ABS negotiations and benefit-sharing with traceability, it is essential that pertinent ILCs, government entities and businesses participate in the negotiations (Wynberg, 2023; Michiels et al., 2022; De Rooeck, 2020).

The indigenous San communities in Namibia possess valuable traditional knowledge of plants that have been commercialised for various purposes. However, they are highly vulnerable to exploitation, with their traditional knowledge often undervalued or stolen (Chinsembu & Chinsembu, 2020; Schroeder et al., 2020). Therefore, it is crucial to fairly compensate them for their contributions to the creation and commercialisation of natural products such as Devil's Claw. The participation of ILCs in the implementation of ABS regulation can play a crucial role in benefit-sharing strategies by learning from the successful experiences of other countries with effective ABS legislation, such as South Africa.

The example of the traditional knowledge benefit-sharing agreement of Rooibos signed in South Africa in 2019 demonstrates the positive outcome that can be achieved through collective action, strong legal support, government leadership, solidarity among indigenous peoples, and

mutual recognition of achievable win-win agreements (Schroeder et al., 2020). The San and Khoi of South Africa received their first payment of more than ZAR[9] 12.2 million or 1.5% of the farmgate price in 2022 (Modise, 2022). In addition to monetary benefits, non-monetary benefits such as employment opportunities, bursaries, development programmes, mentoring, and support for livelihoods are also addressed (Schroeder et al., 2020; Wynberg, 2019). By considering value chain declarations in the benefit-sharing negotiation, as recommended in the ABS-value chain framework, Namibia and other countries facing benefit-sharing challenges can aim for similar outcomes.

While national economic or value capture from genetic resources in Namibia may improve with the national ABS regulations, effective implementation is crucial to ensure that these benefits reach deserving communities associated with traditional knowledge in genetic resource production. Benefit-sharing initiatives and agreements have often favoured those who are more prominent, better organised, well-resourced, or politically connected, at the expense of marginalised indigenous communities (Wynberg, 2023). In ethnically diverse environments, where indigenous communities lack representation in traditional or local authorities, they may not be the primary ABS beneficiaries. Therefore, the government should identify resource and traditional knowledge owners to recognise them as primary contacts and beneficiaries, while the state and relevant institutions provide secondary support (Suleman, 2017).

In summary, it has been two decades since Namibia began engaging with BioTrade and ABS initiatives, yet little evidence of their impact has been reported. As of the time of writing this paper, despite the recent enforcement of ABS regulations, there has been no substantial distribution of either monetary or non-monetary benefits to ILCs. While these regulations may ultimately improve profits from genetic resources for Namibia, without the direct involvement of relevant ILCs and global firms in ABS agreement negotiations, poverty, economic disparities and social injustice among ILCs who provide these resources and traditional knowledge, may persist. Therefore, our hypothesis that collective negotiations could lead to more impactful agreements has not been supported by our findings. The ABS-value chain framework presents an ideal approach for addressing current gaps in the legal obligations of value chain actors and the bottlenecks these gaps create in benefit-sharing.

[9] The exchange rate between the South African Rand and the US dollar was 18:1 at the time of our data analysis.

In addition to robust benefit-sharing regulations, to ensure equitable value capture by ILCs, it is essential to recognise and/or promote their value-added activities. In the case of the growing global demand of Devil's Claw, for ILC producers who already add value to the materials sold as natural medicine, establishing processing facilities could create sustainable, long-term employment opportunities and promote value transfer. Global user companies could enhance their reputation and reduce their costs, including taxes, transportation expenses, storage requirements, and quality control compliance, associated with sourcing materials from the country providing the resources (Krugmann, 2001). To align with sustainable development goals, genetic resources integrated into GVCs should offer ILCs opportunities for both economic and social development.

We recommend conducting further studies to explore the potential of establishing local NTFP processing facilities as a sustainable or supplementary approach to enhancing the bargaining power and economic upgrading opportunities for the marginalised indigenous and local producers.

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6 Requirements for community-company partnerships in non-timber forest product trade: The case of San communities in northern Namibia

Nakanyete, N. F., Matengu, K. K., & Diez, J. R. (2023). Requirements for community-company partnerships in non-timber forest product trade: The case of San communities in northern Namibia. Manuscript submitted for publication.

Abstract

This article explores the reasons why non-timber forest product (NTFP) harvesting by the indigenous San people for regional and global markets has not succeeded in breaking persistent cycles of marginalisation in their community. Our study assesses the necessary prerequisites for successful NTFP value addition for San while also identifying factors that hinder their ability to establish community enterprises, such as cooperatives, that could facilitate revenue development. To conduct this research, we adopt a qualitative case study approach using exploratory methods, combining empirical data with secondary data. The findings indicate that the Kyaramacan Association in Bwabwata National Park collaborates with the government, tourism operators, and an exporter to generate income for San communities, but faces challenges related to value addition and bargaining power. In Okongo, San harvesters lack organised structures and infrastructures, experience exploitation by local traders, and encounter difficulties in NTFP commercialisation beyond the constituency.

Keywords: indigenous communities; socioeconomic justice; community-based organisation; micro-enterprises, local cooperatives

6.1 Introduction

The indigenous San communities in northern Namibia, traditionally depended on harvesting non-timber forest products (NTFPs) for their subsistence and for bartering with their neighbouring communities. The government of Namibia with other stakeholders have initiated support for collaborations in the NTFP trade between forest-dependent communities and multinational firms. In some cases, this has led to the establishment of local processing facilities and joint patent ownership, enhancing revenue opportunities for communities in Namibia, especially Ovahimba and Ovawambo, but not for San communities, who still experience high levels of poverty (Chinsembu & Chinsembu, 2020; Den Adel, 2002). In this article, we investigate the reasons behind the goal of breaking persistent cycles of marginalisation with the San through their participation in regional and global markets that have not been achieved.

Community-company partnerships represent a new approach to encouraging direct trade between rural communities and multinational firms (Antunes et al., 2021). These partnerships are meant to facilitate the formation of local cooperatives, as well as other forms of collective microbusinesses, to trade especially with cosmetics and pharmaceutical lead firms that have turned to the use of natural and organic products. In addition, to increase production and improve NTFP-based income for involved communities, the partnerships aim to provide conditions for technical support, training, and capital (Antunes et al., 2021).

In Namibia, one of the successful community-company partnerships involves the *Eudafano* Women's Cooperative, which trades with multinational companies, such as The Body Shop. The cooperative has gained recognition as the leading supplier of Marula oil to global and regional markets (Dagar et al., 2020). More than 2500 rural Ovawambo women are active members of the cooperative, collecting Marula fruits and Kalahari melon for the cooperative to process oils for use in food and cosmetics. The Cooperative's exports of finished and semi-finished oil products have generated substantial revenue, amounting to USD 15.4 million in the past five fiscal years (Eudafano Women's Cooperative, 2022). These types of success stories are often promoted as model cases for other rural communities. The success of *Eudafano* Women's Cooperative in NTFP processing, which we further explore in Section 2 below, demonstrates the potential for value addition and benefits for local participants in these partnerships.

Given that the San have relied on NTFPs for a long time, it is rather surprising to see that there have been no successful multinational company partnerships with any of their communities. Why is this so if, arguably, San are particularly in need of such partnerships given their marginalisation, and the renowned substantive knowledge they possess on local plant use (Cole, 2014; Krugmann, 2001). So far, there are only a few cases of the San who are partially integrated into global value chains of NTFPs, in the case of Devil's Claw (*Harpagophytum* spp.), and into regional value chains, in the case of Natal Oranges (*Strychnos* spp.), Manketti (Schinziophyton *rautanenii*), honey and edible caterpillars. Even in those cases, San NTFP harvesters still struggle to earn reliable market income from these products for their livelihoods. For example, Devil's Claw harvesters in Bwabwata National Park only earned an average of 1,538 NAD[10] per harvester in 2021 (Nakanyete et al., 2023). Considering the value of products derived from Devil's Claw that have been on the global market for over 60 years, this amount is remarkably low. Initially, much of the profits from Devil's Claw were generated through what we would consider biopiracy. Unlike the case of the Rooibos tea, in which there has been a financial settlement with San in South Africa (Schroeder et al., 2020), the San of Namibia are yet to financially benefit from the recognition of the Devil's Claw as part of their traditional knowledge. Those who receive earnings are essentially being compensated for their labour as harvesters. Although Namibia is the largest exporter of dried Devil's Claw materials, the San harvesters and other Namibian value actors only captured a mere 1% of the total global market value, which amounted to USD 100 million per year in the 2000s (Wynberg, 2004; Krugmann, 2001).

There are other products harvested for regional markets that have the potential to improve income and livelihoods in San communities. Natal Oranges are sold at *Spar* regional retailers, in addition to their availability in many open markets across Namibia, when it is their season. Moreover, some companies process Natal Oranges into juice, jam, and ice cream, which exemplifies their potential for value addition. But even in this case, the profits derived from the processing are not obtained by the San, but by intermediaries and entrepreneurs from other communities. Therefore, our paper aims to investigate the critical factors that prevent the San from forming a community enterprise (such as a cooperative) conducive to revenue development, as well as other necessary prerequisites for successful NTFP value addition, as observed, for instance, in the *Eudafano* Women's Cooperative. We will specifically highlight

[10] The exchange rate between the Namibian dollar and the US dollar was 18:1 at the time of our data analysis.

the significance of infrastructure in understanding the current situation in San communities in northern Namibia.

Existing studies on forest products highlight the presence of bottlenecks in value chains that prevent raw product harvesters from accessing the profits (van Vlastuin, 2022; Humphrey & Navas-Alemán, 2010; Paudel et al., 2009; Mayers & Vermeulen, 2002). According to Paudel et al. (2009), eliminating these bottlenecks is the only way to ensure that disadvantaged raw material suppliers benefit from the profit of NTFP trading and make a contribution to their livelihoods. However, in our specific case study, we suggest that a broader range of factors may need to be identified. Therefore, our approach is as follows: Firstly, we distill from the success story of the *Eudafano* Women Cooperative, what appear to be the necessary conditions that lead to capturing NTFP value locally. We then assess the extent to which these conditions are met or absent in our two case studies; the Kyaramacan Association of Bwabwata and the San communities in Okongo Constituency. By assessing the potential of community enterprises and local NTFP manufacturing for enhanced value capture among indigenous San communities in Namibia, we contribute to global discussions on equitable profit distribution from natural resources, involving vulnerable forest-dependent communities.

6.2 Lessons to be learned from the success and challenges of *Eudafano* Women Cooperative

The *Eudafano* Women's Cooperative was founded in 1996 by nine associations of Ovawambo women from Namibia's Ohangwena, Omusati, Oshana, and Oshikoto regions. It operates as a community trade supplier in north-central Namibia. The Cooperative embodies the principles of *Eudafano,* meaning "agreement," in Oshiwambo languages, by utilising local resources and traditional knowledge to produce marketable products and connecting local communities to regional and global markets through value chains. Ovawambo women traditionally come together under the Marula (Sclerocarya birrea) tree to extract juice from these fruits for fresh consumption, and to make wine for social events. They also dry the seeds to extract oil from their kernels, which has been a long-standing practice for food, medicinal, and cosmetic purposes (Cheikhyoussef & Embashu, 2013; World Intellectual Property Organisation/WIPO, 2010; Rodin, 1985). Women who had excess kernels typically sold them from home or at local markets, on average earning a meagre NAD 144 per season (Den Adel, 2002). To address the low income of women from the local Marula kernel trade, several organisations collaborated. These included the Centre for Research Information and Action in Africa—Southern African

Development and Consulting, the office of Namibia's first president, social funding companies like NAMDEB, and ultimately the German Development Cooperation (Negumbo, personal communication, 8 June 2023). Their collaboration provided resources, funding, and opportunities for access to larger markets for the Cooperative.

After conditional registration due to a lack of bylaws in 1999, the Cooperative formally obtained its full registration in 2009 and became the largest producer of Marula oil for food and cosmetics in southern Africa by 2010 (Kapuka, 2017; WIPO, 2010). It expanded operations and diversified oil production to also include Kalahari Melon (Citrullus vulgaris). According to the Cooperative's Manager, Martha Negumbo, the Cooperative currently employs 14 people and receives kernels and seeds from 2,500 local women annually for processing (Personal communication, 8 June 2023). The producers are represented by seven board members and participate in various training and awareness programmes on organic production. The Cooperative has significantly increased both the quantity and quality of its production, leading to improved revenue for producers. By processing the raw materials into oils, the Cooperative adds value to the final products and aims at fair prices for producers. The NGO *PhytoTrade Africa* facilitated research and development projects for natural and environmentally friendly botanical ingredients that employ Marula to expand the market (Erastus, 2022; Whiteside, 2021). It attracted multinational traders, manufacturers, and retail companies, including Marula Natural Products, Aldivia and the Body Shop, which are from South Africa, France and the United Kingdom, respectively (WIPO, 2010). As a result, the market and demand for natural oils of the Cooperative expanded significantly.

Through access to new markets, the Cooperative processes and packages oils for both global and regional markets, supplying mainly to companies in Europe, the USA, South Africa and within Namibia (Negumbo, personal communication, 8 June 2023). The producers' income quadrupled to over US$60,000, equivalent to $2.35 per kilogram of Marula kernels in 2010, and reached US$104,712 in 2015 through increased export sales from 3,419 kg annually in 2009 to 9,880 kg (Kangandjo, 2016; WIPO, 2010). This contributed to improving their livelihoods. According to Negumbo, the Cooperative's annual production capacity is currently 12 tonnes of oil, valued at approximately 15.4 million USD. However, due to unstable demand, particularly during the COVID-19 pandemic and recent inflation, the cooperative was only able to achieve this production level of approximately 40 tonnes of Marula oil and 10 tonnes of

melon oil in one out of every five years between 2017 and 2021 (Erastus, 2022). Particularly in 2020, producers only generated their season income of about US$ 158,000 (UNCTAD, 2021).

Despite some of its success, the Cooperative faces challenges such as the lack of accessible accredited laboratories for more product development and research, high shipping costs for samples to distant customers, high taxes on exporting products, limited capital for additional machinery, and the need to upgrade processing equipment (Negumbo, personal communication, 8 June 2023). To address some of these challenges and to gain additional income that provides the necessary capital, the Cooperative is developing a strategic plan to maximise regional sales of its oils and establishing standard operating processes for Marula juice and wine that women traditionally only produce on a seasonal basis.

Globally, the objectives of the Cooperative align with those found elsewhere, for instance in the case of the High Atlas Foundation, a Moroccan community-based initiative that promotes women's empowerment, education and health through organic agriculture, especially native fruit tree planting (Ben-Meir, 2019). Similar to *Eudafano, the* High Atlas Foundation supports training and market autonomy to combat poverty and preserve biodiversity (Whiteside, 2021). Using indigenous traditions, these organisations empower the formal participation of rural women in value chains and promote local and sustainable livelihoods, as well as biodiversity conservation. Therefore, the establishment of a cooperative, enabling infrastructures and collaboration with multinational cooperation is essential for the long-term success and impact of these initiatives.

6.3 Enabling factors for enhancing NTFP value addition, local processing, and enterprise development in harvesting communities for livelihood

Although the potential of NTFPs for value generation to improve the livelihoods of local communities is widely recognised, several criteria play a crucial role in determining their success (or failure) in generating profits. Indigenous communities in particular often lack participation in the processing of NTFPs, forcing them to sell raw materials directly or through intermediaries (Dinda et al., 2020). The advantages of value addition, which implies turning NTFPs into semi or finished goods, are nevertheless becoming more widely recognised for rural development, especially in forest regions (Chakravarty et al., 2015). Researchers have identified several factors that can empower local communities against exploitative

intermediaries. These factors include (a) entrepreneurial skills in business and market, (b) access to capital and infrastructure (such as transportation), as well as (c) a partnership with *multinational* companies, as a means to connect forest-dependent communities with wider markets (Antunes et al., 2021; Meinhold & Darr, 2019). In many instances in the Global South, these conditions are not in place. Instead, for communities that harvest NTFPs, the highest value of these products is often obtained by a few national elites and global firms (Shackleton & Pandey, 2014).

i. Entrepreneurial skills

The success of maximising value to sustain the livelihoods of forest-dependent communities relies on collectively shared sets of skills, habitual practises, and knowledge needed in the NTFP industry. According to Meinhold & Darr (2019), entrepreneurial skills, including technical expertise, market knowledge, and product processing for higher quality standards, are crucial. Furthermore, practical knowledge, opportunities, market orientation, personal entrepreneurial traits and adaptability, as well as social trading networks, are especially important for potential entrepreneurs in rural areas (Ludvig et al., 2016). This implies that local NTFP processing enterprises can encounter obstacles due to a lack of technical expertise and market awareness (Meinhold & Darr, 2019). Therefore, supporting producers with marketing, business and organisational skills empowers them to run community enterprises and engage directly with wholesalers, thus improving their bargaining power and risk management (Meinhold & Darr, 2019; Paudel et al., 2009). Chakravarty et al. (2015) demonstrate that local enterprises can benefit from training, as well as market and strategy development services, which enable indigenous and local communities to ensure product quality and expand their markets regionally and globally. However, training of this nature is often limited in availability or fails to address other concerns, particularly among vulnerable community members with limited literacy or indigenous peoples with distinctive traditional knowledge, practices and skills. For instance, cultural distance and misunderstandings between producers and potential multinational firm partners, can also lead to conflicts (Möller & Svahn, 2004).

ii. Access to capital and infrastructure

In addition to lacking entrepreneurial skills, many NTFP harvesters in rural communities often do not have (access to) assets such as investment capital, land and/or building, equipment, electricity and transportation, to participate in business opportunities for value additions

(Belcher & Schreckenberg, 2007; Newton et al., 2006). As a result, the harvesters are outcompeted by regional elites, defined as the group who possesses these assets, stronger connections, and exclusive capabilities to invest in technology and innovation, therefore able to capture most of the NTFP profits, and sometimes even drive local producers out of markets (Meinhold & Darr, 2019). Such elites typically become intermediaries between harvesters and multinational firms, which is the common way for harvesters' products to be accessed at regional and global markets. African NTFP harvesters, in particular, face challenges in reaching high-end markets due to challenges in their business environment that are considered unfavourable for NTFP start-ups, a lack of trained personnel, infrastructure, and other resources for marketing efforts (Meinhold et al., 2022). To counter these challenges, support from governments, humanitarian organisations, and international development agencies is required (Chakravarty et al., 2015). However, many governments and funding agencies often disregard the role that NTFPs play in the income of rural communities to promote agriculture and the fact that NTFPs often outperform the earnings from arable agriculture (Shackleton & Pandey, 2014). Consequently, securing financial resources for NTFPs presupposes that national or international agencies prioritise the reduction of poverty through NTFP revenues and sustainable forest resource management (Shackleton & Pandey, 2014).

iii. Partnerships with multinational companies

The success of NTFP value addition for local harvesters through community-based enterprises depends on the quality of their interactions with lead businesses within the value chain. Community-company-partnerships require locals to have or create legally recognised community-based organisations (CBOs), be they cooperatives, associations, or collective microenterprises, which enter into contracts with multinational companies to enhance production and implement market-focused activities that increase household revenue and forest conservation (Antunes et al., 2021). By partnering with multinational companies, harvesters who are organised in such CBOs can engage in direct trade with these companies. This can open opportunities for income diversification, skill development, local infrastructure development, and access to markets that would otherwise be inaccessible to them (Menezes Moraes, 2022; Mayers & Vermeulen, 2002). Furthermore, partnerships can lead to the creation of stable demand and markets, thereby reducing the risks associated with market fluctuations and boom-bust cycles (Meinhold et al., 2022). Although some CBOs may not be aware of these implications, companies have begun discussing the need for fair trade and sustainable forest

management, leading to agreements such as the Nagoya Protocol on Access and Benefit-sharing (Mayers & Vermeulen, 2002). This recognition should imply a change in the companies' willingness to support social justice, resource conservation and sustainable operations that would ultimately improve the livelihoods of local resource producers. Nevertheless, structurally at this stage, it is often the companies that drive the partnership, as they determine the format of the collaboration, they determine what is produced and under which conditions.

6.3.1 The potential benefits and risks of local producers linking with lead firms

Before we engage with the specific situation of San in Namibia, it is worthwhile to summarise the potential benefits and risks of community-company partnerships that have been established by researchers, governments, funding agencies, NGOs, and other organisations (Table 1). These partnerships link NTFP community enterprises with lead firms. The lead firms are typically large companies, including multinational companies that play a key role in the development of supply chains and distribution networks, strengthening their business network (Humphrey & Navas-Alemán, 2010). Unfortunately, the marketing of NTFPs from rural areas often follows lengthy channels that in the end do not ensure fair profit distribution to the producers (Choudhary et al., 2014). Lead firms in the Global North may have the potential to significantly improve the profitability and business growth of producers in the Global South (Humphrey & Navas-Alemán, 2010). However, from the perspective of producers, globalisation due to increased access to markets, financial flows, and technology also creates challenges (Mayers & Vermeulen, 2002). Globalisation can make indigenous people more vulnerable and dependent through unfavourable and discriminatory government policies (Burke, 2010).

Various studies conducted in different rural communities of the Global South have highlighted the potential advantages of establishing partnerships between local producers and lead firms (Menezes Moraes, 2022; Choudhary et al., 2014; Morsello, 2006; Mayers & Vermeulen, 2002). However, there has been comparatively less focus on addressing the associated challenges. Communities' collaboration with lead firms brings value chain integration and product diversification and branding, resulting in improved income benefits, employment opportunities and infrastructure development in rural areas (Mayers & Vermeulen, 2002). This partnership not only reduces risks for both the communities and lead firms by ensuring a stable supply and demand of NTFPs but it may also lead to contractual agreements and exclusivity arrangements

that discourage competition from other potential players due to the strong bonds established between communities and specific companies (Menezes Moraes, 2022; Morsello, 2006). In addition, by creating niche markets for NTFPs, the collaborations promote sustainable forest management and are expected to offer new opportunities for low-income producers (Morsello & Adger, 2007). Hence, in the absence of community-company partnerships, exploiting NTFPs would provide fewer benefits to both local communities and forests compared to when these partnerships are established (Morsello, 2006).

On the downside (Table 6-1), local producers' partnerships with lead firms may result in unfavourable outcomes for producers, including high transaction costs (e.g., export tariffs and bank charges), misunderstandings leading to financial losses or legal disputes, the continuation of low-wage labour, unequal land and benefit distribution, and the exclusion of vulnerable community members (Burke, 2010; Mayers & Vermeulen, 2002). Particularly in indigenous communities, the transition to intensive NTFP production creates conflicting labour demands between commercialisation and subsistence agriculture, while conflict and tensions may arise between community egalitarianism and corporate hierarchies (Morsello & Adger, 2007). Therefore, establishing equitable business connections and increasing community control over trade operations require professional management and new community structures to ensure long-term success (Morsello & Adger, 2007).

Benefits	**Risks**
Value chain integration and product diversification	High transaction costs
Improved income benefits and employment opportunities	Misunderstandings leading to financial losses or legal disputes
Infrastructure development in rural areas	Perpetuation of low-wage labour
Stable demand of NTFPs	Unequal land distribution, especially among indigenous communities
Contractual agreements and exclusivity arrangements	Exclusion of vulnerable community members
Promotion of sustainable forest management	Conflicting labour demands between commercialisation and subsistence agriculture
Creation of niche markets for NTFPs	Conflicts between community egalitarianism and corporate hierarchies

Table 6-1. *Summary of the expected potential benefits and risks of partnerships between local producers and lead firms. Source: Authors.*

6.3.2 Prerequisites for the success of cooperatives

Apart from potential benefits and risks that can be identified, there are also changes to the social and economic structure implied in these partnerships that cannot easily be listed as either

a benefit or a risk. One of the main side effects (and prerequisites) for such partnerships is that producers typically are expected to form cooperatives or similar associations. Cooperatives can be defined as autonomous associations of individuals who voluntarily collaborate to meet their common economic, social, and cultural needs through jointly-owned and democratically-controlled enterprises (International Cooperative Alliance, 1995). Cooperatives are built on globally recognised administrative principles including open membership, democratic control, self-responsibility, and economic participation (Hannan, 2014). In their status, they often emphasise autonomy, solidarity, and concern for the community, placing emphasis on cooperation, education and training, and equality. By functioning as community associations, cooperatives fulfil various roles in value chains, including resource pooling, meeting minimum order requirements, cost sharing, and infrastructure investment (Belcher & Schreckenberg, 2007). Thereby, they (should) enable producer communities to enhance bargaining power through collective negotiations.

However, the success of a cooperative relies on certain preconditions (and structures) being in place. In many African countries, cooperatives provide small and medium-sized enterprises with not only limited market channels but also a unique way to organise the collection, processing and sale of their products, albeit at a high organisational cost (Sumelius et al., 2021). Cooperatives are typically expected to prioritise meeting the needs of their members over profit. Earnings generated through efficient operations and value addition should be returned proportionately to members based on their level of participation, ensuring that excessive value is not captured by intermediaries or suppliers (Kwapong & Hanisch, 2013).

Effective cooperative governance is expected to comply with transparent leadership, stewardship, monitoring, and reporting, with a transparent and accountable connection between management and the membership (Sumelius et al., 2021; Hannan, 2014). For collective NTFP commercialisation in particular, poor governance, disparities in entrepreneurial capacities, and a lack of tangible benefits for cooperative members may disqualify these associations from partnerships (Meinhold & Darr, 2019). This means that the effectiveness of cooperatives in improving socio-economic benefits for their members is considered to be depending primarily on the quality of their internal governance (Sumelius et al., 2021). Therefore, the support for cooperatives focusses on the provision of training to both management and members (Sumelius et al., 2021). In summary, local communities are expected to organise themselves in specific

ways that comply with externally defined administrative standards. Any lack of success and equitable benefits generated is often attributed to an imperfect organisation and mastery of associated protocols and behaviours expected of members in these collectives. In the next section, we shall explore how these expectations favour certain local counterparts of global companies while presenting challenges for others.

6.4 Data Collection Methods

The fieldwork of this study was conducted in Bwabwata National Park and Okongo Constituency (hereafter Bwabwata and Okongo), focussing on two of the six groups of San communities in Namibia, namely, Khwe and !Xun San. These are two of the few areas in Namibia that have a vegetation cover considered as woodland forest. Hence, Bwabwata and Okongo (Figure 6-1) are part of the regions that receive the highest rainfall in Namibia, which supports the growth of these forests. Despite receiving 600–650 mm of rain annually on average, the predominantly sandy soil in these areas, which extends deep (up to 150 m) and has limited water retention capacity, makes crop farming challenging (Atlas of Namibia Team, 2022; Shikomba 2020). The areas were originally inhabited exclusively by San communities, who primarily relied on forest food for subsistence. While the !Xun in Okongo up to 1960 exclusively engaged in hunting and gathering, the Khwe settlers in Bwabwata were seminomadic hunter-gatherers who also practised limited gardening in dry riverbeds (Nghitevelekwa et al., 2020; Boden, 2020; Koot, 2016). Since the 1960s, there have been notable changes in the land use and ethnic composition of these areas, leading to significant impacts on the livelihood strategies of the first-inhabitant San communities. The Khwe of Bwabwata were adversely affected by the establishment of the national park status for their land, and by a strong colonial military presence in the area. Despite being the majority population (80% of 6700), Bwabwata became occupied by other ethnic groups such as the !Xun, Hambukushu, Vagciricku, Vakwangali, Mafwe and Ovawambo (Boden, 2020; Koot et al., 2016). Today, residents are restricted to the demarcated 'Multiple Use Area' and from accessing the Park's 'Core Areas' for conservation, which is monitored by the Namibian Defence Force, and these restrictions remain in place without (re)negotiation (Widlok & Nakanyete, 2020).

In Okongo, the *Finnish Evangelical Lutheran Mission* established the first permanent settlements in and near Okongo, bringing together local !Xun with ǂAkhoe (Hai||om) San, while

also attracting Ovawambo pastoralists, particularly Ovakwanyama, to settle in the area. With the influence of missionaries, San villages developed a farming system, based on cooperative labour and sharing among community members (Takada, 2015). However, these settlements and subsistence were severely disrupted by the establishment of a military base in the area and Namibia's war for independence, forcing the !Xun, who had remained in the area, to increasingly rely on foraging once again (Takada, 2015). Since independence, the Okongo population has increased dramatically to 25,698, and the majority of residents are now Ovawambo, with only 942 San (mostly !Xun) estimated by the 2018 Constituency Office (Nghitevelekwa et al., 2020). The constituency includes the 1063 km² large Okongo and Omufitu Wekuta community forests, which were established in 1996 to promote equitable use of forest resources and to improve the socio-economic conditions of local communities, particularly the San who to this day live under poor conditions (Nakanyete et al., 2023).

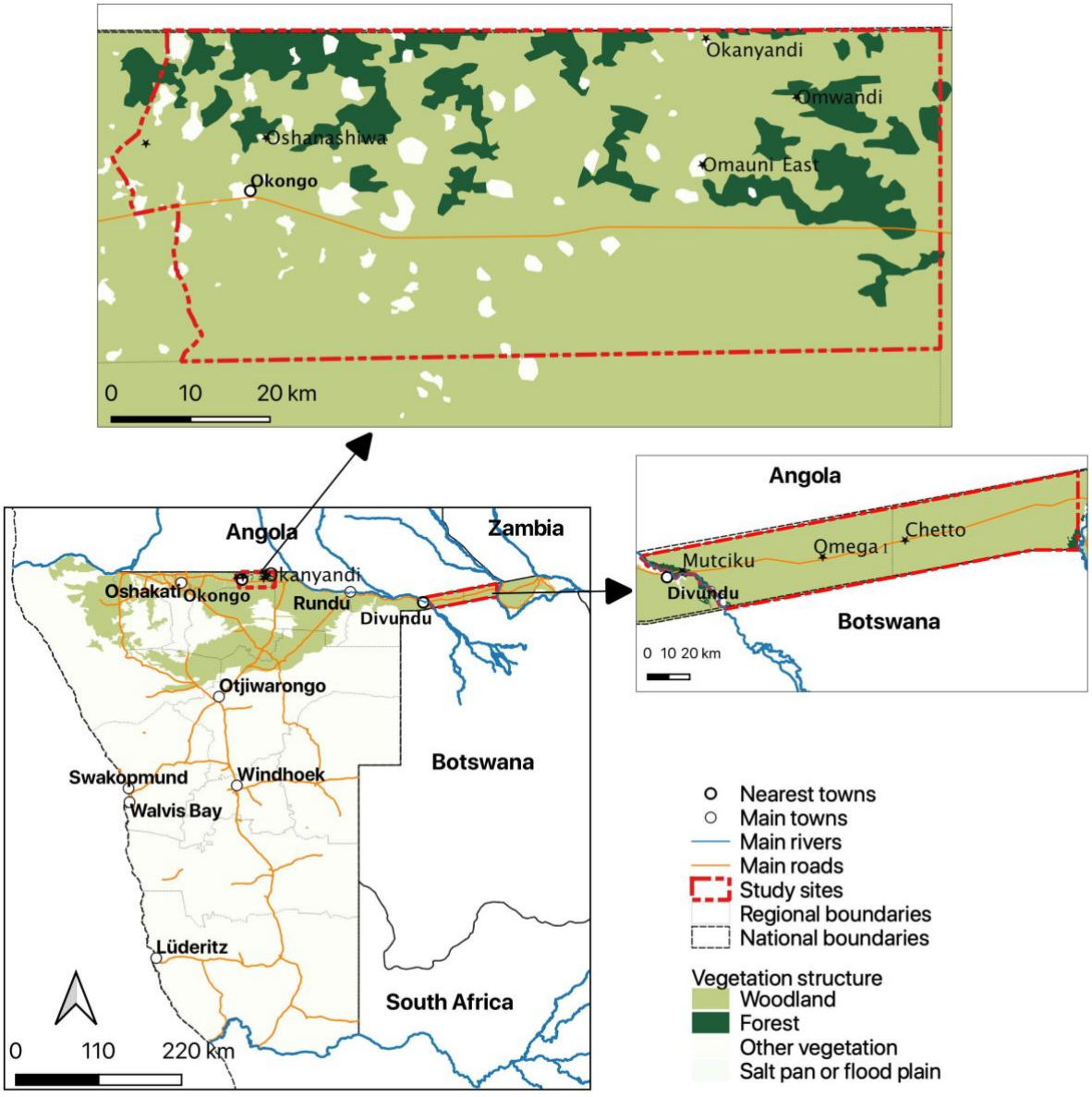

Figure 6-1. *Locations of the study sites relative to the layout of Namibia. Source: authors, data from Namibia Statistics Agency.*

i. Methods

To address questions concerning collective capabilities and requirements for value addition on NTFPs, to enhance revenue generation for San communities residing in areas with varying enabling factors, this study employed a qualitative case study approach that incorporates exploratory methods. As such, we combined empirical data with secondary data to overcome certain limitations, including the limited availability of informants for interviews (in Okongo) and the interview response consistency among NTFP harvesters in the study areas. Similar research approaches have been employed in previous studies on NTFP commercialisation

(Goyes et al., 2021; Ball & Brancalion, 2016; Heinen & Shrestha-Acharya, 2011; Ahenkan & Boon, 2010).

Empirical data was collected from March 2021 to July 2022 through interviews, focus groups, and participant observations with market actors. These actors, as defined by Greene et al. (2000), involve individuals or institutions that play a role in the value chains, including harvesters, traders, exporters, processors, and retailers. Semi-structured interviews were conducted at the household level with San NTFP harvesters in Okongo and Bwabwata, as well as with individual regional and global companies based in Namibia, Germany, and France that participate in the purchase, processing, and/or sale of San-harvested products. Furthermore, key informant interviews were conducted with specialists from government institutions and NGOs that support NTFP commercialisation. These interviews aimed to provide relevant contextual information at the local, national, and global levels. In total, we collected data from 23 in-depth interviews, three focus group discussions (FGDs) involving 10-15 harvesting participants each, five interviews with market player companies, and five key informant interviews. To enable data triangulation, secondary data from applicable studies were collected and analysed alongside empirical data.

Furthermore, the two San communities were purposefully selected based on their proximity to the forests, providing opportunities to harvest various NTFPs. Participants from these communities and representatives of companies in the NTFP market were selected using snowball sampling, where initial informants referred additional participants. Snowball sampling was considered suitable due to the small and dispersed population of these market players.

The empirical data as well as relevant secondary data were imported into MAXQDA for coding, analysis, and presentation in the two case studies detailed in the following findings section.

6.5 NTFP value addition for San harvesters' livelihoods

The residents of Bwabwata National Park established a legal association for community-based natural resource management, which, through collaborations with the Namibian Government. The association generates income from NTFPs but faces challenges in further value addition and capturing profits. In contrast, the San harvesters in Okongo lack community-based

organisations, which led to their exploitation by local traders and limited future aspirations in the potential of NTFP commercialisation, forcing some harvesters to seek alternative livelihoods.

6.5.1 Value addition opportunities through Kyaramacan Association

One of the enabling factors for value addition and capture among San communities in Bwabwata National Park is the Kyaramacan Association (KA). Kyaramacan Association is a local initiative for community-based natural resource management (CBRNM) established in 2004. It grants legal rights to all residents, who are *de facto* members of the Association, for sustainable management and utilisation of natural resources for their benefit (Koot et al., 2019). The Ministry of Environment, Forestry, and Tourism (MEFT) has officially recognised the organisation in 2006. Through collaboration with the MEFT, the Association co-manages tourism activities and is granted two trophy-hunting concessions within the park annually, which generates monetary and non-monetary benefits for residents. These hunting concessions were contracted out to two Namibian hunting operators, which provided KA with an annual income of NAD 6.85 million and considerable amount of game meat in 2023 (KA informant, Person personal communication, 14 July 2023). The income primarily supports the salaries of 72 KA employees who have various activities including patrolling, combating illegal hunting, establishing sustainable hunting quotas, educating residents about conservation and promoting tourism. Additionally, it has enabled KA to own vehicles for multiple purposes. A proportion is also distributed among community members as a cash benefit. A portion of the income is also distributed among community members as a cash benefit. However, this income distribution leaves KA with limited investment capital to explore other income opportunities and to improve its bargaining power. Consequently, support from governments, private organisations, and international development agencies is necessary:

> "The main source of income for KA comes from trophy hunting operators and not from other NTFPs that are in principle also available. At the start of each financial year, hunting operators pay a predetermined fee to KA before beginning hunting activities. KA receives 50% of this payment, while MEFT receives the remaining 50%. Moreover, the new office, currently being built for Kyaramacan at Mutciku village, is sponsored by one of the trophy hunting operators" (interview with the KA informant, 1 July 2021).

Kyaramacan Association also plays a role in the allocation of an annual quota of 25 tons (25,000 kg) of Devil's Claw to residents who participate in its harvest for the global market, by MEFT. The harvesters undergo practical training that focusses on sustainable harvesting techniques and value addition activities, including proper cutting, drying and packing, to meet global market demands and ensure export-quality control. After the collection and initial value-addition activities, KA verifies the quality of the materials and stores them at their designated storage facilities until the exclusive buyer, contracted under a concession agreement dating back to 2008, collects the materials. However, the lack of advanced training that enhances the technical expertise, market knowledge, or opportunities for product processing among KA management and harvesting members means that the association has to rely on the intermediary company, that mainly exports the unprocessed materials to the global lead firms. Enhancing domestic processing capacity in Namibia could capture greater value within the country and enable local harvesting communities to bypass intermediaries, leading to increased monetary benefits (Krugmann, 2001).

According to various informants, KA has the potential to improve its self-organisation for better bargaining power, which could ultimately enable it to establish direct connections with multinational firms. As the responsible entity for negotiating trading conditions with its export partners, for instance, in 2021, KA, through its elected board committee consisting of 12 community representatives, negotiated with the exporter for a higher price of Devil's Claw materials to be paid to harvesters. Initially, KA demanded NAD 45 per kg, but the exporter refused, leading KA to decline signing the purchasing agreement. Eventually, the exporter agreed to increase the purchase fee from NAD 40 to 42 per kg. As a result, 936 registered harvesters earned a total of NAD 1.44 million in 2021 for their first-grade organic certified Devil's Claw, averaging NAD 1,538 per harvester. Meanwhile, KA received a management fee of NAD 8 per kg, amounting to a total of NAD 274,000. However, harvesters expressed dissatisfaction, as they are only compensated for their labour during harvesting and not for the additional value activities, they perform to ensure increased desirability for the global market (e.g., reducing post-harvest losses due to contamination).

During interviews with intermediaries and lead firm representatives, it was confirmed that there has been an increase in global demand and profits from the commercialisation of Devil's Claw over the past 10 years. Data from the MEFT show that Devil's Claw exports from Namibia more than doubled from 360 thousand kg to 1.21 million kg between 2010 and 2020. However,

harvesting communities do not capture the profits, instead, it goes to exclusively to the intermediate traders and European lead firms (Chinsembu & Chinsembu, 2020). The exact profit from the recent global market remains undisclosed, as it is challenging to investigate and obtain exact information from companies (personal communication, 2 May 2022). In the early 2000s, the global market value already amounted to USD 100 million (Wynberg, 2004). It can be safely assumed that the value has risen since then. During our fieldwork in Germany, France and Spain, we observed that some Devil's Claw materials are also sold naturally in European markets (Table 6-2), while lead firms indicated that they mostly process the material into Harpagoside extracts, which they combine with other ingredients to produce capsules.

Companies	**Raw products**	**Fees and Percentage of /per kg**
KA (harvesters)		USD 2.1 (4%)
Exporter//trader (Namibia)		USD 9.6 (17%)
Importers/retailers in Europe (France, Germany, and Spain)		Up to USD 44 (79%)

***Table 6-2**. Division of value between Devil Claw value chain actors. Source: Authors*

In the interviews, all harvesters expressed their desire for a future local processing centre for NTFPs. This would empower them to sell semi-processed Devil's Claw, in addition to the raw material. It would also enable them to establish direct trades with regional and global multinational companies, ultimately redirecting enhanced income to their community and thereby improving their livelihoods. The possibility of transforming one of the existing facilities, for example, at Mutciku, into a processing warehouse seems feasible with the availability of essential utilities like electricity, vehicles, and a main road. However, participants emphasised the need for support from the traditional authority, the government, NGOs, private institutions, and donor agencies to access investment capital, acquire entrepreneurial skills, and to purchase processing equipment. Essentially, the challenges in capturing value opportunities are influenced by the lack of Khwe traditional authority recognition, inadequate support in critical business aspects (e.g., marketing and product development), and the overlooked potential of community-based entrepreneurs, especially in biodiversity policies, by the government, NGOs, and funding agencies (Nakanyete, 2023).

Meanwhile, both Namibian exporters and European lead firms interviewed are of the view that establishing a local processing facility for Devil's Claw is not feasible for the local communities. They believe that such facilities are expensive and obtaining organic certification, which is already costly for established processing facilities in Namibia, would present a challenge to the community. One exporter, in particular, is concerned that establishing a local processing facility could create competition with their European business partners, and considering the low demand for Devil's Claw medicine in Namibia, this would negatively affect their business. However, they acknowledge the importance of lead firms relocating processing facilities to Namibia to generate employment opportunities and increase the benefits for communities. The exporter suggests that favourable arrangements could be made with global lead firms to conduct part of the processing in Namibia:

> "We are gradually starting small, just like the products we send to our marketing partners in Germany, Namibian Naturals. They already perform sterilisation, milling, and sifting of the product, which adds some basic value. Although we receive considerable support from the government, it mostly comes in the form of loans. Setting up an extraction facility requires millions of dollars, so we haven't found the appropriate channels for funding yet" (Interview with Exporter, 15 October 2021).

6.5.2 Challenges of value addition of non-timber forest products for San harvesters in Okongo

In contrast to the Eudafano Cooperative and San of Bwabwata, who have a legally recognised cooperative and an association, respectively, the San harvesters in Okongo lack any organised form of community-based Organisation. Consequently, they do not directly trade their harvested NTFPs with regional intermediaries or multinational companies. Instead, individual harvesters sell their products, including Natal Oranges, Manketti, honey, and caterpillars, to local traders, primarily Ovawambo. These local traders then add value or process some of the products to increase their income. The traders locally produce various value-added products, such as juices, beers, liquor, and wines from Natal Oranges, Manketti, and Marula, and oils from Marula and *Ximenia* spp. (Cheikhyoussef et al., 2012). In addition to the delicacies they prepare such as caterpilars, they sell these products at open markets in Okongo Town. Moreover, local traders are the one most likely to afford distributing both raw NTFPs and value-added products to various local and regional markets to maximise their profits.

Despite the opportunity for access to harvest NTFPs from the community forests, most of the interviewed San harvesters do not view the commercialisation or value addition of NTFPs as a means to improve their livelihoods, mainly due to exploitation they currently experience from the local traders. A harvester highlighted that traders often demand NTFPs, but fail to fulfil their payment promises or, in some cases, only offer them some alcohol to drink as compensation. Moreover, harvesters face high transport fees when attempting to sell their products in Okongo Town, leaving them spending all their earnings on transportation without being able to buy anything or save any profits. Additionally, many villages in the Constituency are situated in remote areas with poor road infrastructure and difficult terrains with the presence of deep sands and dense woodlands, making access and transportation of NTFPs difficult and expensive.

Furthermore, some harvesters identified various challenges they experience that affect their success in the NTFP commercialisation beyond Okongo to maximise value for livelihood sustenance. These challenges include the lack of entrepreneurial skills training, support from the government, development initiatives, and funding agencies for capital to develop infrastructure, including facilities for raw product storage and value addition. Meanwhile, the long-standing marginalisation of the San has discouraged other harvesters, leading to a lack of belief in their capabilities to capture NTFP value. Instead, some of the harvesters wish to

acquire support to start horticultural projects, to collectively grow vegetables for food and sale instead of NTFPs, which requires value addition. In sum, based on our fieldwork observations, there appear to be no future aspirations in NTFP commercialisation for the San in Okongo. According to some respondents, they would prefer to find piece jobs, but finding employment, especially in towns or farms, often leads to other forms of exploitation, exacerbating their livelihood and economic difficulties.

6.7 Discussions

The San have long been recognised for their indigenous knowledge in utilising NTFPs (Gordon, 1988). However, they were discouraged from utilising their skills and knowledge by external agencies, including missionary society expatriates and the colonial military, and to some extent, still are by NGOs and the government. Instead, some of these influential external actors aimed to transform San into agriculturalists or livestock keepers, disregarding the legitimacy of their traditional NTFP-based livelihood practices (Widlok, 1999). This has led to the appropriation of San land by neighbouring communities or its transformation into national parks, where access to NTFPs is restricted, often justified by the absence of agricultural or animal husbandry practices.

Furthermore, the knowledge and skills of the San in using NTFPs have, in many cases, not translated into benefits for their communities. Instead, profits have been appropriated by intermediate traders and international companies. Even in the case of Bwabwata, where the San have substantially participated in value-added NTFP activities for global export, their share of the revenue has been marginal by comparison. Additionally, development funding has been predominantly directed towards shifting the livelihoods of the San from NTFP-dependency to agriculture and wage labour. This discouragement, coupled with other socio-political factors such as the absence of traditional San authorities, may have contributed to the lack of development observed in the case of the Eudafano Women Cooperative. The cooperative significantly benefits from NTFP marketisation and improved income benefits. In contrast to Ovawambo, who engaged in commercial transactions and accumulated harvested products and other assets long before their Cooperative was created, the San economy of NTFPs relied primarily on barter-type exchanges or sharing within the local community (Nakanyete, 2019; Widlok, 1999; Gordon, 1992). Consequently, NTFP value addition and processing among the San have been handled by external entities that seem to have little interest in enabling them to become potential competitors. Therefore, a pattern of dependency and marginalisation extends

various economic activities, including working on commercial farms, participating in development programmes, and NTFP utilisation.

6.8 Conclusion

There are legal and organisational requirements imposed on community-based organisations to align with the cultural norms of agropastoralists and commercial trade. These requirements, however, create tension with deeply ingrained notions of egalitarianism and individual autonomy within San groups, making the establishment of organisational infrastructure, as observed in the Eudafano Women's Cooperative, more challenging for the San, especially in Okongo. Consequently, partnerships between private companies and the San face additional challenges due to the differences in cultural ideas and practices regarding governance, morally acceptable economic behaviour and ethical methods of distributing goods, assets and benefits. This contrast explains why partnerships may work relatively well in cases like the Eudafano Women's Cooperative but remain absent in the San communities.

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7 Synthesis

Indigenous knowledge of NTFPs has the potential opportunities to provide improved income generation and livelihood opportunities for rural communities, particularly among indigenous communities that play a significant role in the sustainable commercialisation of NTFPs for medicines, cosmetics and foods. Recognising these communities, not just as NTFP producers but as custodians of associated traditional knowledge necessitates addressing their equitable socio-economic benefits from the global utilisation of these resources. However, several challenges hinder addressing equitable benefit-sharing from global and regional resource-users. Indigenous communities, particularly the San, face issues such as the appropriation of their traditional knowledge, limited access to harvesting lands, and the lack of infrastructures for value addition and captures. These factors have been significant barriers to their limited income generation from NTFP markets. In light of this, the primary purpose of this study was to evaluate the complexities of NTFP commodification for indigenous communities in the Global South. It addressed three main research questions regarding the impacts of integrating NTFP harvesters into GVCs and RVCs on their livelihoods, the limitations of benefit-sharing laws in profit distribution, and the requirements for value capture and upgrading opportunities for marginalised communities.

This chapter presents a comprehensive overview of the thesis' key empirical findings, conceptual contributions, and future research directions relating to NTFP value chains, benefit-sharing legislation, and the challenges faced by the producers integrated into GVCs and RVCs.

7.1 Summary of key empirical findings

3.5.1 How do the commercialisation of NTFPs and the integration of San harvesters into GVCs and RVCs impact their livelihoods?

The commodification of NTFPs is promoted in Namibia to uplift forest-dependent communities (Drews, 2020). Responding to this question, Chapter 5 focuses on the case study of Khwe and !Xun San harvesting communities, who rely on forests for livelihoods and are identified as some of the most vulnerable indigenous people in Namibia. The study compares the effect of NTFPs integrated into GVCs and RVCs on the livelihoods of the San NTFP harvesters while examining their employment and value creation opportunities, as well as the working conditions.

The study reveals that GVCs for NTFPs harvested by the San, particularly Devil's Claw in Bwabwata National Park, provided limited employment opportunities with regulated wages for San community members. It also increased prices paid to harvesters through CBNRM and an exclusive concession agreement. However, these opportunities only offered low-skilled positions, seasonal harvesting work, and an exclusive concession agreement, which seemed to exploit harvesters given their low wages, challenging and sometimes risky working conditions that they endured. Only 72 out of the 6,700 residents of BNP were employed in GVC-related activities of NTFPs. The majority of these employees only earned between 1,600 and 3,500 NAD per month. Meanwhile, the average income for the 1,245 community members who harvested Devil's Claw was a mere 1,538 NAD for the year. Despite the CBNRM's Kyaramacan Association playing a vital role in the GVC, encompassing sustainable Devil's Claw harvesting, training harvesters, and producing high-quality and traceable materials for the global market, it has not delivered the expected improvement in income generation.

On the other hand, while RVCs are typically expected to promote local economic development and product specialisation (De Backer et al., 2018), they did not provide formal employment opportunities among the San NTFP harvesting communities in northern Namibia. However, they enabled a few individuals in both BNP and Okongo Constituency to earn some seasonal income through local and regional trade of various NTFPs, including Natal Oranges, Manketti, False Mopane, honey, and edible worms. Among these limited benefits, the most vulnerable !Xun San communities in Okongo faced restrictions on accessing NTFPs in their communal areas due to illegal land fencing by the relatively better-off residents of the constituency. These residents often made exploitative arrangements with the San, having them harvest and sell the products from these enclosed lands in exchange for compensation in kind, for food, second-hand clothing, or alcohol. Moreover, the harvesting of NTFPs for regional markets in BNP faced limitations in reaching its full potential due to restrictions on entering the park's core areas. Despite the abundance of NTFPs in core areas, the military's armed anti-poaching units restricted BNP residents from collecting even fruits from what recently became conservation core areas.

In essence, the impact of commercialising NTFPs and integrating San producers into GVCs and RVCs on their income generation has been unsatisfactory. Therefore, neither GVCs nor RVCs have improved the livelihoods of the harvesters.

3.5.2 To what extent do international and national laws ensure equitable NTFP profit-sharing between user industries and producing communities?

Chapter 5 explores the role of access and benefit-sharing governance and legislation in addressing challenges faced by Namibia's ILCs in achieving equitable benefits from the commercialisation of NTFPs linked to their traditional knowledge. A significant profit gap exists in the NTFP industry between resource-user companies in the Global North and ILCs who primarily source the resources, especially in the Global South (Odek, 2017). The NTFP industry's annual profits, exceeding USD 50 billion, is concentrated in the Global North (Morgera et al., 2014). These persistent disparities, call for a need to address equitable benefit-sharing challenges. As such, this study conceptually evaluates the role of multistakeholder governance and benefit-sharing systems, specifically UNCTAD's BioTrade initiative and the Nagoya Protocol on ABS. These systems, which were implemented in 1996 and 2014, respectively, seek to promote the equitable distribution of genetic resource revenue. While BioTrade is non-mandatory but expects its member states to follow benefit-sharing guidelines, the ABS is intended to be mandatory, despite its complexity and a lack of standard international law. This poses a challenge for each state to develop and implement its ABS regulations (Ruiz Muller et al., 2017).

Despite Namibia's status as one of the pioneers in developing comprehensive BioTrade projects, regarded as benefit-sharing compliant for ILCs providing NTFPs, the country continues to have one of the highest levels of income inequality and unfair distribution of other benefits arising from these resources (Namibia Statistics Agency, 2021; United Nations Environment Programme, 2012). While the export value of NTFPs from Namibia has increased, especially due to BioTrade projects, this increased value does not translate into equitable gains for the ILCs. Approximately 43% of the country's population lives in poverty, with rural and indigenous communities being the most affected (Namibia Statistics Agency, 2021). The indigenous communities, who often rely on NTFPs for their livelihoods, face multiple challenges in effectively participating in and benefiting from the global trade of these resources. These challenges include a lack of direct market access and limited bargaining power, leaving them vulnerable to exploitation by intermediate companies. In the case study of Devil's Claw, Namibia stands as the world's largest supplier, exporting approximately one million kilograms of dry material per year on average, which is estimated to have a value of

over 142 million USD. While the San indigenous communities are associated with the traditional medicinal knowledge of Devils' Claw and play a role in its harvesting and value addition, they have not substantially benefited from its global utilisation. Instead, since the initial global commercialisation of Devil's Claw in the 1950s, the majority of the profits from Devil's Claw have been captured by a small number of white exporters, suggesting a continuation of post-colonial dynamics.

Recently, with Namibia's ABS regulations in effect since 2021 and its office operational only since 2022, there is a lack of publicly available evidence regarding compliance with benefit-sharing regulations by resource-user industries and the resulting impacts on ILCs. According to one of the national ABS specialists, despite the ABS office receiving numerous applications for benefit-sharing compliance from genetic resource exporters, only a few complied with these regulations. Many applicants, especially in the Devil's Claw industry, failed to provide the required information regarding their comprehensive supply chain and benefit-sharing agreements, which the San communities in the study area had not signed at the time of data collection until March 2023.

In sum, this research question is addressed by emphasising the importance of comprehensive legislation in tackling economic inequalities related to the utilisation of genetic resources and traditional knowledge. Benefit-sharing regulations should cover both regional and global value chains and involve all stakeholders, including ILCs. Only through such a holistic approach can equitable benefits distribution be achieved. While there has been progress in implementing ABS regulations in Namibia, a concern arises from the fact that not all key actors in the genetic resource value chains are directly involved in regulatory compliance. Consequently, various ILCs, particularly the San, who are associated with resource harvesting as well as traditional knowledge on their utilisation, may not be guaranteed equitable benefit-sharing under the current framework.

3.5.3 What are the requirements and challenges for establishing enabling structures to improve NTFP value capture for the San harvesting communities?

As traditional gatherers, the San communities in northern Namibia have historically relied on NTFPs for subsistence, including engaging in barter trade with neighboring farming communities. The existence of such exchange trade systems involving the San and agropastoral

communities dates back to as early as 1911, as documented by certain missionaries (Widlok, 1999). However, despite their historical success in these traditional trading practices, the San have faced challenges in adapting to modern trading dynamics to generate revenue and sustain their livelihoods through NTFPs. In Chapter 6, I address this research question by investigating the reasons behind the challenges of these NTFP-dependent communities in establishing community cooperatives for NTFP trading with multinational companies. Contrary to other communities that have had success in NTFP trade agreements, such as the Ovawambo women's Eudafano Women's Cooperative, the San communities struggle to obtain similar agreements and fair compensation for their NTFP production and traditional knowledge utilisation. The Eudafano Women's Cooperative serves as a successful model as a leading direct supplier of Marula oil to global and regional lead firms, attributed to factors like resource access, funding, market opportunities, technical support, and training.

The study identifies key factors necessary for successful NTFP value addition and revenue development for San communities, including entrepreneurial skills, access to capital and infrastructure, and partnerships with multinational companies. It discusses the potential benefits and risks of local producers linking with lead firms in community-company partnerships. Such partnerships can lead to value chain integration, improved income, and infrastructure development, but they also carry risks such as high transaction costs, misunderstandings and legal disputes, unequal benefit distribution, and the exclusion of vulnerable community members (Burke, 2010).

In the comparative case study of the Khwe and !Xun San communities in Okongo Constituency and Bwabwata National Park, various challenges that hinder these communities from fully capturing NTFP profits have been identified. These challenges encompass limited investment capital, insufficient support in critical business aspects, the absence of community-based entrepreneurship, a lack of advanced training, and the non-recognition of their traditional authorities. Additionally, the influx of farming communities, the socio-economic and political influences from external stakeholders, and national park restrictions have reshaped indigenous land use, exacerbating challenges within traditional and modern organisational structures for direct NTFP trading. As such, while the San in Bwabwata managed to establish their community-based Kyaramacan Association to generate income from NTFPs, profits are made by intermediate traders. Meanwhile, the San harvesters in Okongo lack community-based

organisations, leading to their exploitation by non-San local traders, which in turn limits their aspirations in NTFP commercialisation, prompting them to seek alternative livelihoods. Therefore, the prerequisites for successful cooperatives in NTFP value chains among San communities in Namibia involve adhering to administrative principles, ensuring effective governance, and addressing the unique challenges faced by these communities.

7.2 Conceptual contributions

This thesis contributes to the conceptual understanding of value chains in the context of indigenous communities, their integration through NTFP commodification into GVCs and RVCs, and the incorporation of benefit-sharing legislation as a governance mechanism within the value chain analysis.

The thesis first contributes to discussions about NTFP value chain structures in economically disadvantaged regions of the Global South by examining the impact of integrating indigenous and vulnerable harvesters into GVCs and RVCs on their livelihoods. To provide a comprehensive understanding of the governance, power dynamics, ethics, and socio-economic responsibilities of NTFP-user companies integrated into GVCs, this dissertation combines GVC and GPN frameworks for analysis. Simultaneously, it employs the RVC framework to highlight potential opportunities for functional and industrial upgrading, which support local development, enhance the participation of local actors, promote product specialisation, and facilitate industrial diversification within the region.

Through GVC/GPN and RVC analyses, in particular, the study identifies several factors related to NTFP commodification and its potential to empower disadvantaged communities while simultaneously addressing conservation and sustainable development. GVCs encompass a nexus of interconnected functions and operations on a global scale, often coordinated by global lead firms (Kano et al., 2020). While they provide access to global markets, GVCs may lead to the exploitation of local actors and fail to address local economic development concerns (Hess & Yeung, 2006; Neilson et al., 2018). On the other hand, RVCs operate within a specific geographic region, fostering local economic development and participation (Horner & Nadvi, 2018; UNCTAD, 2020). They offer opportunities for diversification and industrialisation, potentially enhancing value capture within the region (Krishnan, 2018). However, the growth of stringent regional standards may marginalise local producers (UNCTAD, 2020).

Secondly, the thesis explores the inefficiencies of benefit-sharing legislation in rectifying income disparities between NTFP users and the communities harvesting these products, contributing to broader debates on economic inequalities in natural resource use. In the dissertation's comparative case study, GVC and RVC analyses reveal potential impacts on the livelihoods of the marginalised San indigenous communities, who have depended on NTFPs for subsistence since their hunter-gatherer era. However, these communities currently experience high poverty rates as the global commodification and demand for NTFPs have not so far improved their income generation or livelihoods. Conceptually, the study highlights the unfair trading and socioeconomic inequalities between such indigenous communities as resource and traditional knowledge producers and the users of their resources. As observed in the San communities, while GVCs may create some employment opportunities for local producers, they are often characterised by low wages and seasonal labour demands (Shepherd & Stone, 2013). Furthermore, participation in GVCs does not always lead to sustainable livelihoods or skills upgrading (Goger et al., 2014). The influence of multinational corporations, which can be exploitative, result in challenges in value distribution (Krauss & Krishnan, 2021; Murphy, 2012).

In contrast, RVCs that potentially offer local development, product diversification, breaking dependence on external markets, stimulate community-based entrepreneurship and possible structural transformation (UNCTAD, 2020). They introduce new employment opportunities and skilled labour demands but pose challenges due to restrictive regional standards, particularly for these marginalised groups (UNCTAD, 2020; Krishnan, 2018; Horner, 2016). Hence, these challenges have led to the appropriation of San's indigenous knowledge, such as that related to Devil's Claw and Natal Oranges, by more prominent and financially well-resourced entities in both GVCs and RVCs, without equitable benefits for the San producers (Wynberg, 2023).

To address the revenue disparities, this study developed an ABS-value chain framework, which combines benefit -sharing mechanism and value chain analysis to assess the economic and social benefits for ILCs engaged in NTFP production. The Nagoya Protocol on ABS and the BioTrade initiative are the mechanisms aimed at balancing the rights of genetic resource provider countries and user countries while promoting fair benefit-sharing (Oliva et al., 2020; Ruiz Muller et al., 2017). The framework, therefore, identifies the challenges and shortcomings of these mechanisms, particularly concerning ILCs. One of the identified challenges is the

complexity of drafting national ABS laws and harmonising them with BioTrade projects, as member states under the Nagoya Protocol have flexibility in adopting ABS legislation (Lee & Choo, 2022). This lack of a consensus-based international law addressing equitable benefit-sharing places the responsibility on individual states to develop and enforce their ABS policies and regulations (Ruiz Muller et al., 2017). For many countries in the Global South providing genetic resources, this presents a challenge as they must do so without disrupting existing BioTrade activities (Suleman, 2017; Medaglia Cabrera et al., 2014). Additionally, as a second challenge, defining ABS-related terms, including ownership, access, utilisation, traditional knowledge, and fair benefit-sharing, proves legally complex for member states (Kamau, 2019; Ruiz Muller et al., 2017). Ambiguity in these definitions requires reconciling contradictory principles of adaptability to rapid technological advances and precision (Rabitz, 2017; Tvedt & Schei, 2014). Furthermore, while the Nagoya Protocol is the first international framework to acknowledge traditional knowledge's role in benefit-sharing, the incompatibility of indigenous customary law with Western legal principles of ownership rights often hinders ABS implementation (Avilés-Polanco et al., 2019). Consequently, traditional knowledge remains vulnerable to misappropriation through practices like biopiracy and patents issued to industries (Medaglia Cabrera et al., 2014; Wallbott et al., 2014).

As a result, the expected benefits for ILCs from benefit-sharing mechanisms remain unfulfilled, particularly in areas where indigenous peoples lack adequate political representation (Sirayaka, 2020). The framework demonstrates the significance of collective benefit-sharing negotiations involving various stakeholders, including the government, communities, firms, and NGOs (Gereffi & Lee, 2016). It suggests that impactful agreements are more likely to be established when stakeholder negotiations collectively address fair benefit-sharing by each key value actor, thus mitigating bottlenecks in benefit-sharing gaps and ultimately tackling NTFP-related income inequalities.

Furthermore, in Chapter 6, the research conceptually addresses how factors such as a lack of access to capital and infrastructure, limited entrepreneurial skills, and difficulties in forming cooperatives have hindered the indigenous people’s ability to participate effectively in community-led NTFP enterprises. These factors are critical prerequisites for the success of cooperatives in NTFP commercialisation (Sumelius et al., 2021). Access to capital and infrastructure, including transportation, is often limited in rural areas, preventing local communities from fully engaging in value-added NTFP businesses (Newton et al., 2006).

Additionally, entrepreneurial skills, including technical expertise and market knowledge, are essential for the success of community enterprises (Meinhold & Darr, 2019). The San producers struggle to acquire and develop these skills has impeded their ability to compete effectively in the NTFP sector. Another key concept emerging from this chapter is the significance of community-company partnerships as a means to empower marginalised forest-dependent communities. These partnerships have the potential to create opportunities for income diversification, skill development, and access to markets that would otherwise be unavailable (Mayers & Vermeulen, 2002). However, for such partnerships to be successful, it is crucial to address the barriers faced by communities like the San, including the need for targeted training, access to capital, and improved infrastructure.

In essence, this research contributes by analysing NTFP commodification within GVCs and RVCs and assessing the impact of benefit-sharing legislation on forest-dependent indigenous communities. It identifies factors in NTFP commodification within GVCs and RVCs, highlighting socioeconomic disparities in indigenous communities involved. The study introduces an ABS-value chain framework, addressing challenges in implementing benefit-sharing mechanisms like the Nagoya Protocol and BioTrade initiatives. The research also emphasises barriers hindering indigenous community participation, such as limited access to capital, infrastructure, and entrepreneurial skills, with emphasis on the potential of community-company partnerships for empowerment but stresses the need for training, capital, and infrastructure improvements for success.

7.3 Future research agenda

This thesis investigated the current and potential impact of the global and regional commercialisation of NTFPs linked to San indigenous knowledge. While the research achieved its primary aim and objectives, it is essential to recognise certain limitations that have affected the gathering of data from diverse sources. Therefore, addressing these challenges in future research is crucial to extensively produce comprehensive and detailed findings.

One of the challenges encountered during this research study was the limited access to !Xun San population in the Okongo Constituency. Factors such as their seasonal nomadic lifestyles, involving movement between national regions and into Angola, hindered the ability to locate and interview a substantial number of !Xun individuals. This thesis revealed that the San are sometimes forced to maintain nomadism due to their vulnerability, facing contemporary challenges such as limited access to NTFPs, land dispossession by other communities,

landlessness, poverty, and a lack of recognition for foraging as an economic system. San people in Namibia occasionally feel compelled to remain nomadic to avoid exploitation by other groups, especially farming communities (Ngodji, 2021; Sylvain, 2005). Therefore, limitations in accessing the !Xun population may have impacted the comprehensiveness of the data collected from this group. To address this limitation, future research should explore innovative strategies for overcoming access challenges in the study of marginalised or nomadic communities. Conducting longitudinal and cross-border research that spans an extended period of time to include those who are nomadic, in collaboration with local organisations and traditional authorities, could provide a more comprehensive understanding of the impact of NTFPs on their livelihoods. The significant effects of land transformation on the livelihood security of forest-dependent communities necessitate longitudinal and transnational studies on NTFP use, markets, and drivers of change; however, acquiring accurate representation is impeded by funding limitations and project cycle constraints (Cocks et al., 2011; Shackleton et al., 2011).

Another limitation encountered was the hesitancy and reluctance of certain Namibian exporters and NGOs, as well as European representatives of the value chain and development agencies integrated in or supporting Namibian NTFP trade, to openly share information, especially concerning NTFP value and benefit-sharing. This reluctance not only limited access to valuable data but also affected interview scheduling. To address this, future research should consider various dynamics when conducting interviews, building rapport, and employing alternative approaches to reduce hesitancy among potential informants. Strengthening international collaborations or partnerships with organisations established in the region may enhance access to European stakeholders. Strong connections to non-market institutions, including universities and associations, may hold GVCs, particularly lead firms, accountable to increase upgrading opportunities for local producers while research limitations can be overcome through global networking and collaboration for knowledge acquisition (Kano et al., 2020). Therefore, researchers attending relevant events and conferences, as done in this research, can provide opportunities to engage with stakeholders and gather valuable insights. The importance of such symposiums lies in their ability to build an evidence base, facilitate stakeholder recommendations, and highlight the need for multidisciplinary and multistakeholder action-oriented research (Rahmanian et al., 2016). This approach enhances the connection between production systems and market-related mechanisms (Rahmanian et al., 2016).

Lastly, the reluctance of some GVCs, RVCs, and governance stakeholders to openly share information limits the in-depth analysis of NTFP user non-compliance with ABS legislation in Namibia, particularly in the Devil's Claw industry. While this study provides some information about the establishment of ABS regulations, it does not go into elaborate details about the underlying factors that lead to these users' non-compliance. To address this limitation, the study recommends that future studies focus on conducting in-depth mixed-methods research to explore the reasons behind the non-compliance of NTFP users with ABS regulations. The research could involve interviews and surveys with a representative sample of users of Namibia's commercialised genetic resource, to identify the specific obstacles they face in complying with the regulations. The understanding of these challenges can help policymakers and stakeholders develop targeted interventions and support mechanisms to ensure better compliance with ABS regulations and promote equitable benefit-sharing (Milne & Niesten, 2009).

In summary, studying NTFP commercialisation and its impact on marginalised indigenous communities is crucial for understanding the complexities of their sustainable livelihoods. The limitations mentioned above may have affected the completeness of capturing contextual meanings, potentially introducing gaps in the research findings. To mitigate this potential data incompleteness, future studies should address these challenges by adopting innovative strategies, strengthening international collaborations, and employing mixed-methods approaches.

7.4 Policy implications

Given Namibia's strong focus on national policies for local community empowerment through forest resource management, sustainable utilisation of NTFPs and their regulated trade for income generation and rural development, it is vital for policymakers to address the challenges and opportunities of community integration into GVCs and RVCs. Namibia is acknowledged as one of the pioneering nations in developing policies and regulations, such as the Forest Policy, Devil's Claw Policy and ABS regulations, aimed at promoting biodiversity conservation while maximising economic benefits (Ministry of Environment and Tourism, 2021; Ministry of Environment and Tourism, 2010; Ministry of Water, Agriculture and Forestry, 2001). However, this research indicates that such legislation has not resulted in significant improvements in the livelihoods of these communities, especially indigenous and

vulnerable groups. Therefore, this section puts forward two main recommendations for a comprehensive and critical evaluation of Namibia's policy implication on the economic, social, and environmental outcomes for the livelihoods of NTFP-dependent communities.

Firstly, this thesis recommends that policies on traditional authority be revisited to accommodate San leadership in northern Namibia. The marginalisation of the San in northern Namibia could also be created by the failure to recognise their traditional authorities, which leave them without representatives to negotiate or demand reforms that would provide them with more bargaining power. Thus far, only five traditional authorities of the San, located in other regions of Namibia, have received official recognition (Dieckmann et al., 2014). Traditional authorities in Namibia serve as legal institutions that represent ethnic groups inhabiting a territory, and they play a vital role in socio-economic development (Paksi, 2020). Despite being the largest community in the park, the Khwe legally fall under the jurisdiction of the Hambukushu Traditional Authority. They have been seeking recognition of their traditional authority and community from the Namibian government since the death of their last Chief, Kippie George, in 2000 (Boden, 2020). Meanwhile, the !Xun in Okongo Constituency have never had their own chief. While some villages had !Xun local leaders who reported to Ovakwanyama headmen, these leaders were not involved in important decision-making (Mouton & Dirkx, 2014). In the absence of recognised authorities, the San's political participation in decision-making is limited, particularly when it comes to land rights and welfare (Nghitevelekwa et al., 2020). For instance, traditional authorities, along with the Communal Land Boards in Namibia, as outlined by the Traditional Authorities Act 25 of 2000, formally recognise land rights, including leasehold applications aiming to mitigate gender disparities in land governance structures (Republic of Namibia, 2000). However, this act does not address or resolve ethnic disparities in land ownership and traditional leadership, as revealed in the findings.

San communities feel oppressed by the government and fellow Namibians through selective application of the national reconciliation policy, dispossession, and disregard of their land rights, which leads to a lack of diligence in investments (Nakale, 2022). One key insight from a San informant during this study's data collection emphasised the importance of inclusive policy development, highlighting the need for indigenous community involvement through their traditional authorities:

> "Policies aimed to govern us must be made with us through our traditional authority, not through selfish individuals who only think for themselves and those of their communities" – harvester, Omega 1, BNP, 23 June 2021.

Secondly, the development of legislation pertaining to the commercialisation and benefit-sharing of revenues generated from genetic resources associated with traditional knowledge, including BioTrade policies and ABS regulations, appears to insufficiently involve the participation of associated indigenous and local communities. Recognising indigenous and local communities as essential stakeholders in the development of ABS and BioTrade legislation is critical. To ensure economic and social justice for ILCs, both international treaties and national governments bear the responsibility of recognising, protecting, and promoting the rights of these communities. They should also take affirmative action by establishing an effective ABS framework that encompasses comprehensive regulations involving legislative, administrative, and policy measures (Talaat, 2013).

However, despite the assertion that ILCs should be primary stakeholders, their involvement in negotiations at various forums, is often overlooked, failing to acknowledge their critical role in biodiversity conservation (Arjjumend, 2018). Oliva et al. (2020) emphasise that ABS and BioTrade activities should respect ILCs' rights by adhering to established international regulations addressing issues such as traditional knowledge and genetic or biological resources. Despite this, there are still no major benefit-sharing agreements that result in substantial income generation for indigenous communities. In most cases, countries involved lack national ABS legislation, or provider countries have not established the competent authority to grant Prior Informed Consent (Schroeder et al., 2020; Morgera et al., 2014).

While Namibia has recently implemented ABS national regulations, challenges related to compliance, including the absence of ILCs' participation in ABS discussions and the acquisition of information from or about the various actors involved in RVCs and GVCs, hinder equitable benefit-sharing. To ensure inclusivity, transparency, and fairness in ABS negotiations, and to establish traceable benefit-sharing mechanisms, it is essential for all relevant ILCs, government entities, and companies to participate in these negotiations (Wynberg, 2023; Michiels et al., 2022)

Therefore, to guarantee equitable benefit-sharing, policymakers should address existing gaps in current regulations through comprehensive consultations with a wide range of key stakeholders. This should include communities associated with traditional knowledge related

to genetic resources, harvesters, and relevant national and global companies such as exporters, traders, importers and manufacturers. In addition, policymakers should strengthen legislation that promotes national value addition, such as the Growth-at-Home strategy, to facilitate value capture for relevant communities that provide genetic resources.

In essence, the Namibian government and civil society should prioritise the participation of ILCs in decision-making and processes of implementing policy reforms pertaining to the management of forest resources, their utilisation as well as equitable benefit-sharing from their commercialisation.

7.5 Conclusion

In conclusion, the concept of indigenous knowledge is contextual but clearly an essential mean of subsistence for indigenous peoples. Indigenous peoples hold unique and long-emerging forests knowledge which could generate and enhance value through global markets for their livelihoods. This thesis sheds light on the ongoing challenges faced by the San indigenous communities, particularly in northern Namibia, in earning equitable economic and social benefits from the commercialisation of NTFPs. Despite the global utilisation of NTFPs associated with San indigenous knowledge and their integration into GVCs and RVCs, primarily as harvesters, such endeavours have not yielded significant improvements in their livelihoods. Furthermore, International and national legislation, including the Nagoya Protocol on ABS and BioTrade initiatives, have not succeeded in ensuring fair profit distribution between the resource-user industries and the San, thereby perpetuating income inequality. The study highlights the critical need for inclusive and equitable NTFP trading strategies in order to empower marginalised people in Namibia, promote sustainable development, and alleviate income inequalities; it points out the necessity of proactive measures and policy reforms. To address these shortcomings and contribute to a comprehensive research agenda, future studies should explore innovative strategies for engaging nomadic and vulnerable communities, establish effective international collaborations, and conduct in-depth investigations into ABS non-compliance factors. The policy implications stress the need to reassess the recognition of traditional authorities to secure San representation in decision-making, and the significance of engaging ILCs in formulating policies related to commercialisation, benefit-sharing, and biodiversity conservation. Policymakers can promote a fair, inclusive approach to forest management and utilisation for rural economic development by recognising the crucial role of

indigenous communities and ensuring their equitable participation, stimulating sustainable livelihoods through NTFP value chains.

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Appendix A: Supplementary material

UNAM
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ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: HREC-NH/11/10/2020 **Date:** 26-10-2020

This Ethical Clearance Certificate is issued by the University of Namibia Research Ethics Committee (UREC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the Faculty/Centre/Campus Research & Publications Committee sitting with the Postgraduate Studies Committee.

Title of Project: INDIGENOUS KNOWLEDGE FOR SUSTAINABLE LIVELIHOODS: EXPLORING FOREST PRODUCTS VALUE CHAINS FOR THE KHWE AND !XUN SAN IN BWABWATA NATIONAL PARK AND OKONGO COMMUNITY FOREST OF NAMIBIA

Nature/Level of Project: Ph.D. (NON-HEALTH) (NQF10)

Researcher: NDAPEWA FENNY NAKANYETE

Student Number: 200613600

Faculty: HUMANITIES AND SOCIAL SCIENCES

Supervisor(s): PROF. J.R. DIEZ & PROF. K. MATENGU

Take note of the following:

(a) Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the UREC. An application to make amendments may be necessary.

(b) Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the UREC.

(c) The Principal Researcher must report issues of ethical compliance to the UREC (through the Chairperson of the Faculty/Centre/Campus Research & Publications Committee) at the end of the Project or as may be requested by UREC.

(d) The UREC retains the right to:

(i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,

(ii) Request for an ethical compliance report at any point during the course of the research.

REC wishes you the best in your research.

Prof. H.L. Beyer, Deputy Chair: HREC-NH
pp Chair: HREC-NH

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UNAM
UNIVERSITY OF NAMIBIA

18 February 2021

Student Name: NDAPEWA FENNY NAKANYETE
Student number: 200613600
Programme: PhD Geography

Approved research title: INDIGENOUS KNOWLEDGE FOR SUSTAINABLE LIVELIHOODS: EXPLORING FOREST PRODUCTS VALUE CHAINS FOR THE KHWE AND !XUN SAN IN BWABWATA NATIONAL PARK AND OKONGO COMMUNITY FOREST OF NAMIBIA

TO WHOM IT MAY CONCERN

I hereby confirm that the above mentioned student is registered at the University of Namibia for the programme indicated. The proposed study met all the requirements as stipulated in the University guidelines and has been approved by the relevant committees.

Permission is hereby granted to carry out the research as described in the approved proposal.

Best Regards

Dr. Seth J. Eiseb
Acting Director: Centre for Postgraduate Studies
Tel: +264 61 2063414
E-mail: directorpgs@unam.na

NCRST

AUTHORIZATION OF RESEARCH PROJECTS

Authorization is hereby granted in terms of Section 21 of the RST Act No. 23 of 2004, to:

Name: Ndapewa Fenny Nakanyete

Address: University of Namibia

Coworkers: Patricia Dinyando & Phillipus Babu.

Certificate Number (if applicable): RCIV00042018 **Authorization No:** AN202101037

Type of Research:
Non-Commercial research and use of resources be limited to what is in the proposal.

Title of Research Authorized:

Indigenous Knowledge for Sustainable Livelihoods: Exploring Forest Products Value Chains for the Khwe and !Xun San in Bwabwata National Park and Okongo Community Forest of Namibia

Locality:

Villages in Bwabwata National Park and Okongo Community Forest, and the Ministry of Environment, Forest and Tourism.

Duration: 20 May 2021 - 31 May 2022

Research / Sample Collection Conditions:

Refer to the listed research conditions

National Commission on Research Science & Technology
P/Bag 13391
Windhoek, Namibia

Yours sincerely,

Mr. Vincent Nowaseb

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Participant information leaflet and consent form

Annex 5

Title of the research project: Indigenous knowledge for sustainable livelihoods: exploring forest products value chains for the Khwe and !Xun San in Bwabwata National Park and Okongo Community Forest of Namibia

Reference number: FHSS06/13/2020

Principal investigator: Ndapewa Fenny Nakanyete

Address:

Contact number:

You are invited to participate in a research project. Please take some time to read/listen to the following information, which will explain the details of this project. If you have any questions about any part of this project that you do not fully understand, please feel free to ask. It is crucial that you are fully satisfied and have a clear understanding of what this research entails and your potential involvement. Your participation is **entirely voluntary**, and you are free to decline to participate without facing any negative consequences. You are also free to withdraw from the study at any point, even if you initially agree to take part.

This study has received approval from the Research Ethics Committee at The University of Namibia and will be conducted in accordance with the ethical guidelines and principles outlined in the Namibian National Research Ethics Guidelines.

What is this research study all about?

The study aims to investigate why the !Khwe or !Xun San, along with other harvesters and traders, are not currently generating sufficient profit for their livelihoods from the forest products they are already selling. It also seeks to propose ways in which forest products in this region can contribute to improving the standard of living for these two groups of San.

The research will take place in the Okongo Community Forest (OCF) in the Ohangwena region and the Bwabwata National Park (BNP) in the Kavango East and Zambezi regions; household interviews and focus group discussions will be conducted with residents.

As a selected participant, you will be asked questions in your capacity as:

(i) A !Khwe or !Xun individual who harvests and sells forest products from this area,

(ii) A trader/exporter/importer/processor who sells forest products from these areas,

(iii) A traditional or community leader who is well-informed about indigenous knowledge in the community, or,

(iv) A governmental or non-governmental official involved in the implementation of policies and legislation related to indigenous knowledge and forest product harvesting in the study areas. If you agree to take part in this study, an interview will be conducted with you, which will take at least 30 minutes to an hour of your time. You may also be conducted to join a group discussion. In the case of an interview or discussion, with your permission, will be audio-recorded. Your responses to the questions will be kept confidential, with interview or questionnaires assigned a number code to help ensure that personal identifiers are not revealed during the analysis and write up of findings.

Why have you been invited to participate?

You are invited to participate in this study because you are a community member of Bwabwata National Park/Okongo Community Forest with relevant experiences regarding forest products or because you possess knowledge about forest product harvesting and/or trading in these study areas.

What will your responsibilities be?

If you choose to participate in the study, I kindly request for a face-to-face interview with you or that you participate in a discussion. During this process, you will be invited to share your experiences related to indigenous forest products. I will assist you during the interview by providing some questions for you to answer in as much detail as you wish. Additionally, I will seek your permission to observe your daily activities [Date: .../../...., at your residence/harvesting site/places where you sell the products] between 10:00 and 17:00 to gain insights.

Will you benefit from taking part in this research?

While there are no immediate personal or direct benefits to your participation in this research, your involvement holds the potential to contribute significantly to the study's findings. By participating, you can help enhance our understanding of the value of indigenous knowledge related to forest products. Ultimately, this increased knowledge may prompt action from government and other relevant organisations aimed at improving the living standards of your communities.

Are there in risks involved in your taking part in this research?

There are no foreseeable risks to your participation in this research study.

Will you be paid to take part in this study and are there any costs involved?

This study is entirely voluntary, and there will be no reimbursement or payment for participation. However, the cost of transportation and refreshments will be provided for those participating in the focus group discussions.

Is there anything else that you should know or do?

You can contact the Centre for Research and Publications at +264 061 206 4673 or via email at research@unam.na if you have any concerns or complaints that have not been adequately addressed by the investigator. You will receive a copy of this information and consent form for your records.

Declaration by participant

By signing below, I ……..……. agree to take part in this research study.

I declare that:

a) I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.

b) I have had a chance to ask questions and all my questions have been adequately answered.

c) I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.

d) I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

e) I agree / do not agree to being recorded during interviews.

f) I agree / do not agree to being observed as described above.

Signed at (*place*) ….....…….....…….. on (*date*) …….……... 2021.

☐ Not Applicable

..... **.....**

Signature of participant Signature of witness

Declaration by interpreter

I *(name)*……..declare that:

I assisted Ndapewa Fenny Nakanyete to interpret and explain the information in this document to the *participant*s using [Khwe/!Xun/ Oshiwambo/Mbukushu] language.

Signed at (*place*) .....….....…….. on (*date*) ……...…….. 2021.

..... **.....**

Signature of interpreter Signature of witness

Interview guide: harvesters

Date:……..

Location:…….……

Opening

My name is Ndapewa Fenny Nakanyete. I would like to ask you some questions on your background, your experiences with forest product harvesting and/or trading, the challenges you face and your future aspiration regarding the harvesting/trading. The information you share during this interview will form part research of my PhD thesis in Geography. Please be assured that all answers provided will be treated with high confidentiality. The interview should take not more than 1 hour.

Introduction

- Can you tell me a little bit about yourself?

1. Relevance of Forest Products as a livelihood

- What types of forest products do you harvest and sell?
  - what are they used for?
  - How did you learn about the use of such products?
  - How long have you been selling these products?
- From where do you collect the forest products?
  - How do you collect them?
  - How often do you collect them?
  - Are they seasonal or all year-round products?
  - What challenges do you experience collecting the products?
- At what price per unit do you sell the forest products?
  - To whom do you sell them?
- What proportion of your income is generated through the sale of these forest products?
  - How often do you trade the product?
- How much profit have you made from selling these products in the past 12 months?

2. Internal factors-related questions

- What limitations are you experiencing with regards forest product harvesting or trading?
    - What resources (skills, techniques, land, capital) do you lack that hinder you from receiving sufficient profit out of the forest products that you sell?
    - Do you see a potential in you doing more with regards to forest products harvesting or trading?
- What opportunities do you envision that could address the limitations you have?
- Do you have other sources of income?
- What support do you receive from your fellow harvesters/traders?

3. External factors-related questions

- Who, outside of your community do you sell the products to?
- Do you require a permit from the government institution or any other authority to harvest or sell the products?
    - How is the process of acquiring the permits?
- What kind of support/assistance do you receive the traditional authority, government or other organisation?
- How is the relationship between you and non-local traders, processors and pharmaceutical firms?
    - Do you get a chance to talk or negotiate the prices of your products with them?

4. Aspirations of upgrading livelihoods through forest product harvesting

- Do you see a future in harvesting and trading of forest products, as sustainable living?
    - How do you plan of expanding your business?
- If a forest product processing firm was to be established in your area, would you be willing to take some training for better skills and profit-making opportunities?
- Do you teach your/community's children about indigenous forest products and their significances?

Interview guide: trader/exporter

Introduction

Can you give me a brief introduction of yourself?

1. **Value addition on non-timber forest products**
   - How do you process and add value to the harvested products?
     - What kind of products do you make?
   - To which processors and/or retailers in Namibia and/or abroad do you sell your products?
   - At what prices per unit do you sell your products both locally and internationally?
   - What proportion of profit is derived from these products?
   - What is value upgrading potential for products like Devil' Claw, particularly in terms of keeping more value in Nambia?
     - What are conditions do you think should be put into place for it? Who could lead this?
2. **Relevance and sustainability of Devil's Claw for livelihood, and the relationship with harvesters**
   - How did you learn about the significance/value of the products?
   - Which indigenous communities do you work with and what impacts do you think the company has on the livelihoods of the harvesters in these communities?
   - What is the volume of the products that you buy per year and where accordingly?
   - Do you see a future in trading forest products, especially for sustainable living? How do you assure the sustainability of these products?
   - What kind of trade relationship do you have with the harvesters in communities you work with? What is their entrepreneurial attitudes?
   - Can harvesters negotiate the prices of their products with Ecoso?
3. **Internal/external-related Factors**
   - Do you require some kind of permit (e.g. from the government institution, traditional authorities or any other authority) to buy and trade Devil's Claw products?
     - How is the process of acquiring the permits?
   - Do you have Institutional support?
   - How is the relationship between you and other traders, processors, retailers that sell devil's claw's products, including international ones?

Key informant interview guide: Ministry of Tourism, Forestry and Environment

Informant Name:

Job title/Position:

- Can you please introduce yourself?
- Can you briefly describe how the MEFT organises the utilisation of Devil's Claw?
    - What exactly is the Ministry's role when it comes to the management of Devil's Claw for commercialisation purposes?
    - How are the communities involved in such management, commercialisation and/or utilisation?
    - Who among the communities can harvest and sell Devil's Claw for value creation? How many harvesters are registered with the Ministry?

- What legislations/policies has the Ministry implemented for the sustainable management (harvest, use and/or commercialisation) of Devil's Claw?
    - What are the motives behind the review of Devil's Claw Policy of 2010?
    - Under which procedures are areas of harvesting devil's claw eco-certified? Which protected areas are currently eco-certified?

- What are the processes/procedures of obtaining trading and/or exporting permits for devil's claw?
    - About how many traders and exporters do we have in Namibia? Of the number, how many are from indigenous communities?
- Only Ecoso Dynamics Company is licenced to buy and sell devil's claw in/from Bwabwata National Park through the Kyaramacan Association; on what bases are exclusive permits granted?
    - When does such a licence expire?
    - How does/will MEFT organise the next round of licence applications? Who will be able to apply and get such a licence?

- How much access to/in protected areas do indigenous communities who harvest devil's claws and other forest products have, especially in Protected Areas?
    - What volume of devil's claw and other forest products are the communities in these protected areas allowed to harvest?

- What is the Ministry doing to promote Devil's Claw's value addition/enhancement for San indigenous communities that harvest it?
    - What support (training, finances, etc.) does the Ministry give to communities to assure that they are in a better position and with skills to negotiate the prices of their products?
    - What are challenges (if any) that the Ministry have in implementing such value addition goals?
    - What challenges (if any) does the Ministry have in working with communities that harvest such forest products?
    - With the ongoing GACP+ standards requirement from international importers of Devil's Claw, how is the Ministry prepared to assure that ordinary indigenous communities do not lose their livelihoods from Devil's Claw harvesting due do these standards?

- Are the intellectual property rights of forest products such as devil's claw recognised and protected, for indigenous communities?
    - Does such recognition and protection guarantee a fair and equitable profit generation for indigenous communities?

- Do you see a potential in establishing Devil's Claw processing firms to enhance value that is kept in Namibia?
    - What are the challenges and barriers you foresee with such potential and how would MEFT tackle them?
    - and processor (state-owned companies) in the future? Why or why not?

- Any comment or suggestion to improving the livelihoods of San communities through their indigenous knowledge?

Interview guide: Access and Benefit Sharing Office (Namibia)

Thanks for willing to participate in my PhD research project. My study aims to analyse the extent to which indigenous people participates in regional and global value chains of these products and the impact that these commercialised products have on their livelihoods. This study has been approved by the Research Ethics Committee at the University of Namibia and is conducted according to the ethical guidelines of the National Commission on Research, Science and Technology and the Ministry of Environment, Forestry and Tourism

Informant Name:
Job Position:

1. Can you please introduce yourself in relation to the work you do?
2. What policies, regulations or laws exist tin relation to ABS for indigenous communities that collect natural products, such as Devil's Claw?
3. When were these policies/regulations/laws implemented and what impact have they made by far?
4. What are the challenges that the Ministry face in assuring ABS, especially with regards to Devil's Claw?
5. Devil's Claw products certainly have an established market in Europe, which is also well-noted by importers, who have confirmed its ever-growing demand, what do you think such demand has on local producers in Namibia and value capturing in Namibia at large?
6. Both the two European importers and processors of devil's claw that I interviewed indicated that they do not understand what is required of them regarding benefit sharing, that Namibia's ABS scope is not clear, one company particularly indicated that as a reason to why they do not share as much benefits with local communities, what is your take on that?

Key informant interview guide with NGOs

Title of the PhD Research Project: Indigenous Knowledge for Sustainable Livelihoods: Exploring Forest Products' Value Chains for the Khwe and !Xun San in Bwabwata National Park and Okongo Community Forest of Namibia

Informant Name:

Job title/Position:

- Can you please introduce yourself and the NGO you work for?
- Can you briefly describe in what ways and since when are you/your NGO involved in supporting the livelihoods of local communities, especially in protected areas (national parks, conservancies, community forests, etc.)?
    - What kind of projects are you or your NGO involved in regarding forest products/resources management and for the betterment of community members' livelihoods?
    - Any particular project that involves the San people in that regard?
    - What support (training, finances, etc.) did you give to indigenous communities to assure that they are in a better position and with skills to negotiate the prices of their products?
- What is your impression of the value made by indigenous communities that harvest devil's claws and/or natal oranges (omauni); do you think traders/exporters pay them fairly?
        - During the Introduction to GACP workshop, you were frankly against the idea of /concerned about GACP+ standards requirements becoming mandatory, especially to self-employed Devil's Claw harvesters, why?
- Do you think the government legislations and policies such as the devil's claw Policy and/or Forest Act are protective of communities' livelihoods enough? How could such policies and acts be improved?
- Are the intellectual property rights of forest products such as devil's claw recognised and protected, for indigenous communities?
    - Does such recognition and protection guarantee a fair and equitable profit generation for indigenous communities?

- Do you see a potential in establishing Devil's Claw processing firms to enhance the value that is kept in Namibia?

- What are challenges and barriers do you foresee with such potential and how could they be tackled?

Any comment or suggestion to improving the livelihoods of San communities through their indigenous knowledg**e.**

Interview guide with importers/ lead firm

Title of the PhD Research Project: Indigenous Knowledge for Sustainable Livelihoods: Exploring Forest Products' Value Chains for the Khwe and !Xun San in Bwabwata National Park and Okongo Community Forest of Namibia

Informant Name:

Job title/Position:

Date:

7. Can you please introduce yourself and your business?
8. What kinds of forest products do you import from Namibia and for what purposes?
9. What is the quantity of Devil's Claws (and other products) that you import per year?
    i. Since when are you importing them?
10. What are your main sources of income/livelihoods? What percentage comes importing Namibian products?
11. Could you describe the process of importing the products from Namibia?
    i. Who is/are your business/trading partners in Namibia?
    ii. Are there any standard requirements expected of you to meet by the Namibian Government when importing the products?
    iii. In what state do you import the product: raw or semi-processed?
    iv. At what price do you buy the products for?
12. How do you assure that the imported products are sustainably harvested?
13. How do you assure fair trade between you and Namibian traders?
14. How do you (think) contribute/your company to the livelihoods of indigenous harvesters?
15. In what state (raw, semi-finished or finish) does the products sold to the market? If sold for direct consumption, to which retailer shops?
16. What is your market reach for Devil's Claws in Germany, Europe or the world at large?
17. Do you or would you import value-added Devil's Claw and other products from Namibia?
18. What are your advice/ suggestions on how indigenous/local harvesters could take advantage of the European/German industry to enhance the value generated from forest resources?

List of interviews and focus group discussions

Method	Association	Location	Date
Interview	Harvesters	Okongo Community Forest (Omauni East, Omwandi, Okanyandi) -	04.04.2021
Interview	Harvesters	Onamatadiva	07.04.2021
Focus group discussion	Harvesters	Onamatadiva	07.04.2021
Interview	Harvesters	Oshanashiwa	09.04. 2021
Interview	Headman	Bwabwata National Park (Omega 1)	22.06.2021
Interview	Harvesters	Bwabwata National Park (Omega 1)	22.06.2021
Focus group discussions	Harvesters (Kyaramacan Association)	Bwabwata National Park (Omega 1)	23.06.2021
Key informant interview	Biocultural Protocol	Bwabwata National Park (Chetto)	26.06.2021
Interview	Harvesters	Bwabwata National Park (Chetto)	26.06.2021
Interview	Harvesters	Bwabwata National Park (Mushangara)	29.06.2021
Interview	Headman	Bwabwata National Park (Mutciku)	30.06.2021
Interview	harvesters	Bwabwata National Park (Mutciku)	01.07.2021
Focus group discussion	Game guards (Kyaramacan Association)	Bwabwata National Park (Mutciku)	01.07.2021
Interview	Trader	Windhoek	15.10.2021
Interview	Retailer	Windhoek	18.10.2021
Key informant interview	MEFT (Forestry)	Windhoek	03.11.2021
Symposium (workshop)	Multistakeholder (MEFT, GIZ, NGOs, traders)	Windhoek	04.11.2021
Key informant interview	MEFT (Permit Office)	Windhoek	05.11.2021
Interview	Traders	Windhoek	06.11.2021
Key informant interview	NGO (Namibian Nature Foundation)	Windhoek	09.11.2021

Key informant interview	NGO (Nyae Nyae Development Foundation)	Windhoek	09.11.2021
Symposium (launch of the ABS act and regulations)	Multistakeholder (government agencies, NGOs, private actors, donor agencies, etc.)	Windhoek	25.11.2021
Key informant interview	OPDMC	Okongo	22.02.2022
Interview	Importer and manufacturer	Salzkotten	03.04. 2022
Symposium (conference)	Multistakeholder (GIZ, German Federal Ministry of Economic Cooperation and Development, Naturex (Givadaun), Namibian Devil's Claw Export Association Trust, and the Namibian government representative)	Switzerland	12.05.2022
Interview	Importer and manufacturer	Avignon	16.06.2022
Key informant interview	MEFT (ABS office)	Windhoek	21.07.2022
Key informant interview	NGO (IRDNC)	Bwabwata National Park	30.08.2022

Appendix B: Own contribution

All three manuscripts (as discussed in Chapters 4, 5, and 6) were co-authored by the supervisors of this dissertation, Prof. Dr. Javier Revilla Diez and Prof. Dr. Kenneth Kamwi Matengu (University of Cologne and University of Namibia).

My contributions to these three articles are as follows:

- Conducted a review of relevant literature related to the topics covered in all three articles.
- Developed the conceptual frameworks for all three articles.
- Designed the research methodologies.
- Conducted archival research.
- Designed interview guides and focus group discussions.
- Selected study sites, sampled participants, and conducted interviews.
- Transcribed voice-recorded interviews, and cross-checked the transcriptions that had been completed by fieldwork assistants/interpreters.
- Cleaned and cross-checked all transcripts completed by assistants.
- Analysed qualitative data, including the use of MAXQDA.
- Analysed quantitative data using Excel.
- Independently authored all the three manuscripts.
- Revised all manuscripts under the guidance of Prof. Dr. Javier Revilla Diez and Prof. Dr. Kenneth Kamwi Matengu for all articles.

The data utilised in this dissertation is stored in the central database of the collaborative research center 228, "Future Rural Africa," accessible at https://www.trr228db.uni-koeln.de/site/index.php. Due to confidentiality agreements, the primary research data is not publicly accessible but can be requested at any time.

Referencing styles in Chapters 4, 5, and 6 adhere to the publisher's guidelines.

Appendix C: Erklärung zur Dissertation

Erklärung zur Dissertation

gemäß der Promotionsordnung vom 12. März 2020

„Hiermit versichere ich an Eides statt, dass ich die vorliegende Dissertation selbstständig und ohne die Benutzung anderer als der angegebenen Hilfsmittel und Literatur angefertigt habe. Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten und nicht veröffentlichten Werken dem Wortlaut oder dem Sinn nach entnommen wurden, sind als solche kenntlich gemacht. Ich versichere an Eides statt, dass diese Dissertation noch keiner anderen Fakultät oder Universität zur Prüfung vorgelegen hat; dass sie - abgesehen von unten angegebenen Teilpublikationen und eingebundenen Artikeln und Manuskripten - noch nicht veröffentlicht worden ist sowie, dass ich eine Veröffentlichung der Dissertation vor Abschluss der Promotion nicht ohne Genehmigung des Promotionsausschusses vornehmen werde. Die Bestimmungen dieser Ordnung sind mir bekannt. Darüber hinaus erkläre ich hiermit, dass ich die Ordnung zur Sicherung guter wissenschaftlicher Praxis und zum Umgang mit wissenschaftlichem Fehlverhalten der Universität zu Köln gelesen und sie bei der Durchführung der Dissertation zugrundeliegenden Arbeiten und der schriftlich verfassten Dissertation beachtet habe und verpflichte mich hiermit, die dort genannten Vorgaben bei allen wissenschaftlichen Tätigkeiten zu beachten und umzusetzen. Ich versichere, dass die eingereichte elektronische Fassung der eingereichten Druckfassung vollständig entspricht."

Teilpublikationen:

Nakanyete, N. F., Matengu, K. K., & Diez, J. R. (2023). The impact of commodified non-timber forest products on the livelihoods of San in Northern Namibia. *Development Southern Africa*, 1-17. https://doi.org/10.1080/0376835X.2022.2162855

Nakanyete, N. F., Matengu, K. K., & Diez, J. R. (2023). Rich resources from poor communities: An analysis of Namibia's Access and Benefit-Sharing legislation. Manuscript submitted for publication.

Nakanyete, N.F., Matengu, K.K., & Diez, J.R. (2023). Requirements for community-company partnerships in non-timber forest product trade: The case of San communities in northern Namibia. Manuscript submitted for publication.

30.11.2023, Ndapewa Fenny Nakanyete

Datum, Name und Unterschrift