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Community enterprises for fair partnerships in non-timber forest product value chains? The case of San communities in northern Namibia

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ABSTRACT

This paper investigates why the harvesting of non-timber forest product (NTFP) by the indigenous San people for regional and global markets has not succeeded in breaking persistent cycles of marginalisation within their community. In addition, it assesses the necessary prerequisites for successful NTFP value addition for San while identifying factors that hinder their ability to establish community enterprises, such as cooperatives, that could facilitate revenue development. To conduct this research, we employed an exploratory qualitative case study approach, combining empirical data with secondary sources. The findings indicate that San communities in Bwabwata National Park, through the Kyaramacan Association, collaborate with the government, tourism operators, and a NTFP exporter to generate income for the San communities but faces challenges related to value addition and bargaining power. In contrast, in Okongo, San harvesters lack organised structures and infrastructure, experience exploitation by local traders, and encounter difficulties in commercialising NTFPs beyond the constituency. The paper recommends collaboration among government, NGOs, and lead firms to enhance NTFP value for San communities through capacity building and direct market access, while addressing inequities for sustainable outcomes.

1. Introduction

Natural resources remain crucial for community livelihoods in the Global South, particularly among indigenous communities that have historically sustained themselves through forest-linked traditions, who now face modern development challenges that conflict with their traditional lifestyles (Kimengsi et al., 2023; Nugroho et al., 2022; Thoms, 2008). In Namibia, various indigenous and local communities continue to rely on harvesting non-timber forest products (NTFPs) for subsistence, despite the discontinuing of practices such as bartering with neighbouring communities. Consequently, the Namibian government and other stakeholders have initiated collaborations to support the NTFP trade between forest-dependent communities and multinational firms (Ministry of Environment, Forestry and Tourism, 2020; Drews, 2020). In some cases, this has led to the establishment of local processing facilities and joint patent ownership, enhancing revenue opportunities for communities in Namibia, specifically for the Ovahimba and Ovawambo, though not for indigenous San communities, who continue to experience the highest levels of poverty (Chinsembu & Chinsembu, 2020; Den Adel, 2002). In this article, we investigate the reasons behind the unmet goal of breaking persistent cycles of marginalisation among the San through their participation in regional and global markets.

Community-company partnerships represent a new approach to encouraging direct trade between rural communities and multinational firms (Antunes et al., 2021). These partnerships aim to facilitate the formation of local cooperatives and other forms of collective micro-businesses, especially in trading with cosmetic and pharmaceutical lead firms that are increasingly using natural and organic products. In addition to increasing production and improving NTFP-based income for involved communities, these partnerships could provide technical support, training, and capital (Antunes et al., 2021).

In Namibia, a notable example of a successful community-company partnerships is the *Eudafano* Women's Cooperative, which trades with multinational companies such as The Body Shop. Recognised as the leading supplier of Marula oil to global and regional markets, the Cooperative consists of over 2,500 rural Ovawambo women as active members who collect Marula fruits and Kalahari melon for oils used in food and cosmetics (Dagar et al., 2020; Eudafano Women's Cooperative, 2022). Over the past fiscal five years, the Cooperative's exports of finished and semi-finished oil products have generated 15.4 million US

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dollars in revenue (Eudafano Women's Cooperative, 2022). The Ovawambo women have a long-standing tradition of harvesting Marula (Sclerocarya birrea) fruits for juice, wine, and oil production, historically earning modest incomes through local sales of excess products (Cheikhyoussef & Embashu, 2013; Den Adel, 2002). Unlike the San, who primarily relied on barter, the Ovawambo had already been engaged in commercial transactions before the formalisation of the cooperative (Widlok, 1999; Den Adel, 2002). This early involvement in market activities, often cited as a model for other rural communities, may have contributed to their relative success in NTFP commercialisation. The success of the *Eudafano* Women's Cooperative in NTFP value addition, further explored in the following section, is supported by data from literature review and a key informant interview with the Cooperative's Manager, Martha Negumbo. The Cooperative's achievements demonstrate the potential for value addition and benefit maximisation, offering valuable lessons and insights into success factors that could be applied to San communities.

Given their long-standing reliance on NTFPs, it is surprising that no successful multinational company partnerships have been established with any of the San communities. This situation is particularly concerning, as the San, given their marginalisation and their renowned substantive knowledge of local plant use, are arguably in greater need of such partnerships (Cole, 2014; Krugmann, 2001). So far, there are only a few instances where the San have been partially integrated into global NTFP value chains, as in the case of Devil's Claw (*Harpagophytum* spp.), and regional value chains, as 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 example, Devil's Claw harvesters in Bwabwata National Park only earned an annual average of NAD 1,538 (USD 89.86)[1] 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 could be considered biopiracy. Unlike the case of Rooibos tea in South Africa, where the San community reached a significant financial settlement under the framework of the Nagoya Protocol, the San of Namibia have yet to financially benefit from the recognition of their traditional knowledge related to the Devil's Claw. The Rooibos Benefit Sharing Agreement, hailed as a landmark achievement, marked the largest industry-wide settlement under the Nagoya Protocol, setting a precedent for fair compensation to indigenous peoples for the use of biological resources associated with their traditional knowledge (Schroeder et al., 2020). However, similar frameworks for the Devil's Claw remain underdeveloped, and challenges persist in translating recognition into tangible financial gains for Namibian San communities. 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, San harvesters and other Namibian value actors capture only 1% of the total global market value, which has amounted to over 100 million US dollars per year since 2000 (Nakanyete et al., 2024; 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 seasonally sold at regional retailers, such as Spar, Food Lover's Market and Pick n Pay, in addition to them being available in various open markets across Namibia. Moreover, some companies process Natal Oranges into juice, jam, and ice cream, demostrating their potential for value addition. However, even in this case, the profits from the processing are obtained by intermediaries and entrepreneurs from other local communities and not the San. Therefore, this paper aims to investigate the critical factors preventing the San from forming community enterprises (such as cooperatives) conducive to revenue development, as well as the prerequisites for successful NTFP value addition, for instance, as seen in the *Eudafano* Women's Cooperative. We specifically highlight the significance of infrastructure in understanding the current situation in San communities in northern Namibia.

Existing studies on forest products highlight bottlenecks in value chains that prevent raw product harvesters from accessing the profits (van Vlastuin, 2022; Cavanagh et al., 2015; 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 producers benefit from NTFP trading profits and contribute to their livelihoods. However, in our case study, we suggest that a broader range of factors may need to be identified. Therefore, our approach is as follows: Firstly, we distil from the success story of the *Eudafano* Women Cooperative what appear to be the necessary conditions for 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 processing for enhanced value capture among indigenous San communities in Namibia, we contribute to global discussions on equitable profit distribution from natural resources, especially for vulnerable forest-dependent communities.

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 dialects) by linking local NTFP-producing communities to regional and global markets through value chains, leveraging local resources and traditional knowledge to create marketable products. Ovawambo women traditionally gather under the Marula (Sclerocarya birrea) tree to extract juice from its fruits for fresh consumption and to make traditional wine for social events. They also dry the seeds to extract oil from their kernels, which has long been used for food, medicinal and cosmetic purposes (Cheikhyoussef and Embashu, 2013; World Intellectual Property Organization (WIPO), 2010; Rodin, 1985). Women who had surplus kernels typically sold them from home or at local markets, earning on average a meagre USD 8.41 per season (Den Adel, 2002).

To address the low income earned from the local Marula kernel trade by the women, several organisations collaborated, including 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). This collaboration provided resources, funding, and opportunities for access to larger markets for the Cooperative.

After conditional registration in 1999 due to a lack of bylaws, the Cooperative formally obtained its full registration in 2009, and by 2010, had became the largest producer of Marula oil for food and cosmetics in southern Africa (Kapuka, 2017; WIPO, 2010). With its formalisation, the Cooperative expanded operations and diversified oil production to include Kalahari Melon (Citrullus vulgaris). According to the Cooperative's Manager, Martha Negumbo, it employs 14 people and annually receives kernels and melon seeds from 2,500 local women 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, aiming to secure fair prices for producers. Additionally, the NGO *PhytoTrade*

[1] The exchange rate between the Namibian dollar and the US dollar was 17:1 at the time of the submission of this paper.

Africa facilitated research and development projects on natural and environmentally friendly botanical ingredients using Marula to expand the market (Erastus, 2022; Whiteside, 2022). This attracted multinational companies, including Marula Natural Products from South Africa, Aldivia from France, and The Body Shop from the United Kingdom, resulting in a significant expansion of the Cooperative's market and demand for natural oils (WIPO, 2010).

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). Producers' income quadrupled to over USD 60,000, equivalent to USD 2.35 per kilogram of Marula kernels in 2010, and rose to USD 104,712 in 2015, equivalent to USD 10.58 per kilogram (Kangandjo, 2016; WIPO, 2010). This has contributed to improving the livelihoods of the Cooperative's members. According to Negumbo, the Cooperative's annual production capacity is estimated at 12 tonnes of oil, valued at approximately 15.4 million US dollars. However, due to unstable demand, particularly during the COVID-19 pandemic and recent inflation, actual production levels varied. Between 2017 and 2021, the Cooperative produced a total of 40 tonnes of Marula oil (an average of 8 tonnes per year), and 10 tonnes (2 tonnes per year) of melon oil (Erastus, 2022). In 2020, participating producers collectively earned a seasonal income of approximately USD 158,000 due to reduced output (UNCTAD, 2021).

Despite its success, the Cooperative faces challenges, including a lack of accessible accredited laboratories for further product development and research, high shipping costs for sending samples to distant customers, high export taxes, 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 generate additional income that provides the necessary capital, the Cooperative is developing a strategic plan to maximise regional sales of its oils and is establishing standard operating processes for Marula juice and wine, which women traditionally produce only on a seasonal basis.

Globally, the objectives of the Cooperative align with similar initiatives, such as the High Atlas Foundation in Morocco, a 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, 2022). By 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, partnership with lead firms, and support government and non-government institutions are essential for the long-term success and impact of these initiatives.

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

Although the potential of NTFPs 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 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. Key factors include (a) entrepreneurial skills, (b) access to capital and infrastructure, (c) partnerships with lead firms or multinational companies, (d) assurance of NTFP quality standard, and (e) external support from government, NGOs and research institution (Antunes et al., 2021; Meinhold & Darr, 2019; Cunningham et al., 2017). 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 captured by a few national elites and global firms (Shackleton & Pandey, 2014).

3.1. Entrepreneurial skills

The success of maximising value to sustain the livelihoods of forest-dependent communities relies on collectively shared 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, and 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 enabling indigenous and local communities to ensure product quality and expand their markets regionally and globally. However, training of this nature is often limited 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 (Cunningham et al., 2017).

3.2. 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 reach regional and global markets. African NTFP harvesters, in particular, face challenges in directly accessing high-end markets due to an unfavourable business environment for NTFP start-ups, a lack of trained personnel, infrastructure, and 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 rural community income, promoting agriculture instead, despite the fact that NTFPs often outperform the earnings from arable agriculture (Shackleton & Pandey, 2014). Securing financial resources for NTFPs presupposes that national or international agencies prioritise poverty reduction through NTFP revenues and sustainable forest resource management (Shackleton & Pandey, 2014).

3.3. Partnerships with lead firms

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 local producers to establish legally recognised community-based organisations (CBOs), such as cooperatives, associations, or collective microenterprises, which enter into contracts with lead firms. Lead firms are typically large companies that play a key role in developing supply chains and distribution networks, strengthening business network (Humphrey & Navas-Alemán, 2010). These partnerships can enhance production, boost household income, and promote forest conservation, with a potential of lead firms from the Global North significantly improving the profitability and business growth of producers in the Global South (Antunes et al., 2021; Humphrey & Navas-Alemán, 2010). By partnering with lead firms, harvesters who are organised in such CBOs can engage in direct trade with these companies, opening opportunities for income diversification, development of skills and local infrastructures, and access to previously inaccessible markets (Menezes Moraes, 2022; Mayers & Vermeulen, 2002). Furthermore, partnerships can lead to the creation of stable demand and markets, reducing 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). The Protocol seeks to balance the rights to economic and social benefits between providers of resource and associated traditional knowledge, and the users of these through prior informed consent and ABS (access and benefit sharing) agreements, while promoting conservation and sustainable use of resources (Kamau, 2022; Sirakaya, 2020; Tran et al., 2016). 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, determining the format of the collaboration, production conditions and outcomes.

3.4. Quality standard assurance

The commercialisation of NTFPs, especially for international markets, demand strict quality standards, requiring regular training and support for local communities in quality assurance and management, from harvesting to processing, to maximise their market benefits. Meeting export and import requirements, such as quality standards, phytosanitary regulations, permits, and taxes is essential for establishing sustainable, long-term relationships between producers and buyers (Meinhold & Darr, 2019; Belcher & Schreckenberg, 2007). adhering to harvesting regulations and targeting niche markets that prioritise quality over quantity can allow producers to earn the same income for fewer but higher-quality products (Matias et al., 2018). Local communities possessing traditional skills to produce high-quality handmade products, which are growing in demand in an increasingly industrialised world saturated with uniformity, have an opportunity to benefit (Cunningham et al., 2017). However, many traditional traders are often excluded from these markets because they cannot afford the technology needed for modern quality standards, and the rapid increase in external market demand can drive prices beyond what local producers can afford (Shackleton & Pandey, 2014).

3.5. External support organisation

Support from government agencies, NGOs, research institutions and international organisations is crucial for enhancing NTFP value addition and community enterprise development for harvesters. This support may include providing expertise in production, funding, market identification, research for improved products, as well as training in business, financial and management, thereby empowering harvesters to scale up their production and adopt market-centred approaches (Antunes et al., 2021; Matias et al., 2018; Cunningham et al., 2017). Additionally, improved governance policies, legislation and transnational agreements, such as the Convention on Biological Diversity and Nagoya Protocol, can stimulate community enterprise development, although challenges remain in implementing ABS mechanisms (Nakanyete et al., 2023; Van Vlastuin, 2022; Belcher & Schreckenberg, 2007). NTFPs are often overlooked in national policies and are instead regulated under timber frameworks, which disadvantage NTFP harvesters (Belcher & Schreckenberg, 2007). Furthermore, cultural gaps and disconnects between harvesters and external support organisations, who may prioritise different needs, can create conflicts; however, market partners that also serve as support organisation can effectively bridge this gap (Cunningham et al., 2017). Ultimately, external support, along with other factors addressed earlier and those expanded upon in the following section, is essential for ensuring value enhancement opportunities for local communities harvesting NTFPs.

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

Before engaging with the specific situation of San in Namibia, it is worthwhile summarising the potential benefits and risks of community-company partnerships as established by researchers, governments, funding agencies, NGOs, and other organisations (Table 1). These partnerships link NTFP community enterprises with lead firms. Unfortunately, the marketing of NTFPs from rural areas often follows lengthy channels that do not ensure fair profit distribution to the harvesters (Choudhary et al., 2014). While lead firms from the Global North can enhance value and competitiveness of harvesters in the Global South, through expanded market access, financial flows, and technology, such globalisation also presents challenges for these harvesters (Humphrey & Navas-Alemán, 2010; Mayers & Vermeulen, 2002). Globalisation can make indigenous people more vulnerable and dependent, particularly 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 NTFP harvesters and lead firms (Menezes Moraes, 2022; Choudhary et al., 2014; Morsello, 2006; Mayers & Vermeulen, 2002). However, comparatively less focus has been placed on addressing the associated challenges. Communities' collaboration with lead firms brings value chain integration, product diversification, and branding, resulting in improved income, employment opportunities and infrastructure development in rural areas (Mayers & Vermeulen, 2002). This partnership reduces risks for both rural communities and lead firms by ensuring a stable supply and demand for NTFPs and may lead to contractual agreements and exclusivity arrangements, discouraging

Table 1
Summary of the potential benefits and risks of partnerships between NTFP harvesters and lead firms.

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 NTFP demand	Unequal land distribution, especially among indigenous communities
Contractual agreements and exclusivity	Exclusion of vulnerable community members
Promotion of sustainable forest management	Conflicting labour demands between NTFP commercialisation and subsistence practices
Creation of niche markets for NTFPs	Conflicts between community egalitarianism and corporate hierarchies

Source: Authors.

competition from other players due to the strong bonds between communities and specific companies (Menezes Moraes, 2022; Morsello, 2006). Furthermore, 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). Without such partnerships, the utilisation of NTFPs would provide fewer benefits to both rural communities and forests, compared to when these partnerships are established (Morsello, 2006).

On the downside (Table 1), partnership between NTFP harvesters and lead firms may result in unfavourable outcomes for harvesters, including high transaction costs (e.g., export tariffs and bank charges), misunderstandings that cause financial losses or legal disputes, the perpetuation of low-wage labour, unequal land and benefit distribution, and the exclusion of vulnerable community members (Burke, 2010; Mayers & Vermeulen, 2002). In indigenous communities, the transition to intensive NTFP production creates conflicting labour demands for commercialisation, leading to tensions between community egalitarianism and corporate hierarchies (Morsello & Adger, 2007). Moreover, conflicts may arise between the protection of subsistence practices of NTFP harvesters and the influence of large-scale corporate interests, which often disregard local priorities and cultural values (Buchmann et al., 2010). 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).

5. Prerequisites for the success of cooperatives

In addition to the potential benefits and risks identified, there are changes to the social and economic structures resulting from these partnerships that cannot easily be listed as either a benefit or a risk. One major side effect (and prerequisites) of these partnerships is that producers are typically expected to form cooperatives or similar associations. Cooperatives are 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). They are built on globally recognised administrative principles, including open membership, democratic control, self-responsibility, and economic participation (Hannan, 2014). Cooperatives often emphasise autonomy, solidarity, and community concern, promoting cooperation, education and training, and equality. By functioning as community associations, they play various roles in value chains, such as resource pooling, meeting minimum order requirements, cost sharing, and infrastructure investment (Belcher & Schreckenberg, 2007). By doing so, they (should) enhance harvesters' 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 limited market channels but offer a unique way to organise the collection, processing and sale of products, albeit at a high organisational cost (Sumelius et al., 2021). Cooperatives are expected to prioritise meeting the needs of their members over profit. Earnings generated through efficient operations and value addition are returned proportionately to members based on their participation, ensuring that intermediaries or suppliers do not capture excessive value (Kwapong & Hanisch, 2013).

Effective cooperative governance requires transparent leadership, stewardship, monitoring, and reporting, with accountability between management and members (Sumelius et al., 2021; Hannan, 2014). For collective NTFP commercialisation, poor governance, disparities in entrepreneurial capacities, and a lack of tangible benefits may disqualify cooperatives from forming partnerships (Meinhold & Darr, 2019). Therefore, the effectiveness of cooperatives in enhancing socio-economic benefits for members largely depends on the quality of their internal governance, which is supported by training provided to both management and members (Sumelius et al., 2021). In summary, local communities are expected to organise themselves in ways that comply with externally defined administrative standards. Any lack of success and equitable benefits is often attributed to imperfect organisation and failure to master the expected protocols and behaviours in these collectives. The next section explores how these expectations favour certain local counterparts of global companies while presenting challenges for others.

6. Description of study area and data collection methods

This study focused on two of the six San community groups in Namibia, the Khwe and!Xun San, and was conducted in Bwabwata National Park and Okongo Constituency (henceforth referred to as Bwabwata and Okongo). These two areas are among the few in Namibia with vegetation cover classified as woodland forest. Bwabwata and Okongo (Fig. 1) receive some of the highest rainfall in the country, which supports the growth of these forests. However, despite receiving 600–650 mm of rainfall 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). Bwabwata and Okongo were originally inhabited almost exclusively by San communities, who primarily relied on forest resources for subsistence (Boden, 2020; Nghitevelekwa et al., 2020;). Before 1960, the!Xun in Okongo engaged exclusively in hunting and gathering, while the Khwe settlers in Bwabwata were semi-nomadic hunter-gatherers who also practised limited gardening in dry riverbeds (Boden, 2020; Nghitevelekwa et al., 2020; Koot, 2016).

Since the 1960s, there have been notable changes in land use and the ethnic composition of these areas, significantly impacting the livelihood strategies of the San communities. The Khwe of Bwabwata were adversely affected by the establishment of the national park and the presence of a strong colonial military force (Boden, 2020). Despite forming the majority (80 % of the 6700 inhabitants), Bwabwata has become home to other ethnic groups, including 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 are prohibited 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, 2022).

In Okongo constituency, the Finnish Evangelical Lutheran Mission established the first permanent settlements in and near what is today Okongo Town, bringing together local !Xun with ǂAkhoe (Hai||om) San and attracting Ovawambo pastoralists, to settle in the area (Nghitevelekwa et al., 2020; Mouton & Dirkx, 2014). Under missionary influence, San settlements developed a farming system based on cooperative labour and sharing among community members (Takada, 2015). However, these settlements and subsistence practices were severely disrupted by the establishment of a military base in the area and the Namibian War of Independence, forcing the remaining !Xun to increasingly rely again on foraging (Takada, 2015). Since independence, Okongo's population has grown to 25,698, with the majority of residents being Ovawambo, and only 942 San, mostly !Xun (Nghitevelekwa et al., 2020). The constituency includes the 1,063 km^2 Okongo and Omufitu Wekuta community forests, established in 1996 to promote equitable forest resource use and improve the livelihoods of local communities, particularly the San, who continue to live under poor agricultural and socioeconomic conditions (Nakanyete et al., 2023; Shikomba, 2020; Hitchcock, 2019).

7. Methods

To address questions concerning collective capabilities and requirements for value addition to NTFPs to enhance revenue generation for San communities with varying enabling factors, this study employed a qualitative case study approach that incorporates exploratory

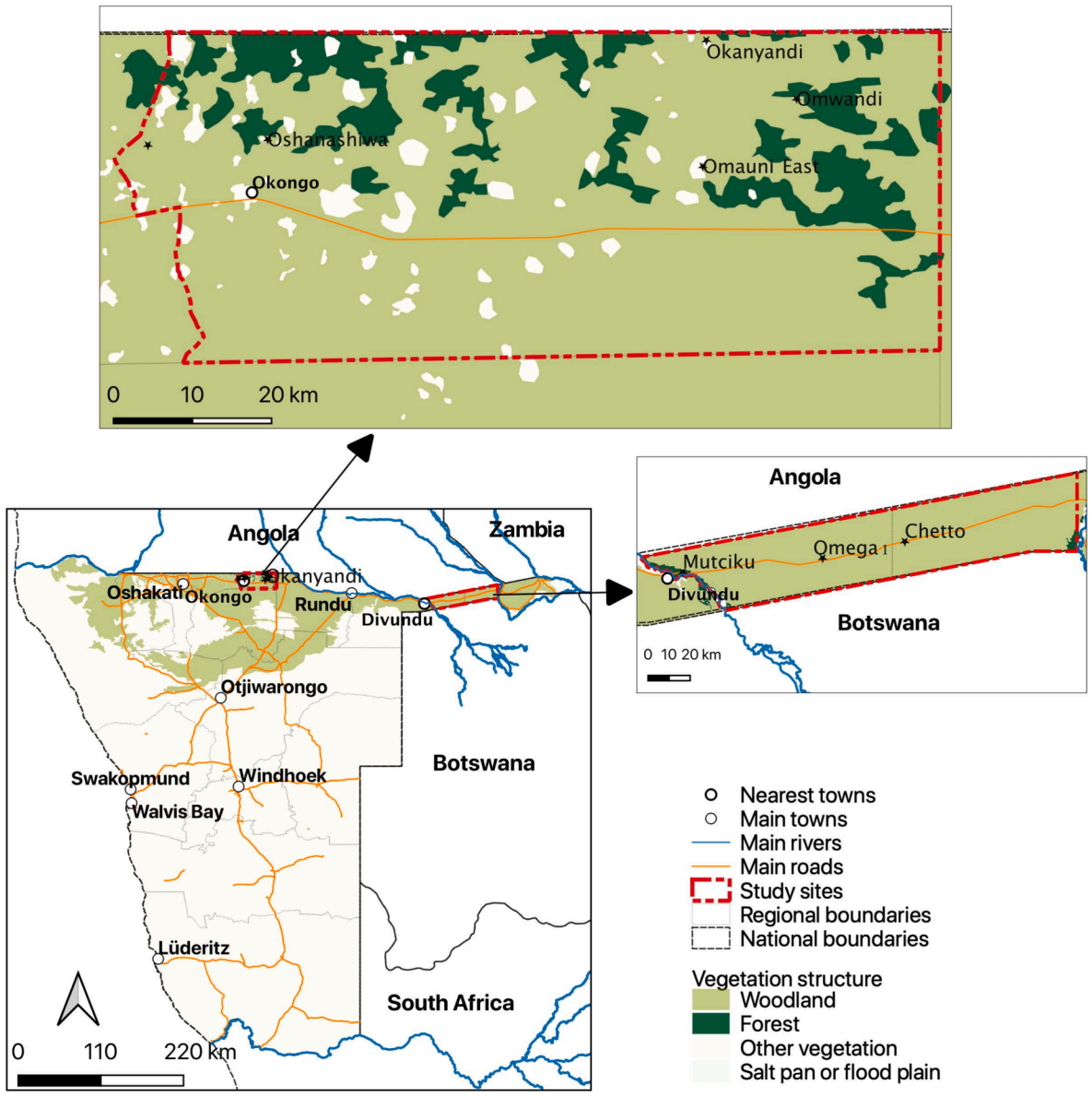

Fig. 1. Locations of the study sites relative to the layout of Namibia. Source: authors, data from Namibia Statistics Agency.

methods. As such, we combined empirical data with secondary data to overcome certain limitations, such as the limited availability of informants for interviews in Okongo and inconsistencies in the interview responses from NTFP harvesters in both 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).

Primary data was collected from March 2021 to July 2022 through interviews, focus group discussions, and participant observations with various NTFP value actors. These actors, as defined by Greene et al. (2000), include individuals or institutions involved in the value chains, such as 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. Additionally, key informant interviews were conducted with specialists from government institutions and NGOs supporting NTFP commercialisation to provide relevant contextual information from the local, national, and global levels. In total, we collected data from 23 in-depth interviews with harvesters, three focus group discussions (FGDs) with 10–15 harvesters each, five interviews with market player companies, and five key informant interviews (Table 2). To enable data triangulation, secondary data from applicable studies were collected and analysed alongside primary data.

Furthermore, the two San communities were purposefully selected for their proximity to the forested areas, providing opportunities to harvest various NTFPs. Participants from these communities and representatives of companies within the NTFP market were selected using snowball sampling, where initial informants referred additional participants. This approach was considered appropriate given the small and dispersed population of these market players.

Both primary data and secondary data were imported into MAXQDA for systematic coding and analysis. This process involved developing a coding framework based on the enabling factors for NTFP commercialisation identified in the introduction (e.g. community organisation, market access, and external support) to evaluate the potential for value addition and enterprise development within San communities.

The findings were presented in two case studies, detailed in the following result section.

Table 2
Overview of primary data collection methods, actors, and locations.

Method	Actor/Organisation	Number of Interviews/ Discussions	Location
Household Interviews	Harvesters	23	Bwabwata National Park; Okongo
Focus Group Discussions	Harvesters	3	Bwabwata National Park; Okongo
Firm Interviews	Namibian traders/exporters and retailers	3	Windhoek
	European importer/ processors	2	Avignon; Salzkotten
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 • Nyae Nyae Development Foundation of Namibia • Namibia Nature Foundation	3	Bwabwata National Park; Windhoek
	Community associations/ cooperatives: • The Kyaramacan Association • Eudafano Women's Cooperative	2	Bwabwata National Park; Ondangwa
Symposiums	MEFT; Ministry of Industrialisation and Trade; Namibian Devil's Claw Exporters Association; GIZ	4	Windhoek; Geneva

Source: Authors.

8. Results

8.1. NTFP value addition for San harvesters' livelihoods

Residents of Bwabwata established a legal association for community-based natural resource management, which, in collaborations with the Namibian Government, co-manages harvesting NTFPs within the park. 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, leading to their exploitation by local traders and limited future aspirations in the potential of NTFP commercialisation, and forcing some harvesters to seek alternative livelihoods.

8.2. Value addition opportunities through Kyaramacan Association

One of the enabling factors for value addition and capture among San communities in Bwabwata is the Kyaramacan Association (KA). KA 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, 2019). The Ministry of Environment, Forestry, and Tourism (MEFT) 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, providing KA with an annual income of 400 thousand US dollars and a considerable amount of game meat this year (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, participating in the establishment of sustainable hunting quotas, educating residents about conservation and promoting tourism. Additionally, it has enabled KA to own vehicles for multiple purposes. A proportion of 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 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 NTFP, which are 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 %. Additionally, the new office being built for Kyaramacan at Mutciku village is sponsored by one of the trophy hunting operators" (interview with the KA informant, 1 July 2021).

KA also manages an annual quota of 25 tons (25,000 kg) of Devil's Claw allocated by MEFT to residents who participate in its harvest for the global market. Harvesters undergo practical training focused 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 in technical expertise, market knowledge, or product processing opportunities among KA management and harvesting members means that the association relies on an 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, ultimately enabling it to establish direct connections with multinational or lead firms. As the responsible entity for negotiating trading conditions with its export partners, in 2021, KA, through its 12 elected board committee representatives, negotiated with the exporter for a higher price of Devil's Claw materials to be paid to harvesters. Initially, KA demanded USD 2.63 per kg, but the exporter refused, leading KA to decline signing the purchasing agreement. Eventually, the exporter agreed to increase the purchase fee from 2.31 to USD 2.45 per kg. As a result, 936 registered harvesters earned a total of 84 thousand US dollars in 2021 for their first-grade organic certified Devil's Claw, averaging USD 89.86 per harvester. Meanwhile, KA received a management fee of USD 0.47 per kg, amounting to a total of 16 thousand US dollars. However, harvesters expressed dissatisfaction, as they were only compensated for their labour during harvesting and not for the additional value activities that increase the desirability for the global market (e.g., mitigating post-harvest losses from contamination during handling, and storage).

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 tripled from 360 thousand kg to 1.21 million kg between 2010 and 2020. However, harvesting communities do not capture profits from this demand, instead, it goes exclusively to the intermediate traders and European lead firms (Chinsembu & Chinsembu, 2020). The exact recent profit from the global market remains undisclosed, as it is

challenging to investigate and obtain exact information from companies (MEFT informant, personal communication, 2 May 2022). In the early 2000s, the global market value was already estimated at 100 million US dollars per 700,000 kg (Wynberg, 2004). This suggests that with the rise in export volumes, the average annual market value of Devil's Claw may have exceeded 143 million US dollars in recent years (Nakanyete et al., 2024). Our findings from data collection in Germany, France and Spain revealed that some Devil's Claw materials were also sold naturally in European markets (Table 3), while some lead firms also processed portions into Harpagoside extracts, combining them with other ingredients to produce capsules and ointment.

In interviews, all harvesters expressed a desire for a local NTFP processing centre. This would empower them to sell semi-processed Devil's Claw, in addition to the raw material, and enable direct trades with regional and global lead firms, ultimately redirecting enhanced income to their community. Transforming an existing facility, such as the building at Mutciku, into a processing warehouse seems feasible given 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. The challenges in value capturing opportunities are also often shaped by the lack of recognition for Khwe traditional authority, limited support for essential business aspects (e.g. marketing and product development), and an oversight of community-based entrepreneurial potential, especially within biodiversity governance policies (Nakanyete et al., 2023).

Meanwhile, both Namibian exporters and European lead firms interviewed were of the view that establishing a local Devil's Claw processing facility for local communities is not feasible. They viewed these facilities as costly, and obtaining organic certification, already expensive for established Namibian facilities, would be challenging to the community. One exporter, in particular, expressed concern that a local processing facility might compete with their European business partners, noting that the low demand for Devil's Claw medicine in Namibia would not sufficiently compensate for the potential loss of business with their European counterparts. However, the exporter acknowledged the importance of lead firms relocating processing facilities to Namibia to generate opportunities for local employment and benefit-sharing with communities. The exporter suggested that

Table 3
Division of profits between Devil Claw value chain actors.

Companies	Photos	Prices and percentage of value distribution/per kg across different levels
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 %)

Source: Authors.

favourable arrangements 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. They already perform sterilisation, milling, and sifting of the product in Namibia, 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 have not found the appropriate channels for funding yet" (Interview with Exporter, 15 October 2021).

8.3. *Challenges of value addition of non-timber forest products for San harvesters in Okongo*

In contrast to the San of Bwabwata, who have a legally recognised association, 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 lead firms. Instead, individual harvesters sell their products, including Natal Oranges, Manketti, honey, and edible caterpillars, to local traders, primarily Ovawambo. These traders then add value or process some of the products to increase their income, producing various value-added products, such as juice, beer, liquor, and wine from Natal Oranges, Manketti, and Marula, as well as oils from Marula and *Ximenia* spp. (Cheikhyoussef et al., 2012). In addition, local traders are often the ones able to afford the distributing both raw NTFPs and value-added products to various local and regional markets to maximise their profits.

Despite the opportunity to access NTFPs from the community forests, most of the interviewed San harvesters did not view the commercialisation or value addition of NTFPs as a means to improve their livelihoods, mainly due to exploitation by local traders. A harvester noted that traders often demand NTFPs, but fail to fulfil their payment promises or, in some cases, only offer alcohol as compensation. High transport fees to sell products in Okongo Town further erode their earnings, leaving harvesters with little or no profit. Many villages in the Okongo are in remote areas with poor road infrastructure and difficult terrains, making access and transportation of NTFPs difficult and costly.

Harvesters identified additional challenges affecting their ability to maximise value from NTFP commercialisation beyond Okongo. These include a lack of entrepreneurial skills training, support from the government, development initiatives and funding agencies for infrastructure, such as raw product storage and value addition facilities. The San's long-standing marginalisation has discouraged some harvesters, who have little confidence in their ability to capture NTFP value. Instead, some seek support for horticultural projects to collectively grow and sell vegetables, preferring this to NTFP trading. According to some respondents, they would rather find piece jobs; however, employment opportunities, especially in towns or on farms, often lead to other forms of exploitation, worsening their economic difficulties. In sum, based on fieldwork observations, the San in Okongo appear to have no future aspirations in NTFP commercialisation.

9. Discussions

The San's reliance on NTFPs is deeply embedded in their indigenous knowledge. However, external influences — historically from missionary expatriates and the colonial military, and more recently from some NGOs and government interventions — have steadily discouraged or undermined their traditional livelihood practices. This has hindered the San from benefiting equitably from the commercial value of their NTFP-based knowledge, pushing them towards subsistence farming and wage labour (Nakanyete et al., 2023, Widlok, 1999; Gordon, 1988). Profits from NTFPs have largely been captured by intermediary traders and international companies. Limited agricultural skills and resources among the San have often led to various unsuccessful farming projects, which often in turn result in land appropriation by neighbouring agro-pastoralist communities or conversion of their lands to national parks, where access to NTFPs is restricted (Widlok & Nakanyete, 2022; Nghitevelekwa et al., 2020). Such land appropriation is often justified by the lack of agricultural practices among the San. Even in the case of Bwabwata National Park, where the San have engaged in value-added NTFP activities for global export, their share of revenue remains marginal by comparison.

Over the past years, development funding support has primarily focused on transitioning the San's livelihoods from NTFP reliance to agriculture and wage labour. Along with sociopolitical factors, such as the absence of traditional San authorities, this focus has limited NTFP value-enhancement opportunities for San in Bwabwata and Okongo, compared to successful outcomes seen in other communities and regions. In Southern Africa, other indigenous and local communities, such as Ovawambo in Namibia, and the San and Khoi of South Africa, have achieved comparatively better outcomes in NTFP commercialisation through cooperative structures and benefit-sharing agreements. The Ovawambo, for example, have increased their income through the Eudafano Women's Cooperative, which produces Marula and Kalahari Melon oils (Erastus, 2022; Den Adel, 2002). Similarly, the San and Khoi of South Africa received their first payment of over USD 691,000, or 1.5 % of the farmgate price in 2022 as part of a traditional knowledge benefit-sharing agreement for Rooibos, signed in 2019 (Modise, 2022). These examples illustrate how collective action, robust legal frameworks, government support, and community-company partnerships can result in mutually beneficial agreements.

In Namibia, the disparity in NTFP benefits between the San and the Ovawambo partly reflects to historic market engagement. Unlike the Ovawambo, who had been engaged in commercial transactions and asset accumulation long before their cooperative was established, the San's NTFP economy primarily relied on bartering or local community sharing (Widlok, 1999; Gordon, 1992). Consequently, NTFP value addition and processing for the San have been managed by external entities that appear to show little interest in enabling them to become potential competitors, resulting in marginal returns from Devil's Claw market despite global demand (Wynberg, 2004; Krugmann, 2001). This dependency and marginalisation extend across various economic activities, including working for commercial farmers and participation in development programmes.

Moreover, global studies on NTFP commercialisation emphasise the importance of equitable access to markets, technology, and infrastructure for indigenous NTFP harvesters. Cavanagh et al. (2015) and van Vlastuin (2022) stresse that bottlenecks in value chains, such as the lack of access to processing facilities and market information, disproportionately affect vulnerable NTFP-harvesting communities, reinforcing exploitation patterns. Similarly, Paudel et al. (2009) argue that removing these bottlenecks is essential for these communities to fully benefit from NTFP commercialisation. The case of the San in Namibia aligns with these findings, as they lack institutional and infrastructural support seen in successful cooperatives. This contrasts with cases where clear governance and leadership structures have facilitated success. For instance, Rooibos Benefit Sharing Agreement in South Africa demonstrates how structured governance and adherence to frameworks like the Nagoya Protocol can lead to significant financial settlements for indigenous communities (Schroeder et al., 2020). However, despite similar potential for Devil's Claw, achieving comparable outcomes for the San in Namibia remains challenging (Nakanyete et al, 2024; Wynberg, 2004).

10. Conclusion

In conclusion, the vulnerability of the San in NTFP value chains reflects broader global trends where indigenous communities, despite their access to NTFPs and associated knowledge, struggle to capture significant value due to infrastructural and governance bottlenecks, and

dependency on external actors. San communities in Namibia often face legal and organisational requirements designed to align with commercial trade norms yet these frequently conflict with their cultural values, such as egalitarianism and individual autonomy. This challenge complicates the establishment of organisational infrastructure and community enterprises, as seen in the Eudafano Women's Cooperative, and proves particularly difficult for the San in Okongo. Consequently, the lack of direct partnerships between lead companies and the San communities in NTFP value chains is compounded by additional challenges due to differing cultural practices and perspectives on governance, ethical economic behaviour and distribution of goods, assets and benefits. This contrast explains why such partnerships relatively works well in cases like the Eudafano Women's Cooperative but remain absent in the San communities.

To enhance the San's success in NTFP commercialisation, it is essential to integrate enabling factors into their context while addressing structural inequities for fair market access and adopting culturally sensitive approaches that respect their traditional values. Therefore, this study recommends that efforts involving NTFP value enhancement for indigenous and vulnerable communities focus on comprehensive capacity building, including training in marketing and the protection of traditional knowledge, to ensure long-term success.

Ethics approval

Ethical clearance obtained for data collection from the University of Namibia and Namibia's National Commission on Research Science and Technology.

CRediT authorship contribution statement

Ndapewa Fenny Nakanyete: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Kenneth Kamwi Matengu:** Writing – review & editing, Supervision. **Javier Revilla Diez:** Writing – review & editing, Supervision, Funding acquisition.

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Data availability

The authors do not have permission to share data.

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