



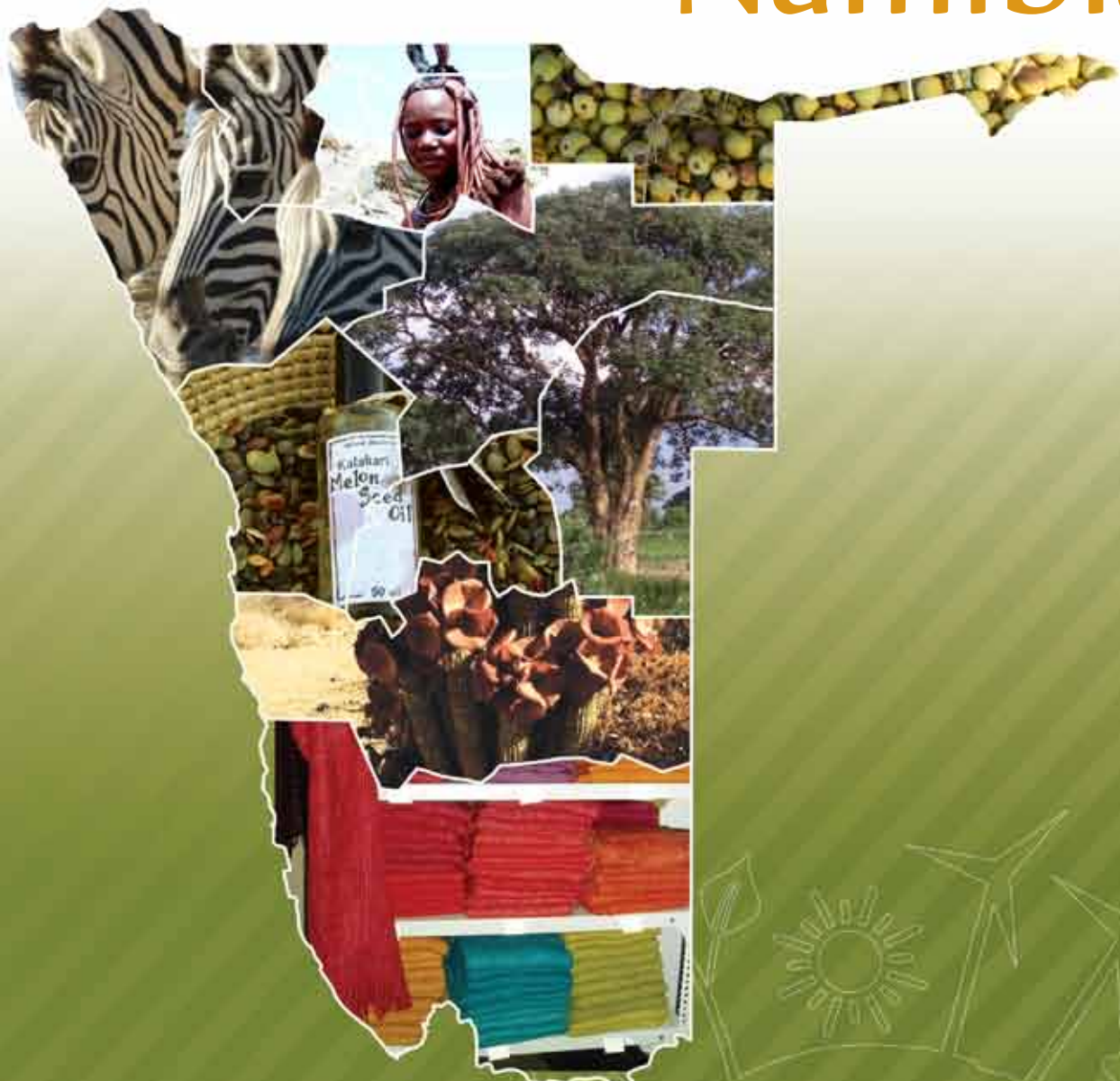
GREEN **economy**

Sectoral Study

BioTrade

A catalyst for transitioning to a green economy in

Namibia



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List of acronyms

ABS	Access and Benefit Sharing	ISLM	Integrated Sustainable Land Management
BCLME	Benguela Current Large Marine Ecosystem	ISO	International Organization for Standardization
BENEFIT	Benguela Environment Fisheries Training Interactions Programme	MAWF	Ministry of Agriculture, Water and Forestry
CBBT	Capacity for BioTrade Building Project	MCA	Millennium Challenge Account
CBD	Convention on Biological Diversity	MET	Ministry of Environment and Tourism
CBNRM	Community-Based Natural Resource Management	MFMR	Ministry of Fisheries and Marine Resources
CBO	Community-Based Organization	MTI	Ministry of Trade and Industry
CPP	Country Pilot Partnership Programme (for Integrated Sustainable Land Management)	MSC	Marine Stewardship Council
CRIAA SA-DC	Centre for Research Information Action in Africa - Southern Africa Development and Consulting	NACSO	Namibian Association of CBNRM Support Organizations
EbA	Ecosystem-based Adaptation	NAD	Namibian Dollar
EIA	Environmental Impact Assessment	NCA s	Northern Communal Areas
EPA	Economic Partnership Agreement	NDP	National Development Plan
EU	European Union	NEAT	National Environment and Trade Forum
FAN	Farm Assured Namibia Meat Brand	NGO	Non-Governmental Organization
FMD	Foot and Mouth Disease	NHDI	National Horticulture Development Initiative
GDP	Gross Domestic Product	NHTT	National Horticulture Task Team
GEF	Global Environment Facility	NTFPs	Non-Timber Forest Products
GIZ	German Agency for Technical Cooperation	PPO	Preferred Provider Organization
GNP	Gross National Product	PPP	Public-Private Partnership
HACCP	Hazard Analysis Critical Control Point	PPT	Primary Producer Trust
HVAS	High Value Animal Species	R&D	Research and Development
HVPS	High Value Plant Species	RTEA	Rapid Trade and Environment Assessment
IBPC	Interim Bioprospecting Committee	SACU	Southern African Customs Union
ICEMA	Integrated Community-Based Ecosystem Management Project	SADC	Southern African Development Community
ICV	Indigenous Crops and Vegetables	SME	Small and Medium Enterprise
IGM	Innovative Grants Mechanism	SPAN	Strengthening the Protected Areas Network
IECN	Integrated Environmental Consultants Namibia	UHT	Ultra-High Temperature
IIP	Infant Industry Protection	UNCTAD	United Nations Conference on Trade and Development
ILBs	Indigenous Livestock Breeds	UNDP	United Nations Development Programme
INP	Indigenous Natural Products	UNEP	United Nations Environment Programme
IPPR	Institute for Public Policy Research	USD	United States Dollar
IPTT	Indigenous Plants Task Team	VCF	Veterinary Cordon Fence
IRDNC	Integrated Rural Development and Nature Conservation		

Note on currencies At the time of research, the Namibian dollar was worth USD 0.14. Equivalent values are provided for contemporary annual average of figures quoted.

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Source: Namibian Tourist Bureau

Foreword

Namibia is one of three countries partaking in the Capacity Building for Biotrade Project (CBBT), an initiative spearheaded by the United Nations Environment Programme (UNEP), and supported by the German Agency for Technical Cooperation (GIZ). The other two countries are Nepal and Peru. The project seeks to build national capacities in order to promote the sustainable use and trade of biodiversity-based products, otherwise known as BioTrade.

Namibia's impressive record in the field of environmental management shows the country has the potential to capitalize on the sustainable development opportunities offered by BioTrade. This is evidenced by initiatives such as the implementation of the innovative Community-Based Natural Resource Management (CBNRM) Programme, and the development of a range of BioTrade products such as Marula, Ximenia melon, Hoodia and Devil's Claw. With its rich biodiversity, prior rural development investments and achievements in environmental management, Namibia is positioned to benefit from emerging markets of BioTrade.

While highlighting the opportunities, this study is an important reminder of the many challenges that Namibia has faced and continues to address with regards to reducing socio-economic inequalities, maintaining economic growth and achieving a higher level of sustainable use and trade of biodiversity-based products. The study identifies a number of key sub-sectors in need of additional policy support and investment to derive secure and higher sustainable development returns from BioTrade.

Moving beyond the assessment of the current state and potential of BioTrade in Namibia, this study examines the contribution of the sector in transitioning to a green economy. The results reveal that the expansion and consolidation of BioTrade can further advance Namibia's role as a leading international proponent of sustainable environmental and economic management. While it is understood that a full-scale transition to a green economy will require a package of policy reforms and investments in all economic sectors, BioTrade in Namibia is well-placed to pioneer such a shift.

We would like to applaud the support that the Government of Namibia has offered to the BioTrade sector and its leadership in international negotiations on biodiversity and economic development. We stand ready to provide technical assistance and capacity-building support to the Republic of Namibia in implementing the measures identified in this study and facilitating its transition to an inclusive green economy.



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Key messages

- BioTrade¹ currently represents around 4.5 per cent of contribution to Namibian GDP. This comprises contributions from Indigenous Natural Products (0.15 per cent); Wildlife (1.08 per cent); Agriculture: Indigenous Crops and Vegetables (0.97 per cent) and Livestock Breeds (1.62 per cent); Indigenous Fisheries and Marine Resources (0.21 per cent); Timber, Non-Timber Forest Products and Other (0.49 per cent)². At least USD 151 million is being invested (mainly from public sector) in these nascent industries.

- BioTrade is extremely relevant to Namibia's poverty reduction efforts as revenues from some BioTrade products have higher poverty reduction dividends than revenues from other economic sectors. It is important to highlight that several challenges still lay ahead, primarily ensuring that harvesters and other resource stewards receive greater shares of the retail value. Furthermore, BioTrade supports an Ecosystem-based Adaptation (EbA) approach to climate resilience – sustainably managing, conserving and restoring ecosystems, on which the poor depend most directly for livelihoods and survival, so that they continue to provide the services that allow people to adapt to climate change (IUCN 2010, UNEP 2010).

- Through a pro-BioTrade approach, biodiversity could become an even greater key asset for sustainable, pro-poor development in the country. Adding up the actual value and the expected value after investments of Namibia's key BioTrade sectors, BioTrade has the potential to become a significant contributor to country's transition to a green economy, having a considerable poverty reduction impact in rural areas.

• Although estimates for growth vary on a product-by-product, and sector-by-sector basis, the report finds that the contribution of BioTrade to Namibia's economy could increase by 50 per cent over the next 10 years, to 7 per cent of GDP. In terms of poverty reduction, BioTrade has the potential to affect a quarter of a million people through income, and benefits derived to around one million Namibians in the next decade. BioTrade is only one of Namibia's green sector and a significant contributor and a potential driver for a successful green transformation in the country.

• A number of measures are identified which could serve to grow Namibia's BioTrade sectors. These are promoting and strengthening linkages with private sector and financial industries; investing in green infrastructure, particularly in rural areas; harmonising BioTrade-related policies; and supporting a programme of research and development to expand BioTrade. On the whole, these reforms and measures that promote BioTrade also support the transition to a greener economy.

• Namibia's BioTrade sector has grown significantly, but not to the point where it is yet considered a major part of the mainstream economy. Other less green sectors like mining, commercial agriculture and manufacturing continue to dominate the economy. This study represents the first significant effort at measuring the contribution of BioTrade to GDP. Further research and monitoring of BioTrade are crucial to ensure BioTrade is on decision-makers' agendas in the years to come.

Towards a green economy

Introduction

A “green economy” can be defined as one that results in improved human well-being, poverty reduction and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP, 2011). It is characterised by being low carbon, resource efficient and socially inclusive. A green economy is one that maintains, enhances and, where necessary and feasible, rebuilds natural capital as a critical economic asset and source of public benefits, especially for poor people. There is growing recognition that achieving sustainable development rests largely on making the economy pro-poor and green (UNEP, 2011).

In Namibia, recent economic growth has been driven by business-as-usual in the mining, commercial agriculture and manufacturing sectors, which are characterized by extractive and resource-inefficient practices. This model of economic growth has been unsuccessful at addressing the substantial social marginalization and resource depletion. The country still remains far from achieving the Millennium Development Goals (MDGs), its national strategic plan Vision 2030 and the ambitious objectives set out in the Third National Development Plan (NDP3, for 2007/2008-2011-2012) and NDP4, which is currently under preparation. Greening Namibia’s economy may be the key to stimulate and sustain economic growth and tackle social inequalities.

Namibia is well placed to gain from a shift towards a green economy based on its assets: a rich biodiversity (Figure 1), low population, unique ecosystems, and demonstrated strengths in high value niche sectors for specialized products and services coupled with a record of successful policies for managing natural resources. Namibia’s overarching development strategy, the Vision 2030, proposes a model for growth based on technical advancement and industrial modernization which should help the country achieve the standards of an industrialized nation by the year 2030. NDP3 emphasizes rural development and environment-based development as the key to unlocking Namibia’s potential. Since independence, the country has often been hailed for its modern policy frameworks and innovative approaches. Taking a green economy approach for implementing the Vision 2030, and the underpinning five years Development Plans, could increase economic development and trade benefits while also increasing natural and social capital of the nation.

A move towards a green economy is important in order to:

- Enhance sustainability of natural endowments. Loss of biodiversity and ecosystem degradation are affecting

sectors such as agriculture, animal husbandry, fishing and forestry as well as posing a long term risk for socio-economic development of the country. A green economy approach presupposes the sustainable and efficient use of resources and conservation of ecosystems as the key to achieving sustainable economic growth.

- Reduce poverty. In spite of its sustained economic growth (4.4 per cent and 4.3 per cent real GDP growth in 2010 and 2008, respectively³) Namibia remains a country with a relatively high level of inequality and high levels of poverty (55.8 per cent⁴). The move towards a green economy seeks to develop and capitalize on those resources available to the poorest segments of the population, incorporating marginalized communities into the market economy and ensuring that they receive a fair share of the benefits derived from the productive activities in which they engage.
- Support inclusive economic opportunities. Vision 2030 promotes growth and employment generation through modernisation, while NDP3 and the Poverty Reduction Strategy paper advocate rural development. The green economy approach harmonises these efforts, by advocating improved access to clean energy services; increased food security through the use of more sustainable agricultural methods; and access to emerging new markets for their green goods and services.

This study concentrates on assessing the role of BioTrade in Namibia’s transition to a green economy. BioTrade – understood as the sustainable use and trade of biodiversity-derived products, can serve as an incentive for the sustainable management of biodiversity, whilst creating employment opportunities and supporting (often rural) livelihoods. World markets for biodiversity-based products and services are rapidly expanding. There has been a renewed interest by consumers in natural products, for example in the cosmetics and pharmaceutical sectors, as well as a widespread awareness about the environmental and social impacts of trade (UNEP, 2011; UNCTAD, 2010).

BioTrade is already improving livelihood opportunities at the community level in Namibia, especially in rural areas where opportunities can otherwise be limited. The Eudafano Women’s Cooperative partnership with Body Shop is often cited as an example of good practice for linking local communities to global markets. The “Namibian model” of BioTrade (Drews et al., 2008)

The Eudafano Women's Cooperative partnership with Body Shop is an often cited example of best practice linking local communities to global markets. Eudafano Women's Cooperative brings together approximately 4 800 rural women who harvest Marula fruits. Marula oil is produced from the kernel of the fruit. Marula trees are common in northern Namibia and fruits are easy to harvest. Women in particular benefit from harvesting and utilising Marula fruits (CBD, 2010). Community Trade Marula Oil from Eudafano Women's Cooperative is a very effective moisturiser and Body Shop employs it for making cosmetics and lotions.

has been used to show how countries with valuable biodiversity endowments can benefit from promoting the sustainable use and trade of indigenous biological resources and equitable distribution of the resulting benefits.

Namibia has demonstrated leadership in BioTrade, particularly with its active engagement in the international Access and Benefit Sharing (ABS) negotiations. The trade of indigenous plants and wildlife is likely to gain premium prices from export markets such as the EU, while indigenous crops and livestock products may be more suited for domestic and/or sub-regional markets.

The duty-free, quota-free access to the European market for beef and table grape produce is a good example of how local industries can be sustained through trade incentives. Some of these industries have successfully achieved a greater degree of value addition, an experience that may serve as an example for the wider BioTrade sector. It is clear that more research is needed to prove the economic profitability of existing and emerging industries and to ensure that these are supported and developed, including through trade negotiations. Similarly, the establishment of a BioTrade policy framework that improves coordination in the sector and encourages investments would greatly contribute to the strengthening of BioTrade in the country.

This report is divided into six sections. Section 1 introduces Namibia's profile, highlighting economic, social and environmental aspects relevant to the study of BioTrade and green economy in Namibia. Section 2 offers an overview of

BioTrade activities in Namibia, identifying main stakeholders and economic sectors with potential for BioTrade, and introducing the institutions and initiatives that have contributed to the trade of biodiversity-derived products in Namibia. Section 3 discusses the main challenges and opportunities for the consolidation of BioTrade in Namibia. Section 4 summarizes current contributions of BioTrade in Namibia and is followed by a series of recommendations in Section 5. Section 6 concludes the report by assessing the role of BioTrade for the transition to a green economy and highlights additional steps to green other sectors of Namibia's economy.

Dawn in Damaraland (Source: Namibia Tourism Board)



1 Country profile

Namibia is a middle-income country, vast and sparsely populated along the south Atlantic coast of Africa. With a surface area of 824 292 km², Namibia is the 34th largest country in the world. It is characterized by highly variable climatic conditions, ranging from arid to dry sub-humid, and a fragile ecosystem composed largely of two major deserts, the Namib – considered the oldest desert in the world – and the Kalahari.

With an unparalleled concentration of endemic dryland biodiversity, the country has unspoiled and stunning natural beauty, well-conserved wildlife, abundant mineral (e.g., diamond, uranium, copper, zinc, lead) and other unique natural resources (Hoodia, Marula, Devil's Claw, Kalahari wild silk), as well as a strong culture of animal husbandry and dryland cash crop production. Namibia's natural endowments favour the promotion of a BioTrade approach.

1.1 Economic and social profile

Namibia's Gross Domestic Product (GDP) was reported to be NAD 11.2 billion (USD 1.5 billion) in 2009, and has grown at an average of 4 per cent annually since 1990 (CBS, 2009). GDP growth has outstripped population growth such that average per capita GDP reached NAD 37 710 (USD 4 450) in 2009 making Namibia a middle-income country (World Bank, 2008).

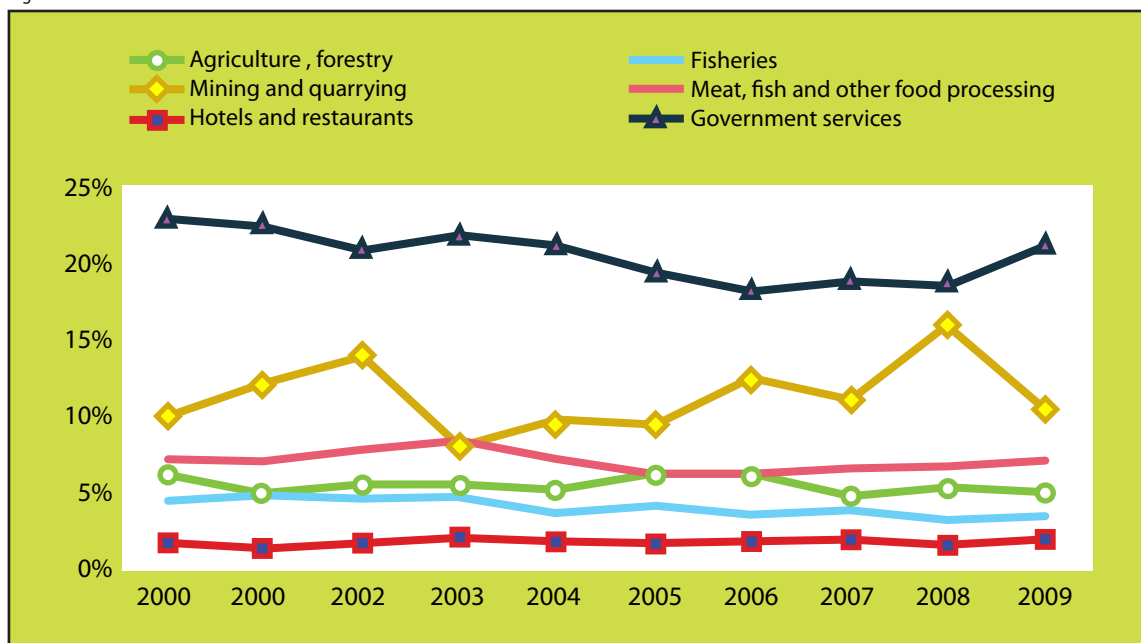
A relatively new state, Namibia has a total population of 2 108 665 (2009)⁵ and the world's highest income inequality, with a Gini coefficient⁶ of 0.74 (2008)⁷ and an unemployment rate of 51.2 per cent (2008)⁸.

Namibia is commonly described as having a dual economy. The first is a modern industrial economy heavily dependent on extraction and processing of mineral resources, such as diamond and uranium for export and, to a lesser extent, commercial agricultural and fisheries sectors. These sectors are competitive with those of neighbouring South Africa. The economy continues to be heavily reliant on government services for income generation and employment. Figure 2 illustrates the relative economic importance of the different sectors of the Namibian economy.

The livelihoods of many Namibians are primarily rooted in subsistence farming, where income is highly vulnerable to environmental and climatic changes. The government has stated that 27.6 per cent of households are regarded as poor, while 13.8 per cent are regarded as severely poor (NPC, 2008a). Poverty is particularly endemic in rural areas, where 38.2 per cent of households are classified as poor and 19.1 per cent as severely poor, compared to 12.0 per cent and 6.0 per cent in urban areas respectively. The extremely high unemployment rate is considered a major cause of poverty in Namibia.

Namibia is divided into 13 administrative regions, which vary greatly in their economic, socio-cultural and environmental dimensions (see Annex 1). Differences in poverty levels also prevail according to administrative regions. The Kavango and Ohangwena regions have the highest level of poor households (NPC, 2008a). About 18 per cent of Namibia's poor live in Kavango and the Human Poverty Index (HPI) for the region is rated as 30.3, whilst 16.5 per cent of Namibia's poor live in Ohangwena, with an HPI of 31.2.¹⁰

Figure 2. Contribution of selected sectors to GDP from 2000 to 2009.⁹



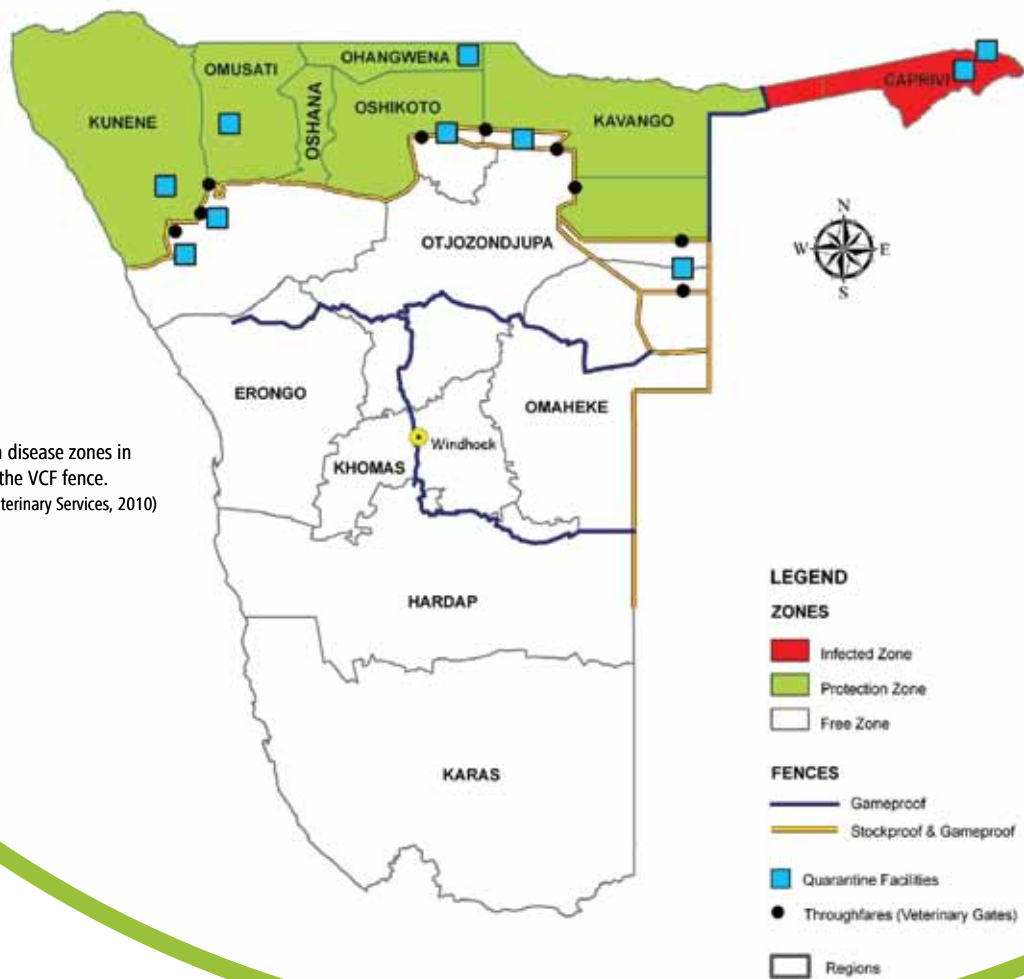


Figure 3. The foot and mouth disease zones in Namibia and the location of the VCF fence.
(Source: MAWF, Directorate of Veterinary Services, 2010)

With a small domestic market and an export-oriented economy, Namibia's trade policy can be considered as a liberal economy. The country is signatory to a host of international and regional trade agreements, such as the Southern African Development Community (SADC) Free Trade Agreement, the Cotonou Agreement with the European Union and the World Trade Organization which accord Namibian exporters free or preferential access to a number of foreign markets. Namibia is also a member of the Southern African Customs Union (SACU), which allows for the free movement of goods among member states. SACU membership means that Namibia also benefits from the SACU/Mercosur agreement with a number of South American countries and the SACU/European Free Trade Association (EFTA) agreement. As a member of SADC, Namibia participates in negotiations of the Economic Partnership Agreements (EPA) with the European Union (EU).

Namibia is divided into two veterinary control areas: the commercial areas south of the Veterinary Cordon Fence (VCF) and the communal areas north of it. The VCF stretches from the Atlantic Ocean in the west to the Botswana border in the east and prevents the uncontrolled movement of livestock between north and south to avoid the spread of animal diseases from the communal to the commercial areas (Figure 3). The transport and export of wildlife is subject to the same restrictions as livestock with regard to the VCF, which gives commercial farms (and communal conservancies) south of the VCF easier access to export markets, mainly through the Farmer's Meat Market abattoir in Mariental.

Finally, it should be noted that Namibia is a net food importing country. As such, a number of policy efforts have been implemented to increase domestic food production, such as the Infant Industry Protection (IIP) program.

1.2 Environmental profile

Since Namibia's independence, environmental sustainability has figured prominently in its policy-making and can be considered well integrated into development frameworks such as the NDPs, Regional Development Plans and the Poverty Reduction Strategy Paper (Zeidler and Jones, 2007). New legislation for environmental management (Environmental Management Act No. 7 of 2007), which includes requirements for mandatory environmental impact assessments, is taking effect and an Environment Commissioner now presides over national environmental affairs.

Namibia's communal areas continue to be affected by serious environmental problems, such as land degradation, bush encroachment and soil nutrient depletion. This is driving unprecedented levels of rural-to-urban migration across the country. Water scarcity and limited access to electricity in rural areas are also important limiting factors to economic development and pose further challenges to poverty reduction and environmental management in Namibia (Midgley et al., 2005).

The importance of ecosystem services is generally well-understood in Namibia and is embedded in its Vision 2030. Regulatory and supporting services relating to ecosystem services have been developed primarily as part of national programmes and projects for combating land degradation. However, given the ongoing reliance of the majority of Namibians on natural resources and with approximately 65 per cent of the population living in rural areas, short-term survival needs for food, shelter and fuel often render long-term sustainability a secondary concern (NPC, 2008b).

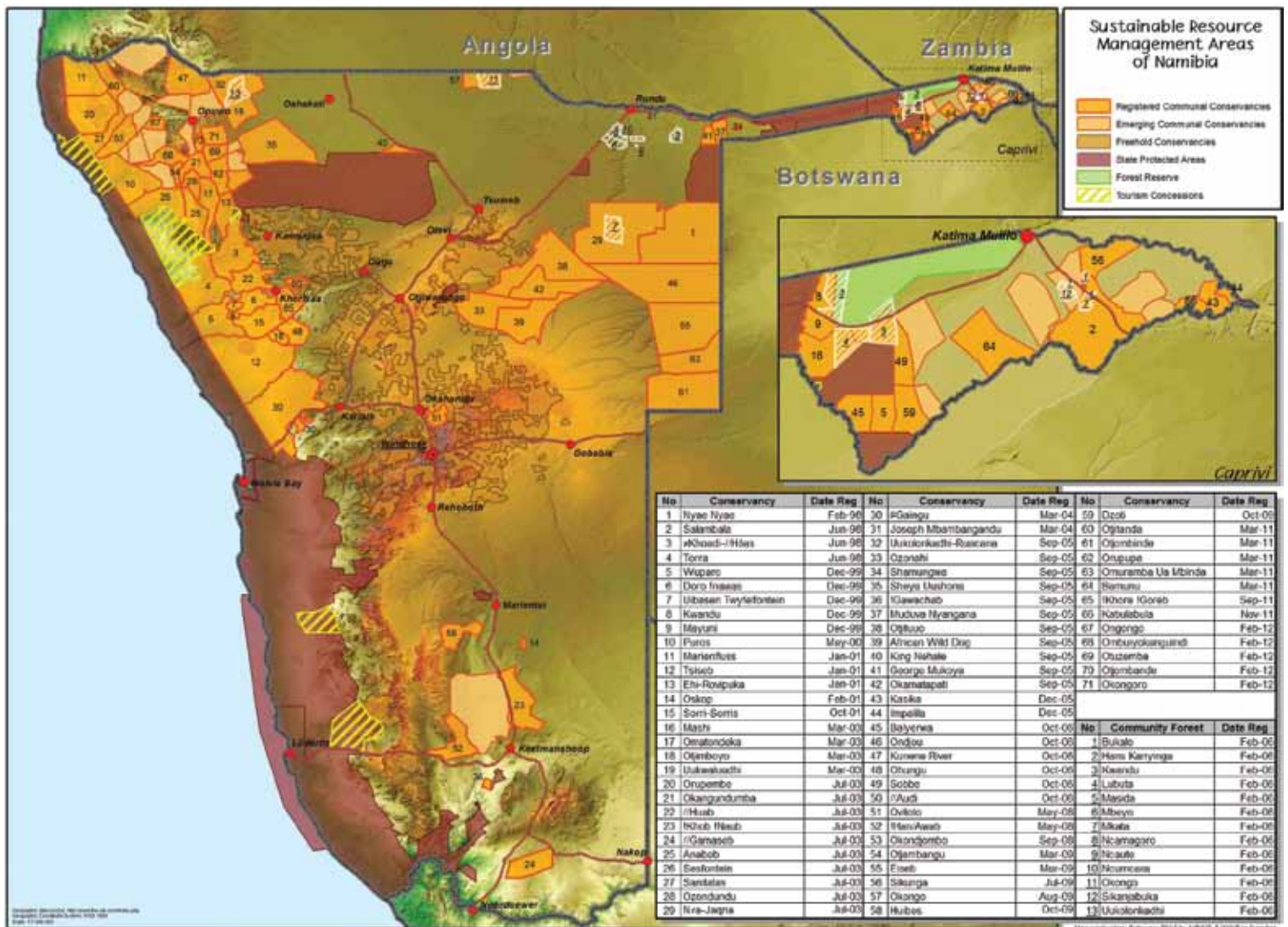
Biodiversity and conservation in Namibia

Remarkable diversity of habitats and species in Namibia make it one of only two internationally recognised arid global biodiversity hotspots¹¹ (Conservation International, 2011; Barnard, 1998). Numerous endemic species have evolved in hyper-arid western Namibia, largely due to the regular fog that forms from the cold Benguela coastal current. The more humid climate, more favourable soils and topography of the North-East

allow for an overall greater abundance and richness of plants and animals (Barnard; 1998; Mendelsohn et al., 2002).

An innovative biodiversity conservation paradigm, placing communities at the centre of conservation, has taken firm hold in Namibia (Jones, 2006). Its overall impact is positive, poverty-neutral in some countries and regions, and pro-poor in others (Bandyopadhyay et al., 2004; Roe et al., 2009; Elliott and Sumba, 2011). The sustainable management of wildlife has been well established through the Community-Based Natural Resource Management (CBNRM) programme and approximately 40 per cent of Namibia's land area is currently under some form of conservation management (MET, 2008). These include national parks, communal conservancies, freehold wildlife management units, community forests and tourism concessions. The protected area network has greatly improved in-situ conservation and the sustainable management of resources of both wildlife and indigenous plants, and is being facilitated through the CBNRM programme.

Figure 1. Sustainable resource management areas of Namibia. (Source: Natural Resources Working Group and WWF in Namibia, 2012)



2 BioTrade in Namibia

With the input from participants from the National Stakeholder Workshop "Exploiting the Potential of BioTrade for Transition to a green economy," four BioTrade sectors were identified for in-depth analysis. The selection was based on preliminary desktop analysis, including the Rapid Trade and Environment Assessment (RTEA) sectors, including the review and endorsement of participating stakeholders in the following sectors: Indigenous Natural Products (INPs); Wildlife (including eco-tourism); Indigenous Agriculture: Indigenous Crops and Vegetables (ICVs) and Indigenous Livestock Breeds; and Indigenous Fisheries and Marine Resources. The study briefly considers non-timber forest products (NTFPs) and other biodiversity-derived products under the analysis of the INPs sector. This section will introduce the characteristics and economic importance of these products and analyze current policies, investment and certification standards for BioTrade products in Namibia.

2.1 BioTrade sectors

2.1.1 Indigenous natural products

INPs are products extracted from tissues of naturally occurring (especially endemic) terrestrial plants, marine organisms or microorganism fermentation broths. A crude extract from these sources typically contains novel, structurally diverse chemical compounds.

Namibia has over 4 300 plant species of which nearly 700 are endemic. Many of these species are traditionally used for food, medicine, oils and other products with existing or potential commercial markets. Namibia's most established INPs are Devil's Claw, Hoodia, Kalahari melon seed (KMS), Marula and Commiphora. Other plant products at preliminary stages of development include Mopane, Nara melons, Manketti, Silver-leaf Terminalia and Monkey Oranges. Exports of INPs amounted to about NAD 22.5 to 27 million (USD 3.3 to 4 million) in 2008, with Devil's claw alone representing roughly 90 per cent of all INP exports.

In 2005, the Ministry of Agriculture, Water and Forests (MAWF) estimated that INPs contributed in total around NAD 100 million (USD 13.7 million) to the Namibian economy (mainly in household consumption and informal trade), which represents approximately 0.15 per cent of Namibia's total GDP. The Ministry of Agriculture estimated that INPs had the potential in the medium-term to grow to approximately NAD 400 million (USD 55 million) a year. Namibia's leading INPs are noted in Table 1.

Non-timber forest products and other biodiversity-derived products

At this stage there is no clear distinction made in the economic assessment of INPs or NTFPs¹². Without disaggregated data

available, NTFP's contribution to the market is usually estimated along with that of timber products. Together, timber and non-timber forest products are estimated to represent approximately 3 per cent of the country's GDP (Mendelsohn and Obeid, 2005). These are mainly from the northern regions where poverty levels are high. It is unlikely that a large quantity of fuel wood is commercialised, but construction products and NTFPs are probably marketed. These products are conservatively entered into the estimated GDP contributions calculated in Section 4 on Benefits.

Some products do not fit the other BioTrade categories set out previously but warrant mention in this paper. For example, Wild Kalahari Silk is derived from caterpillars, and its harvesting, hand-spinning and weaving is undertaken by local communities. However, it is only sustainable if only cocoons from which the moths have already emerged are harvested for production. The supply of such cocoons could be a limiting factor in further developing this product.






Other biodiversity-based products which are currently domestic and only informally traded, but hold regional potential, are bee-keeping products (honey, bee by-products like wax, propolis and royal jelly) and Mopane worms. Some evidence suggests that Mopane worms are currently over-exploited, thus calling for a combination of regulation, incentive schemes and product-specific intervention.¹³ Other products with commercial potential for industrial or pharmaceutical application are micro-organisms, marine organisms, gums and resins and venoms.

2.1.2 Wildlife

About 88 per cent of Namibia's wildlife is to be found on freehold land or commercial farms, 8 per cent in communal areas and just 4 per cent in state-protected areas (Mendelsohn et al., 2006). There has been a noticeable shift towards wildlife management practices on freehold farms in recent years, partly in response to bush encroachment and the reduced carrying capacity of the land for livestock, as well as the gainful returns from game products and tourism. Wildlife in Namibia is typically marketed in four different ways, each varying according to land use and demonstrating high potential for sustainability:

- Non-consumptive wildlife viewing tourism – accounts for 62.5 per cent of wildlife's direct contribution to GNP (Barnes et al., 2009). This is the main type of wildlife-related activity in state-protected areas and freehold land. Tourists also represent key markets for locally-produced arts, crafts and other goods.
- Trophy hunting – mainly practiced on freehold land and in selected communal conservancies, and accounts for 19 per cent of wildlife's direct contribution to GNP.

Table 1. Namibia's most productive INPs. (Source: Millenium Challenge Account-Namibia, 2010)

Name and illustration	Volumes and values	Region or areas	Commercial and traditional uses												
<p>Devil's Claw (<i>Harpagophytum</i>)</p>  <p>Source: CITES Secretariat</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD million)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>21</td> <td>686 000</td> </tr> <tr> <td>2009</td> <td>12</td> <td>396 000</td> </tr> <tr> <td>2010</td> <td>10.36</td> <td>296 000</td> </tr> </tbody> </table>	Year	Value (NAD million)	Volume (kg)	2008	21	686 000	2009	12	396 000	2010	10.36	296 000	Communal areas in Kavango, Caprivi, Otjozondjupa and Omaheke	<p>Treatment for rheumatism and arthritis</p> <p>It is exported as dried, unprocessed slices or in processed forms of capsules, tea and powder.</p>
Year	Value (NAD million)	Volume (kg)													
2008	21	686 000													
2009	12	396 000													
2010	10.36	296 000													
<p>Hoodia (<i>Hoodia gordonii</i>)</p>  <p>Source: INP Market Bulletin</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>NA</td> <td>3 595</td> </tr> <tr> <td>2009</td> <td>NA</td> <td>7 196</td> </tr> <tr> <td>2010</td> <td>179 750</td> <td>7 759</td> </tr> </tbody> </table>	Year	Value (NAD)	Volume (kg)	2008	NA	3 595	2009	NA	7 196	2010	179 750	7 759	Southern (Karas and Hardap) and eastern (Caprivi and Kavango)	<p>Hunger suppression</p> <p>Nama people use Hoodia to treat illnesses such as high blood pressure, diabetes, gout, and for suppressing hunger during times of hunting as well as hardship. This particular property has attracted the attention of international companies interested in developing dietary products.</p>
Year	Value (NAD)	Volume (kg)													
2008	NA	3 595													
2009	NA	7 196													
2010	179 750	7 759													
<p>Kalahari melon seed (<i>Citrulluslanatus</i>)</p>  <p>Source: CITES Secretariat</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>921 250</td> <td>7 370</td> </tr> <tr> <td>2009</td> <td>616 948</td> <td>6 019</td> </tr> <tr> <td>2010</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Year	Value (NAD)	Volume (kg)	2008	921 250	7 370	2009	616 948	6 019	2010	0	0	Northern communal regions, Kavango and Caprivi regions	Sun screen, skin care products, conditioning hair care products and soaps
Year	Value (NAD)	Volume (kg)													
2008	921 250	7 370													
2009	616 948	6 019													
2010	0	0													
<p>Marula (<i>Sclerocaryabirrea</i>)</p>  <p>Source: Rotational</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>905 000</td> <td>5 022</td> </tr> <tr> <td>2009</td> <td>564 113</td> <td>3 419</td> </tr> <tr> <td>2010</td> <td>1.33 million</td> <td>7 220</td> </tr> </tbody> </table>	Year	Value (NAD)	Volume (kg)	2008	905 000	5 022	2009	564 113	3 419	2010	1.33 million	7 220	North Central Regions (Oshana, Oshikoto, Omusati and Ohangwena)	Food and cosmetic ingredient
Year	Value (NAD)	Volume (kg)													
2008	905 000	5 022													
2009	564 113	3 419													
2010	1.33 million	7 220													
<p>Ximenia, Sour plum (<i>Ximenia americana</i>; <i>Ximenia caffra</i>)</p>  <p>Source: Phytoraide Africa</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>836 800</td> <td>5 805</td> </tr> <tr> <td>2009</td> <td>0</td> <td>0</td> </tr> <tr> <td>2010</td> <td>117 840</td> <td>1 520</td> </tr> </tbody> </table>	Year	Value (NAD)	Volume (kg)	2008	836 800	5 805	2009	0	0	2010	117 840	1 520	Northern as well as Central regions of Namibia	<p>Moisturiser, anti-ageing skin care products, eye-care, anti-acne products, dry, fragile and damaged hair products, soaps and lipsticks and lip balms.</p> <p>Women use Ximenia oil to soften their skin and condition their hair.</p> <p>Eaten raw, used to make jams, jellies and drinks.</p>
Year	Value (NAD)	Volume (kg)													
2008	836 800	5 805													
2009	0	0													
2010	117 840	1 520													
<p>Commiphora, omumbiri (<i>Commiphora wildii</i>)</p>	<table border="1"> <thead> <tr> <th>Year</th> <th>Value (NAD)</th> <th>Volume (kg)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>304 270</td> <td>6 094</td> </tr> <tr> <td>2009</td> <td>250 520</td> <td>5 010</td> </tr> <tr> <td>2010</td> <td>154 400</td> <td>3 089</td> </tr> </tbody> </table>	Year	Value (NAD)	Volume (kg)	2008	304 270	6 094	2009	250 520	5 010	2010	154 400	3 089	Kunene region	The commiphora plant resin is used by local Ovahimba people as a perfume.
Year	Value (NAD)	Volume (kg)													
2008	304 270	6 094													
2009	250 520	5 010													
2010	154 400	3 089													

- Sale of live game – mainly practiced on private land and state-protected areas, and has played an important part in Namibia’s wildlife re-introduction strategy. Sale of live game has generated significant income for the Ministry of Environment and Tourism (MET). The MET has reinvested this additional revenue into conservation activities through the Game Products Trust Fund.
- Sale of game meat – commercial sale of game meat is well-established on freehold farms, and occurs at the local level in communal conservancies.

In 2004, national wildlife assets were estimated to be worth NAD 10.5 billion (USD 1.47 billion) and have contributed NAD 700 million (USD 100 million) to the country’s GNP, amounting to an overall 2.5 per cent of GNP. This sum is derived mainly from non-consumptive viewing tourism and trophy hunting, but also from farming and the sale of live game and meat. The contribution of wildlife-related products is expected to triple in the coming 30 years if the established trends continue (Figure 4).

Tourism, which is mostly nature-based tourism, represents a significant proportion of these estimates. The number of tourists has increased from approximately 200 000 in 1990 to close to one million in 2009 (WTTC, 2010). The Tourism Satellite Accounts of 2010 estimate the contribution of tourism industry to be as high as 13 per cent of Namibia’s GDP (WTTC, 2010). Its relevance for the Namibian economy is further illustrated by its contribution to total employment (about 17 per cent) and to foreign exchange earnings (12 per cent).

2.1.3 Indigenous crops and vegetables and indigenous livestock breeds

Indigenous crops and vegetables

There is no data available on the exact value of ICVs produced in Namibia. Overall, in 2004, crops contributed approximately one per cent to the national GDP and 18.2 per cent to the total agricultural output. Although their contribution to overall economic activity is relatively small, they are an important source of livelihood for many rural areas, especially in Namibia’s most fertile and rainfall rich areas in the north-central and north-eastern regions.

A number of ICVs have been identified for their trade potential. Foremost among these are cereal crops, such as mahangu, or pearl millet, and sorghum, as well as various indigenous leafy green vegetables, beans, cowpeas and bambara groundnuts. Most of these plants are well adapted to the arid and highly variable climate of Namibia (Dirkx et al., 2008).

Indigenous livestock breeds

Namibia’s livestock industry consists of goats, sheep and cattle reared in a natural environment, fed on natural vegetation, mostly not dependent on animal-derived feeds and free from antibiotics and other pharmaceutical supplements. Namibian farmers breed various indigenous livestock species such as Nguni, Sanga and Afrikaner cattle, Damara sheep and indigenous goats. Nguni and Sanga cattle are more widely farmed in the communal areas, while commercial farmers tend to prefer non-native breeds (that produce more meat in a shorter period of time). The same principle applies to sheep farming, where commercial farmers typically prefer non-native Dorper sheep, rather than the indigenous Damara breed, as they are considered to be “higher producers”.

Namibia’s Karakul sheep are unique to the country. Their furs differ from Karakul breeds in other parts of the world and are highly sought after. The Karakul industry has therefore created its own brand called Swakara in order to distinguish the Namibian furs from other Karakul furs.

Indigenous women preparing Devil’s Claw.
(Source: INP Market Bulletin)



Trade in indigenous livestock breeds seems to be extremely limited, and no specific data on how much of the Namibian leather and meat trade is derived from indigenous breeds is available at this stage.

2.1.4 Indigenous fisheries and marine resources

As a result of the confluence of warm and cooler waters in the Benguela current, Namibia has one of the most productive fishing grounds in the world (Cochrane et al., 2007). However, exploitation of resources by foreign fleets has led to severe depletion and collapse of several fish stocks (BCLME, 1999). The commercial fisheries are dominated by three species: hake, horse mackerel and pilchard. Lange et al. (2003) found that relatively little of the resource rent from this industry is being captured by government (let alone coastal communities) but instead accrues to the foreign private sector. Around 97 per cent of Namibia’s fish and marine economic activities take place off-shore and are purely for export. The industry involves catching, processing and marketing of fish and fish products. Currently, a total of 30 marine resource processing plants operate off Namibia’s shores, using Namibian resources.

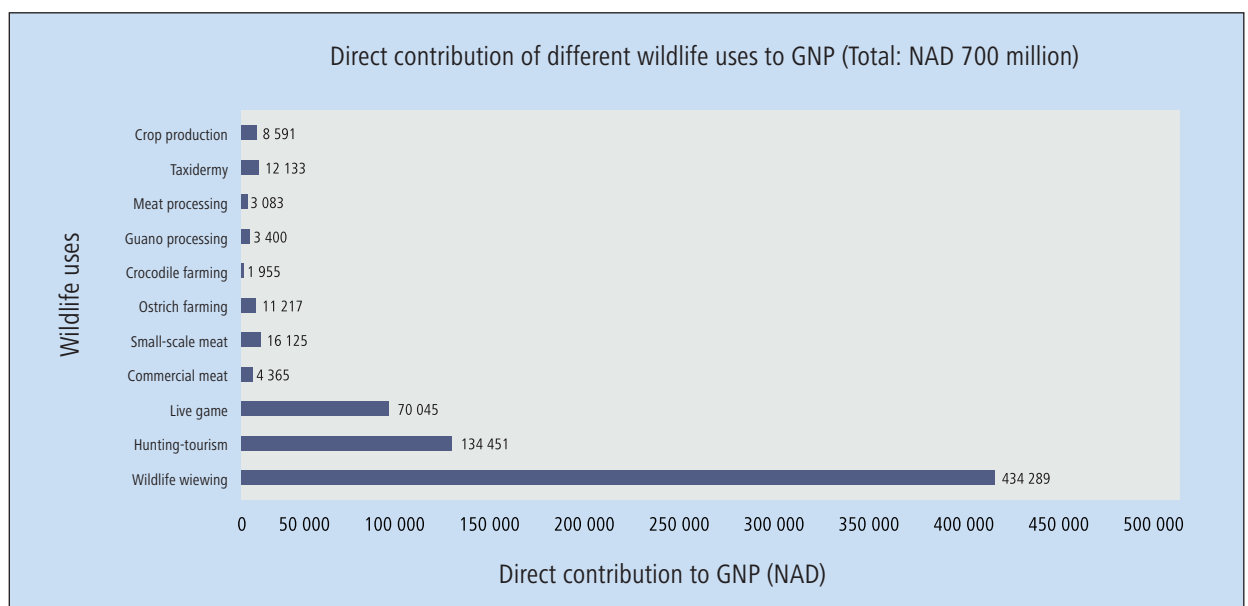
Three per cent of Namibia’s fish that lands on Namibian shore is mostly processed locally (85 per cent of the fish) and exported (Sherbourne, 2009).

Marine aquaculture enterprises currently produce abalone, oysters, mussels and seaweed in Lüderitz sea lagoons and salt-pans off Walvis Bay and Swakopmund. There are proposals that this industry could be further developed in the future, even if investment costs may be high. Farming methods include baskets suspended from rafts, long lines and onshore raceways and ponds. There are at least eight companies involved in farming oysters in Namibia, which until 2006 was selling 70 per cent of their production to South Africa. Total production has increased from 247 tonnes in 2004 to 302 tonnes in 2005 when new markets were accessed in Asia.

Inland fisheries in Namibia are limited by the fact that Namibia has few perennial rivers and mostly fish stocks exist in dams. The perennial rivers along the border provide over one million hectares of flood-plain wetland with fisheries potential, varying by season with a production of around 2 800 tonnes per annum (FAO, 2009).

Some aquaculture developments have taken place over the past years, farming with mostly introduced species such as tilapia but also catfish. Limited fish farming is currently taking place with indigenous species. The potential for aquaculture is strongly dependent on water availability and technical advancements, and it is asserted that this sector could have negative impacts if not well-managed. For example, any contamination of Namibia’s scarce freshwater resources could have a knock-on effect for human use. Freshwater aquaculture is supported by the government and aimed at alleviating poverty as it generates employment opportunities and satisfies local consumption needs.

Figure 4. Direct contribution of different wildlife uses to GNP (Source: Barnes et al., 2009)





Seal on Namibia's shore. (Source: Namibian Tourist Board)

Controversially, Namibia regularly conducts the second highest seal harvest in the world in order to control the great amount of fish that seals consume. Most of the seal meat is used for pig fodder, but it is apparently considered a delicacy in Europe and Canada (Hartman, 2009). Seal meat could therefore represent a potential product for export.

2.2 BioTrade stakeholders

There is a good level of cooperation among stakeholders from civil society and the public and private sectors involved in BioTrade (Table 2). This section identifies the various actors in the BioTrade community, paying particular attention to their contribution to sustainable management of natural resources and development of biodiversity-based businesses.

2.2.1 Private sector

A typical value chain for BioTrade begins with the harvesters (INPs, ICVs) or resource stewards (wildlife). Moving higher up in the value chain, we find that the majority of buyers, processors, manufacturers, wholesalers, distributors and retailers are outside Namibia. The majority of value-added is captured outside the country, much like diamonds (probably the most widely understood example).

In terms of financing, commercial and state banks have thus far played a very limited role in supporting biodiversity-based

enterprises. This might be because financial institutions have inadequate knowledge of BioTrade and thus perceive it as a new and risky industry to invest in. According to consultations conducted through this study, specialised state banks, including the Agricultural Bank of Namibia (Agribank) and the Development Bank of Namibia, have not received any applications relating to biodiversity-based enterprise and consequently have not financed any investment in these activities. This could be because the country's financial institutions have not actively encouraged micro-finance support for these types of businesses and producers are unaware of financing opportunities.

2.2.2 Public sector and civil society

The Namibian government plays an active role in promoting BioTrade as a means to advance national goals and initiatives, such as Vision 2030 and NDP3. There are a number of ministries involved in such efforts, including the Ministry of Environment and Tourism (MET), Ministry of Agriculture, Water and Forestry (MAWF), Ministry of Fisheries and Marine Resources (MFMR) and Ministry of Trade and Industry (MTI). The government has promoted the creation of multi-sectoral platforms, notably the Indigenous Plants Task Team (IPTT) in 2000 and the Interim Bioprospecting Committee (IBPC) in 2007, both of which have been central to the promotion of BioTrade.

Table 2. Overview of Namibia's BioTrade stakeholders

	Groups	Key Stakeholders	Interests	Roles
Civil society	Local communities, conservancies	Conservancies, community forests	Livelihood, poverty reduction, sustainability	Fishing, farming, trading and transport, collecting and processing, CBNRM membership; people from different ages, positions in the community
	National, Local civil society organizations	CRIAA SA-DC, NACSO, CBOs, certification and labelling organizations, farmers unions		Technical support, advocacy
	International and regional organizations	PhytoTrade Africa		Advocacy for policy, other reforms, investments
Public sector	Sub-national governments	Regional Councils		
	National government	Ministries of Trade & Industry (MTI), Environment & Tourism (MET), Agriculture, Water and Forestry (MAWF), Fisheries and Marine Resources (MFMR)	Achieving Vision 2030, NDP3	Foreign policy, trade relations, regulation, enabling environment
	Multi-stakeholder platforms	Indigenous plants Task Force Team (IPTT), Interim Bioprospecting Committee (IBPC), National Environment and Trade Forum (NEAT)	Supportive government policy-making	Informing and influencing government policy
	Foreign governments (inc. donors)	Trade: EU, USA, South Africa Donors: bilateral, GIZ, US/MAC; multilateral, GEF, EC, IFAD	Domestic economies, global sustainability	Trading, Official Development Assistance
	United Nations	UNEP, UNCTAD, Convention on Biological Diversity (CBD)	Promoting green economy, sustainable BioTrade, biodiversity conservation, sustainable use and access and benefit sharing	
Private sector	National, sub-national enterprises	Banks, credit facilities, insurance industry; NedBank Go Green fund	Return on investment, economic development, Corporate Social Responsibility	
	International enterprises	Cosmetics, fashion, food companies	Return on investment, Corporate Social Responsibility	

Civil society in general, and non-governmental organizations in particular, are significant players in ensuring that communities benefit from the sustainable management of natural resources and BioTrade initiatives. The non-governmental sector, in particular, played a significant role in the creation of conservancies, which contributed to the development of Namibia's exemplary natural resource management strategy. Today, organizations provide rural communities with capacity-building and assistance to sustainably manage natural resources. The non-governmental sector has also played a central role in promoting and strengthening partnerships between the government and local communities.

2.2.3 International partners

The Global Environment Facility (GEF) is the world's largest multi-lateral funding agency for environmental initiatives and has funded numerous projects relevant to BioTrade in Namibia. Important initiatives related to BioTrade in Namibia include the Integrated Community-Based Ecosystem Management (ICEMA) project (2004-2011), the Country Pilot Partnership for Integrated Sustainable Land Management (CPP) (2008-2012 – Phase 1), including the Innovative Grant Mechanism (IGM) specifically supporting BioTrade related initiatives, and the UNDP-GEF Small Grants Programme (2003-ongoing). The latter two are especially significant for poverty reduction efforts, as NAD 4.7 million (USD 660 000) worth of grants are currently being distributed among Namibian rural communities through these projects (MET, 2010). Namibia has also established the national Environmental Investment Fund (EIF), which was launched in 2011, and is believed to accrue millions in funds that will be allocated for community-level conservation efforts, including BioTrade-relevant support actions.

Bilateral initiatives are also significant, notably Germany's Biodiversity and Sustainable Land Management Project (implemented through the GIZ), the United States' Millennium Challenge Account (MCA) (2009-14) and the European Commission Rural Poverty Reduction Programme (2005-2011). Also through the MCA, the United States has committed itself to strengthening the functionality of Namibia's IPTT, which has carried out some excellent work related to BioTrade on a very limited budget (see following section).

2.3 Institutions and initiatives relevant to BioTrade

There are several multi-stakeholder institutions and initiatives aimed at promoting the development of the aforementioned BioTrade sectors and encouraging the participation of local communities.

2.3.1 The Indigenous Plant Task Team

The Indigenous Plant Task Team (IPTT) is a multi-stakeholder coordinating body, which is chaired by the Directorate of Agricultural Research at MAWF, that seeks to promote the production and trade of indigenous plants and natural products. Since 2000, Namibian stakeholders have developed an innovative "pipeline approach" to coordinate and create sustainable economic opportunities based on harvesting, processing and trading indigenous plants and natural products (Figure 5). The pipeline approach prioritises natural products with large and quick market potential and promotes their commercial development, through an integrated strategy that addresses the entire value chain from harvesting to retail sales – all of which is done in commercial partnerships with the private sector. This approach has so far brought four new Namibian natural products (Marula oil, Kalahari Melon seed oil, Ximenia oil and Manketti oil) to the international cosmetic markets.¹⁴

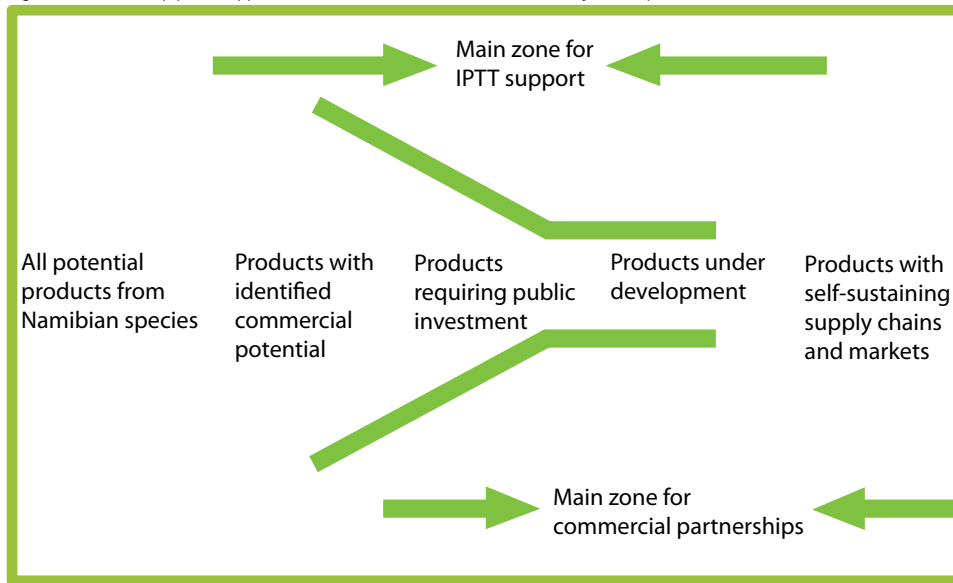
Over the last 10 years, the IPTT has coordinated investments in the INP sector with an annual budget of approximately NAD 42 000 (USD 5 700) provided by the MAWF from the NDP3 budget. The multi-stakeholder IPPT provides advice, technical inputs, as well as funds to INP producers¹⁵. IPPT also seeks to encourage domestic value addition along the production chain. Specific opportunities for value addition will differ depending on the product. This is a particularly important possibility for INPs.

2.3.2 Adherence to ABS and Interim Bioprospecting Committee

The Namibian government is a signatory to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, within the framework of CBD. "The fair and equitable sharing of benefits arising out of the utilisation of genetic resources" is one of the three objectives of CBD. The objective on access and benefit-sharing, or ABS, is intended to place developing countries in a better position to profit from their genetic resources, and provide incentives for the conservation and sustainable use of their biodiversity.

In an effort to promote the ABS approach and facilitate the development of BioTrade, an Interim Bioprospecting Committee (IBPC) has been set up while Namibia's Access to Genetic Resources and Associated Traditional Knowledge Bill is in the process of finalization. The IBPC regulates and facilitates all Bioprospecting¹⁶ activities in Namibia on an interim basis, while at the same time safeguarding them against unlawful exploitation and biopiracy¹⁷. An advantage of this interim measure is that the IBPC has served as a learning platform

Figure 5. Namibia's pipeline approach for the sustainable use of biodiversity-based products.¹⁸



for the approval and negotiation of bioprospecting packages and contracts. This has put Namibia at an advantage in the development and implementation of national ABS regulations, as well as in the negotiation of the international ABS regime (Namibia has been a prominent participant in international ABS negotiations).

The IBPC utilises the law of contract to execute the role of Competent National Authority, granting legitimate access to resources. It is expected that the availability of such a legitimising mechanism, when combined with business' trust in private commercial law, will reduce uncertainties for the biotechnology industry and other users of biological or genetic resources, thus facilitating private investments and research in Namibia. BioTrade products promoted through this approach include micro-organisms, flavour and fragrance ingredients, medicinal plants, endemic species, local crops and livestock breeds, marine organisms, gums and resins and venoms, among others. IBPC has played a significant role in improving the business environment, in particular for INPs.

2.3.3 Community-Based Natural Resource Management

Since Namibia's independence, Community-Based Natural Resource Management (CBNRM) evolved as a framework for the management of wildlife resources. To provide a structure for the CBNRM concept to develop, legislation was tabled in 1996 to allow for the formation of communal conservancies. These conservancies would take responsibility for the natural resources within their boundaries, mainly wildlife, by monitoring numbers and preventing poaching. An essential goal was to encourage

communities to understand that wildlife is a valuable resource. The conservancy movement has been a great success, and there are now over 71 registered conservancies in Namibia.¹⁹ Conservancies attract tourists and have allowed for the establishment of sustainable hunting practices. The success of the CBNRM approach in the sustainable management of wildlife is now being replicated and extended to indigenous plants and non-timber forest products.

As part of its CBNRM Programme, MET initiated a wildlife relocation programme, so that communities could increase their wildlife-based economic activities. As of 2007, approximately 3 700 animals had been relocated including the rare and endangered black faced impala, giraffe and black rhino (MET, 2008). Sustainable utilization of wildlife on communal conservancies makes use of a quota system based on a thorough and collaborative game counting process.

Finally, recent legislation, such as the National Policy on Tourism and Wildlife Concessions on State Land (2007) and the National Tourism Policy (2008), ensures that communities remain the primary beneficiaries from the growth in tourism and that the industry maintains an eco-tourism focus, reducing the negative impact on the natural environment as much as possible.

2.3.4 Strengthening protected areas

The Ministry of Environment and Tourism's SPAN project (funded through the GEF and supported by UNDP) made progress in its effort to secure sustainable financing for protected areas (PAs). An economic study of Namibia's protected areas indicated that the PA system contributed up to 6 per cent of Namibia's

GDP through park-based tourism – excluding other ecosystem services – and that the economic rate of return on government investment in the PA system over 20 years was as much as 23 per cent (Turpie et al., 2005). Motivated by this study, MET increased the annual budget for park management and development by 310 per cent over a period of four years. The Ministry of Finance agreed to earmark 25 per cent of the park entrance revenue as reinvestment in park and wildlife management through a trust fund. This fund provides up to USD 2 million of additional funds per annum for the maintenance of protected areas in Namibia.

The Namibia Protected Landscape Conservation Areas Initiative (NAM-PLACE) has been established recently. This MET project, funded through GEF and supported by UNDP, focuses on building partnerships for the co-management of landscape level protected areas in pilot regions in Namibia, further reinforcing BioTrade values.

2.3.5 National Horticulture Task Team and Infant Industry Protection

Towards the end of the 1990s, 90 per cent of Namibia's food products such as pork, chicken, and horticultural products were being imported. In 1998, the government began exploring mechanisms to produce more food domestically with the aim of replacing imported products with local produce. The government launched the National Horticulture Development Initiative (NHDI) by setting up a National Horticulture Task Team (NHTT) consisting of producers, wholesalers, consumers and government officials. The work of the team was to spearhead the horticulture initiative in order to increase local production through supporting small-scale farmers, which for the most part, were still subsistence-oriented.²⁰ The establishment of NHTT in 2001 has driven the growth of a considerable horticultural sector in Namibia. Local retailers are also now required to buy a certain percentage of their stock from local suppliers, although ICVs have not yet been integrated into this regulation.

The Government of Namibia has also aimed at increasing domestic food production through the Infant Industry Protection (IIP) initiative. IIP has so far been granted to the pasta manufacturing industry and Ultra-High Temperature (UHT) processed milk in Namibia through levies applied at the border posts.²¹ Similar provisions are also covered by SACU and SADC Trade Protocol typically for sensitive goods such as agricultural produce.

2.4 Development grants and private investments

Development grants and private investments have targeted several of the sectors with BioTrade potential. UNDP, for example, has supported the Namibian government in developing and implementing country BioTrade programmes in the agricultural and fishing sectors, mostly through projects financed through the GEF. Grants provided to environmentally sustainable enterprises, through programmes such as the Country Pilot Partnership Programme for Integrated Sustainable Land Management (CPP), Innovative Grants Mechanism (IGM) and the Small Grants Programme (fundbiopred by GEF through UNDP), have represented accessible sources of financial support for the production of ICVs. Grants worth NAD 4.7 million (USD 660 000) were transferred to communities for the development of local enterprises, including guinea fowl, peanut butter manufacture, backyard horticultural demonstration plots and cultivation of marama beans.²²

In the fishing sector, the Benguela Current Large Marine Ecosystem (BCLME) Programme and the Benguela Current Commission (BCC) have contributed more than USD 30 million mostly from GEF funding and supported by UNDP for a regional initiative to manage marine resources in a sustainable manner in three partner countries: Angola, Namibia and South Africa. Projects such as the Benguela Environment Fisheries Training Interactions Programme (BENEFIT), and bilateral support from a number of countries, such as Norway, Iceland, Spain, UK, Malawi and Cuba, have contributed to capacity-building for trade in fish and aquaculture.

USAID and the European Commission have also been active in their contributions to Namibia. The Hoodia industry was given a significant boost in 2007 of about NAD 9.7 million (USD 1.3 million), with the support of a European Commission Project, which targeted mainly communal Hoodia farmers in an effort to commercialize the industry and reduce poverty in the southern regions of Hardap and Karas (NPC, 2007a). USAID, on the other hand, established the Millennium Challenge Account (MCA) with Namibia in 2008, pledging USD 304.5 million for public investments. The MCA identified tourism and agriculture (livestock and indigenous natural products) as sectors that could contribute to poverty reduction through economic growth (MCA, 2008; NNFU, 2010).

Using MCA funds, the government has launched a USD 6.7 million (NAD 48.7 million) project to benefit primary producers. The project seeks to increase the volume of products harvested and processed by primary producers, and adding more value to them within the country. MCA funds were directed to supporting primary producers in strengthening their organizational, business and technical capacities. The production and processing of INPs is expected to increase incomes for as many as 9 000 primary



Source: Juliane Zeidler (2010)

Kalahari Wild Silk Project

In 2003, the Kalahari Wild Silk Project was implemented by CRIAA with funding from MAWF and Oxfam (Canada) (Leather Lux). The project was identified for further funding by the MCA in 2006. The Kalahari Wild Silk project has emphasized increasing income-earning opportunities for mainly female Wild Silk cocoon collectors and silk weavers/spinners through a “whole value chain” approach.

The cocoons of the ‘burning worm’, *Gonometa postica*, used to be considered a pest in the Kalahari. During times of drought, animals eat the cocoons and this can cause death due to rumen impaction where animals’ stomachs digest the glue that keeps the cocoon together, but not the silk itself (Leather Lux).

But now this pest has been turned into a business opportunity.

The cocoons are collected by farm labourers and other people living in the Leonardville area. Harvesting is controlled and only empty cocoons from which the moths have emerged are harvested to keep the project sustainable.

Removing the cocoons from the wild ensures that wildlife and livestock losses are reduced and harvesting and processing the cocoons creates jobs for people in the area and improves their living standards. A previously unexploited natural resource is now being processed locally to add value to the end product (Leather Lux).

In order to benefit from this valuable natural resource, a textile processing facility has been set up in Leonardville. Hundreds of farm workers now earn extra income from the harvesting of cocoons. The facility has also created dozens of jobs by way of the degumming process of the cocoons, the spinning of the raw silk into yarn, the dyeing of the yarn, and the final weaving of the silk into fabric (Open Africa).²³

producers and their households, benefiting approximately 45 000 individuals over the next five years.

An additional NAD 324 million (USD 47 million) from the MCA funds have been invested to lessen key constraints and increase profitability of livestock operations in the Northern Communal Areas (NCAs), by:

- reducing animal diseases and mortality through improved availability of public veterinary services,
- introducing a traceability system that enables herd monitoring, which is one requirement for livestock access to international markets, and
- shrinking costs and losses incurred from farm gate-to-slaughter (i.e. in the transport, quarantine, and marketing of cattle).

The easing of these constraints will directly increase value received from livestock production as well as the average off-take rate in the NCAs, which are more likely to be indigenous breeds (though it is not an explicit policy aim). In terms of tourism, MCA will invest USD 67 million (NAD 461 million) in the protected area network infrastructure (especially Etosha National Park) and USD 8 million (NAD 55 million) in upgrading the tourism marketing capacity of Namibia.

At the national level, there have been private sector investments, through their corporate social responsibility programmes. NedBank's Go Green Fund, for example, pledged NAD 3.8 million (USD 522 000) a few years ago for more than 30 projects, many of which were related to BioTrade. These are effectively considered as grants and not expected to yield a return for the bank. Overall, however, commercial and state banks have thus far played a very limited role in supporting biodiversity-based enterprises.

2.5 Certification and quality standards

Sectors dealing with the production of consumable goods (INPs, ICVs, ILBs and fishing) are those facing major constraints in terms of certification and quality standards. Sanitary and phytosanitary (SPS) measures apply to plant health, animal health and food safety. Additionally, EU importers of food products generally require the supplier to be HACCP (Hazard Analysis Critical Control Point) certified. Namibia has harmonised its animal health policies with the European standards through the Animal Health Policy. An example of this is the creation of the meat brand Farm Assured Namibian (FAN), which allows the traceability of Namibian meat "from the farm to the fork" and ensures inspection and certification at all stages of production chain (Toto and Thalwitzer, 2009).

On the other hand, INPs are imminently suitable for eco-labelling and ethical trade as they are typically harvested from the wild or produced in traditional farming systems (Ndhlukula and du Plessis, 2009). A number of certification options have become available in Namibia in recent years, and the establishment of the Namibia Organic Association in 2009 demonstrates that there is momentum for this approach. For instance, in addition to the locally developed FAN brand, the Namibian meat industry has investigated the viability of organic certification and there are producers who have obtained organic certification and secured access to niche markets for organic meat.

In the case of the fish industry, there are voluntary certification schemes such as SGS (Société Générale de Surveillance), International Organization for Standardization (ISO) and the Marine Stewardship Council (MSC). MSC's fishery certification program and seafood eco-label recognises and rewards sustainable fishing. Currently, there is only one MSC certified company in Namibia. As concerns about over-fishing are growing rapidly, there are many trade opportunities for Namibia's wild-capture and mariculture sub-sectors once they obtain MSC certifications.

3 Challenges and opportunities

This study has identified three major challenges and four windows of opportunity in Namibia's BioTrade sector. The major challenges are the organization of supply chain and benefit-sharing, including complying with regulations, certification and quality standards, and other other constraints such as limited access to credit, lack of infrastructure and climatic conditions. On the other hand, opportunities centre on the national support for BioTrade from public and private sectors, the rising international demand for BioTrade products, demonstrated supply side capacity and finally, international and domestic support for BioTrade and green economy initiatives.

3.1 Organization of the supply chain and "trickle down" effect

The two major constraints to be addressed in the development of the BioTrade sector as a catalyst for a possible green economy transformation in Namibia are: the fragmentation of the supply chain and limited benefit-sharing with those at the base of the production chain. In the case of INPs, many natural product harvesters earn a very small share (2 to 3 per cent) of the retail value of the products they supply. Through a consultative process, MCA identified a number of challenges facing INP: the ability or non-ability of communities and Preferred Provider Organizations (PPOs) to consistently maintain high quality of products and reliable supply line²⁴; the sustainability of the resource base; the global economic crisis, which may be impacting demand for certain products; the need to ensure that benefits are transmitted to the poor and marginalized harvesters; and the widespread need for increased value addition in Namibia.

Benefit sharing in tourism is another important case to consider. As Leisher et al. (2010) highlight, this sector has great poverty reduction potential. An ongoing challenge is that those with more assets and greater levels of social capital are more likely to lead tourism-related activities. In other words, if the elite capture the benefits derived from this sector, conservation projects could lead to the widening of income disparities. In this respect, it is important to ensure that the benefits of wildlife-tourism are shared equitably.

3.2 Compliance with regulations, certification and quality standards

Certification and quality standards pose a challenge primarily to consumable products. In the case of organic certification of INPs, there is an important distinction between wild-harvested

products such as Devil's Claw and products like Marula or Kalahari Melon seeds, which are produced by smallholder farmers and therefore have to adhere to a different set of rules. Wild-harvested products from rangelands, where artificial fertilisers and pesticides are not employed, are "organic by default" and therefore easier and less expensive to certify. On the other hand, certifying products like Marula and Kalahari Melon seeds from small farms requires the establishment of "internal control systems". Because of the "green and ethical" consumer demographic that characterizes INP demand, eco-certification is a necessary step to access profitable and high-end INP markets.

In the case of livestock, many meat farmers could not qualify for organic certification as it bans the use of herbicides normally employed to keep their fence lines clear of encroaching vegetation (and/or to combat bush encroachment). A more widespread and significant concern is the fact that organic standards do not permit the use of urea. Namibian farmers employ urea as a cheap source of nitrogen in production licks to supplement the nutritional value of the dry "standing hay", which is the main source of grazing during the prolonged dry season.

Another important concern with regards to the production of food has been the carbon footprint of exported meat, also known as the "food mile." Even though this is not a standard per se, it can hinder the development of the livestock sector as a result of decreased demand in international consumer markets. This situation could be addressed by shipping meat by sea rather than air-freight (Ndhlukula and du Plessis, 2009). On the other hand, the "fair mile"²⁵ principle argues that the consumption of meat from developing countries such as Namibia has a significant impact on poverty reduction in local communities is also gaining ground (MacGregor and Vorley, 2006).

Finally, VCF negatively impacts the growth opportunities of the livestock sector in the Northern Communal Area (NCA). NCA farmers are penalized by the cost of compliance with foot and mouth disease (FMD) regulations, and by the relative lack of marketing infrastructure. The Government of Namibia plans to move the VCF as close as possible to the Angolan border, unlocking a vast area for cattle and small stock marketing and removing the burden currently experienced by NCA farmers. However, the timeframe for the translocation of the VCF is at least 10 years. Meanwhile, MCA funds have been allocated to establish a number of intermediate measures. These include the construction of veterinary stations and the tagging of animals that will be move to FMD free status, training and extension in livestock production, and marketing and improved livestock marketing practices and infrastructure.



Local women preparing Marula oil for their own consumption. (Source: Ralph Bäcker, BSLM)

3.3 Limited access to credit, inadequate infrastructure and variable climatic conditions

Access to credit has been identified as a particular challenge for ICVs. Although there is consumer demand for ICVs, these are primarily traded in the informal sector. An industry around commercialisation of ICVs has arguably failed to materialise because of lack of coordinated and sufficient investment in this agricultural sub-sector, as well as the lack of collateral by communal farmers which limits their access to formal financing. However, this could be addressed through a PPP between Agribank and commercial banks and other innovative financing schemes such as agricultural insurance.

In terms of infrastructure, major challenges in rural areas include high transport costs, lack of regular water availability and irregular access to electricity. MCA identified road construction in rural areas as an investment of crucial importance for the development of the livestock industry. Without this

infrastructure, expanding livestock rearing will not be cost-effective and would only jeopardize short-term returns due to the difficulties posed by transporting cattle to quarantine facilities and abattoirs. In addition, feedlots and quarantine camps would need to ensure access to electrical power.

Finally, while climatic considerations can pose a threat to some BioTrade products, it can also potentially be an adaptive response. Namibia has an arid climate and has increasingly experienced droughts, primarily as a consequence of climate change, which is a major challenge to the trade of agricultural products, in particular INPs and ICVs. However, wildlife may become a relatively more viable form of land use than agriculture in arid conditions (Reid et al., 2007). Given climate change predictions for Namibia, goat and sheep farming and indigenous livestock breeds are likely to become more favoured livelihood options (Dirkx et al., 2008). In general, there is a potential to increase the marketing of goats to South African and European markets. In this regard, further research is required to assess the relevance of these native breeds for the livestock sector at large and the preferences on the domestic and export markets for meat from specific breeds.

The more concerted development of BioTrade products may serve as an adaptive response. Indigenous plants and animals are generally better adapted to deal with the already highly variable climatic conditions in Namibia, and their specific further propagation and development could bring about suitable crops and breeds that perform well under changing climatic conditions.

3.4 Supply side capacity

On the supply side, Namibia's private sector has demonstrated its entrepreneurial and management expertise in dealing with the challenges of developing supply side capacities in order to access international markets, including those relating to products. The well-established tourism industry and the growing INPs sector show that despite many challenges, private enterprises were able to prepare themselves to take advantage of market opportunities and consolidate their businesses. For example, PhytoTrade Africa is a regional natural products trade association with several Namibian members that work in close partnership with Aldivia S.A., a specialist lipids company based in France. Namibian producers played a leading role in the development of the "Ubuntu Natural" hybrid standard developed by PhytoTrade Africa. The development of such a standard highly benefitted producers during the global recession. There has also been a pilot project in northern Namibia to certify Marula and Kalahari Melon seed oils as organic. Although the pilot was successful, it has not been rolled out to a wider group of producers due to funding restrictions and also because Eudafano women were uncomfortable with the idea of some members being certified and others not (certified producers earned a market premium of about 50 per cent for their produce).

Further opportunities exist which could benefit the private sector. In the case of sale of game meat, there is a possibility to bring game meat in compliance with the Farm Assured Namibian (FAN) meat brand, which would help increase sales. Similarly, Namibian leather and Swakara pelts have the potential to be labelled as "eco-leather" and be sold for a premium price in European markets, if they are processed according to specific market demands for such products (e.g., using only approved chemicals for tanning and finishing). Organic certification of leather would require that the producing farms, cattle, abattoirs and tanneries are all inspected and certified.

While certification and quality standards are indeed a challenging barrier for BioTrade businesses, Namibian producers have gone a long way to obtain recognition domestically and internationally. However, much still remains to be done, particularly with regards to certification and quality standards. The sector could benefit from further public and international support, especially in terms of market incentives and capacity

building. Nonetheless, successful experiences suggest that the supply side capacity could be a positive impact on Namibia's BioTrade.

3.5 International demand

As mentioned previously, the increasing international demand for biodiversity derived products represents a unique opportunity for Namibia. Consumers are increasingly aware and concerned with the social and environmental impacts of their consumption patterns and international trade, driving up the demand not only of organic products but also of goods that are produced sustainably and whose benefits trickle down to local producers. Sales of fair trade certified products for instance have been growing at an average of 40 per cent per year over the last five years (Fair Trade Foundation). While markets for conventional cosmetics stagnated, demand for organic and fair trade products kept growing 40 per cent per annum.²⁶ For Namibia, there is an obvious and compelling business case for robust improvements in benefit-sharing models ("fairer trade") as this can increase the marketability of its products.

There are already some successful initiatives in Namibia which set examples of taking advantage of the benefits offered by the sustainable use and trade of natural products that cater to "green and ethical consumers" – and many more opportunities lay ahead. Trends show that international demand for biodiversity derived products has continued to increase over the last couple of years, notwithstanding the economic crisis. Namibia can further benefit from this growing demand by investing in the sector and improving the production of sustainable biodiversity derived products. Opportunities also include the introduction of new products, particularly in the case of INPs, ICVs and ILBs. Research and new marketing strategies to diversify and increase production are some of the ways in which Namibia can capitalize on these opportunities.

3.6 Governance and support for BioTrade in Namibia

Namibia's government has been supportive of BioTrade, as evidenced by the numerous institutions and initiatives put in place to promote the development of this sector. Steps taken to strengthen the sustainable use and trade of INPs and wildlife-related products, for instance, are clear signs that the government understands the conservation and poverty reduction benefits that derive from BioTrade as well as the opportunities to promote economic growth based on the sustainable use of the country's natural resources. Government initiatives have tended

to incorporate relevant stakeholders in policy planning and implementation, and have actively promoted the engagement of local communities in the sustainable production of biodiversity-related products and conservation efforts. Nevertheless, a more strategic engagement of government institutions such as the Ministry of Trade and Industry (MTI) and the financial sector in Namibia (e.g., Namibian Development Bank) in BioTrade activities would help promote and increase the potential of this sector.

Additionally, Namibia's leading role in ABS negotiations has demonstrated its capacity to take advantage of the growing international demand for biodiversity-related products.

3.7 International support and interest in BioTrade

Namibia is of particular interest to the BioTrade industry because of its bioprospecting activities (Krugmann et al., 2003), which capitalizes on its unique biodiversity.

With the advent of the international BioTrade "community", and the adoption and entering into force of the Nagoya Protocol of the Convention on Biological Diversity (CBD), a new momentum to BioTrade-related Access and Benefit Sharing (ABS) global policy instruments are coming into force. The following are the major BioTrade multi-lateral instruments and programmes:

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. The Protocol is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components. It was adopted by the Conference of the Parties to the CBD at its 10th meeting on 29 October 2010 in Nagoya, Japan.

BioTrade Initiative of UNCTAD. Since its launching in 1996, the Initiative has been promoting sustainable BioTrade in support of the objectives of the Convention on Biological Diversity (CBD). The Initiative has developed a unique portfolio of regional and country programmes. Since 2003, the BioTrade Initiative has also hosted the BioTrade Facilitation Programme (BTFP) which focuses on enhancing sustainable bio-resources management, product development, value-adding processing and marketing. The BTFP complements the UNCTAD BioTrade Initiative activities. It is currently in its second phase (BTFP II) with various partners implementing its objectives.

Moreover, at the **Rio+20 Conference** in June 2012, world leaders together with thousands of representatives of governments, private sector, NGOs and other groups, will come together to address the solutions that will help reduce poverty, advance social equity and ensure environmental sustainability. The Conference will focus on two themes: (i) a green economy in the context of sustainable development poverty eradication; and (ii) the institutional framework for sustainable development. Overall seven priority areas are highlighted, including decent jobs, energy, sustainable cities, food security and sustainable agriculture, water, oceans and disaster readiness. BioTrade relevant deliberations are expected especially under theme 1. Trade in biodiversity-based products in Namibia has improved in recent years and its contribution to poverty reduction, environmental conservation and economic development is becoming the focus of increased attention from both the public and private sector.

Although estimates for growth vary on a product-by-product and sector-by-sector basis, it is projected that the contribution of BioTrade to Namibia's economy could increase by 50 per cent over the next 10 years amounting to 7 per cent of GDP. This figure is based on the expectation that current investments, particularly in INPs and wildlife, would lead to improved management and expansion of the BioTrade sector.



Kalahari Melon Seed Oil BioTrade Products
(Source: Ralph Bäker)

4 Benefits of BioTrade

4.1 Poverty reduction

The majority of INPs, ICVs, ILBs, timber and NTFPs, including high-value wildlife populations (e.g., black rhinoceros and elephants), are located in communal lands, where poverty is endemic. In addition, indicators relating to life expectancy, access to basic health services, literacy and infant mortality, as well as gender equality, are inferior compared to those urban and commercial areas. The combination of these factors makes BioTrade a potential tool for poverty reduction. For example, the employment sector, which currently employs around 222 303 people, benefits an estimated 991 959 individuals – the equivalent of almost half of the Namibian population. Further impacts of BioTrade on Namibia's economy are summarized in Table 3.

BioTrade could also improve the livelihood of poor rural communities, where one harvester or resource steward supports an average of six household members. It is significantly important for unskilled workers, as the sector requires fairly low skills levels. A person being employed in the harvesting and collection of INPs, for example, does not require a minimum level of education or professional skills, and returns to labour are low to moderate – all these could appeal to individuals with no or low levels of income.

Thus, BioTrade could augment the income of households while affording them some insurance against climatic variability (an extremely important consideration under Namibia's marginal agro-environmental conditions). Furthermore, it could provide sufficient income for others to accumulate savings and re-invest, while at the same time act as a social safety net by deterring increased poverty of producers and reducing their vulnerability (Leisher et al., 2010).²⁷ In other words, BioTrade could be an opportunity to earn additional cash for those who are not employed full-time, through flexible, home-based activities.

An equity ownership mechanism is currently being explored to optimise economic returns for primary producers by securing a better share for them in the market value of their resource. In this regard, the latest development is the proposed formation of a Primary Producers Trust (PPT) to own "generic equity" in various PPP ventures on behalf of primary producers. An ABS framework mechanism is also under development to ensure maximum community benefit from the use of genetic resources by commercial companies and academic researchers.

The other significant member of the population who are at risk are women, or other vulnerable groups such as indigenous peoples and the elderly, who are the main stewards of Namibia's natural resource base. Traditionally, their knowledge

is associated with the use and application of these resources, which is the basis of BioTrade development. The potential benefits for them are therefore immeasurable.

In some cases, due to the gender-related nature of traditional plant-based activities of INPs and ICVs, the cash accrues predominantly to women who are most likely to invest it in the welfare and education of their children. BioTrade provides women, especially those who are household heads, the flexibility to work from home and care for their children, while at the same time engage in income-earning activities. The benefits are similar for households headed by grandparents, which are becoming increasingly common due to the effects of the AIDS pandemic.

4.2 Environmental conservation

In Namibia, the conservation of biological diversity hinges upon the sustainable use of its components. This concept is well-understood at the community level and has been facilitated by Namibia's CBNRM Programme.

The Nature Conservation Amendment Act of 1996 and the Forest Act of 2001 paved the way for the devolution of rights to communities over wildlife and forest resources, through the mechanisms of communal conservancies and community forests. As of February 2012, there were 71 communal conservancies²⁸ and 13³⁰ community forests registered in Namibia, covering over 20 per cent of the country's land mass. A new Parks and Wildlife Bill is under preparation, which further corroborates community rights in the natural resources sector.

These laws place great emphasis on participatory resource mapping and monitoring systems, which determine the types and quantities of products that can be utilized without destroying the resource base, while also considering the daily subsistence needs of the affected communities. For example, each communal conservancy is given an annual quota of wildlife it can sustainably use (through activities such as trophy hunting and shoot and sell hunting) based on annual game counts and regular monitoring by community game guards.

Although the CBNRM Programme is comparatively new, it has been very successful in increasing wildlife populations on communal lands and in reducing instances of poaching as well as other unsustainable practices, such as illegal logging and exploitation of INPs. As part of Namibia's rural development strategy, increasing wildlife numbers create an opportunity for rural communities to intensify and diversify wildlife-based enterprises, and to capture greater benefits from the various supply chains. Consequently, over the past 25 years, game and

wildlife numbers have increased significantly in northwestern Namibia and around the country (NACSO, 2010).

Equally important to the development of BioTrade are communal conservancies and community forests that serve as institutional frameworks. They can be approached by commercial partners, or through primary producers who can organize themselves or be trained on sustainable harvesting and value addition. Thus, CBNRM has created platforms through which the BioTrade sectors of wildlife (including ecotourism) and INPs can be built upon and expanded.

Although CBNRM is less important to other BioTrade sectors such as ICVs and ILBs, it offers considerable benefits for environmental conservation. Given their survival in Namibia for thousands of years, ICVs and ILBs are well-adapted to the harshness and extremes of the Namibian climate. Therefore, they are best positioned to cope with the effects of climate change and should

be considered as crucial to Namibia's sustainable development. Unlike many introduced breeds of livestock and crops, their water use and stress to the environment is minimal. This is true not only for breeds such as Sanga cattle and Boer goats, but also for staple traditional crops such as mahangu and sorghum.

The public and private sectors, as well as civil society, have all played a key role in supporting and promoting BioTrade in Namibia. The full potential of the sector, however, has not been realized in achieving national development and poverty reduction goals. The following measures have been identified as crucial to ensure the consolidation and growth of Namibia's BioTrade sectors. Since most of Namibia's poor are found in the rural areas, inequality and poverty reduction efforts under BioTrade and green economy approaches should concentrate its initial efforts on improving the livelihoods of marginalised rural communities (see Annex 3).

Table 3. Summary of BioTrade contributions and prospects.

Sector	Value (USD)	Year	% GDP*	Investments**	Predicted growth	No. ppl engaged (est.)	Poverty reduction potential	No. of beneficiaries	World Bank World Development Indicators***
INPs	13 659 100	2005	0.15	8 057 000	High	9993	High	42 720	GRN 2007
ICVs	90 007 200	2008	0.97	660 000	Low	45 000	Medium / High	180 000 (est.)	MAWF 2005
Indigenous Livestock Breeds	150 012 000		1.62	47 000 000		32 309.75	Medium / High	129 239	NA
<i>Agriculture overall</i>	500 040 000	2008	5.40		Medium	NA	NA	NA	NA
Wildlife (inc. eco-tourism)	100 000 000	2010	1.08	95 000 000	High	135 000	Medium / High	540 000 (est.)	Barnes et al., 2009
<i>Tourism overall</i>	1 203 800 000	2010	13.00		Medium	NA	NA		WTTC 2010
Indigenous Fisheries and Marine Resources	19 446 000	NA	0.21	1 140 000	NA	NA	NA	100 000 (est.)	Meyn et al., 2005
<i>Fisheries and Marine overall</i>	648 200 000	NA	7.00	38 000 000	NA	NA	NA	NA	NA
Timber and NTFPs others	45 202 500	2005	0.49	NA	NA	NA	NA		Mendelsohn and El Obeid, 2005
<i>TODAY (est.)</i>	1 047 080 800		4.52	151 857 000	NA	222 303	NA	991 959	

NA Not available

NB Since data are not gathered nationally on the basis of BioTrade sectors or biodiversity-related values proxies are used to assist with the comparability of data. Therefore, the conclusions are indicated to have low to moderate certainty the best possible with current available information.

* USD 9.26 billion (est.)

**Cf section 3

*** Sources

5 Towards the consolidation of BioTrade in Namibia

Recommendations

5.1 Harmonisation of policies

A coordinated approach for BioTrade is already emerging in Namibia, but reducing fragmentation and having mutually supportive policies must be a policy goal in itself, that is, independent of time-limited projects. Development of the sector and product specific policies needs more attention. The policy on Devil's Claw, with its strict permit system, is a good example of mechanisms to formalise the supply chain. A similar process is underway for Mahangu since it has been gazetted as a controlled crop. Such policies need to be supported by increased awareness of the significance of BioTrade among trade agreement negotiators and the public at large.

The formulation of comprehensive national level BioTrade policy is crucial in achieving harmonization of different initiatives. Peru's National BioTrade Programme is a good example of inter-ministerial collaboration and policy coordination. The proposed Namibia Environmental and Trade Forum (NEAT), as a sub-body of the National Trade Forum, could act as a major catalyst for BioTrade policy-making and harmonisation. Just as it is important to aim for policy coordination, it is also necessary to designate an institution that can be in charge of synchronizing policies and initiatives, encouraging the participation of relevant stakeholders and keeping track of international developments with regards to BioTrade (see Annex 3 for a summary of policy recommendations).

5.2 Investments: engaging the private sector

Engagement of the private sector is essential for further development of BioTrade as equipment, storage facilities and infrastructure will require sustained investment over the coming years. Many sector outlooks are based on the assumption that private financing will be available once the poorest have demonstrated their ability to yield returns. Tailoring appropriate financial solutions for the various BioTrade sectors is an important step that should take place during the planning of BioTrade policies and initiatives. A PPP between Agribank and commercial banks with a larger network of branches could increase opportunities for microcredit programmes and also promote investment in agriculture and BioTrade sectors. However, the lack of collateral among communal farmers limits their access to formal finance. Working modalities of Grameen Bank of Bangladesh, which deals with microfinance for the poor, and Forestry User Groups in Nepal, who have been able

to access microcredit against the guarantee from the group, could be further studied and adapted to the Namibian context in order to provide more opportunities for investments in BioTrade, especially at the lower end of the supply chain.

Namibia has an established microfinance bank operating mostly in Northern Namibia³⁰, however at the time of this research no borrower information in terms of credit uses in BioTrade related activities was available. Stakeholders of BioTrade need to work closely with banks, insurance companies, purchasers, wholesalers and other private sector sources of capital.

Private sector investment can also be encouraged for all sectors, including BioTrade, by creating secure investment frameworks and policies under which investors can clearly assess the risks and returns. Prioritizing trade in biodiversity-based products in bilateral, regional and multilateral trade agreements could provide incentives to the private sector to invest in this sector. Government policies should consider penalizing unsustainable practices with higher taxes, and possibly rewarding investments in sustainable sectors with rewards, tax cuts or via other means. Appropriate use of economic instruments (taxes, subsidies, etc.) has been successful in many countries to increase investments in sustainable or green businesses.

Another potential venture under discussion is the formation of a new company ("NewCo") involved in the valorisation and sustainable use of indigenous cosmetic oils, which currently lead the Namibian product development pipeline. It is important to secure private sector investment in order to continue the development of pipeline products started by the IPTT at a higher level of technology. The PPT would be a "sleeping partner" in NewCo, leaving commercial decision-making to its more experienced private sector collaborators. The majority of PPT's earnings from its equity holdings would be disbursed directly to primary producers. While commercial partners have expressed interest in investing in NewCo, the details of this innovative benefit-sharing mechanism are still under negotiation. NewCo could be more widely used by a number of BioTrade products.

Increasing incomes from BioTrade relies on increasing the production of biodiversity products more sustainably as well as further 'Namibianising' the value chain (i.e. ensuring that value is captured domestically). EIAs need to use additional assessment tools to address questions such as the maximum limit of supply, and the monitoring mechanisms that would ensure that resources are managed sustainably and benefits are shared fairly from their use and trade. The sustainability of the resource base, use of water and energy in resource-scarce rural areas, low and

further declining yields of some products such as Mahangu, and the effects of the limited harvesting season on supply of some products, are all challenges that need to be addressed with the help of the private sector in order to increase the supply of BioTrade products. Greater geographical targeting of BioTrade initiatives could be a way to ensure that the benefits are reaped by low income populations in economically poor regions.

5.3 Infrastructure investments and reforms

A significant barrier to several BioTrade sub-sectors is the inadequacy of infrastructure, e.g., lack of veterinary services in the Northern Communal Areas (areas north of the VCF). A large number of goats, traditional cattle breeds (e.g., Sanga) and wildlife are found North of the VCF, and therefore face greater barriers to access lucrative export markets. The government is aware of these constraints and intends to address them by 2015 with the relocation of the VCF.

Given the shortages of electricity in rural areas and general water constraints, there is major scope here for renewable energy technology. In line with the Green Economy Report, policy-makers should consider off-grid renewable energy alternatives for rural communities, and local value addition enterprises. In addition, use of solar and wind powered boreholes, electricity-free meat handling and storage facilities need to be explored and supported. These are examples of how investment in "green infrastructure" can stimulate and support the emerging sectors, including BioTrade.

5.4 Awareness raising and information dissemination

There is still a lack of awareness and knowledge of the potential value of biodiversity resources in Namibian and different international markets (regional, European, Asian, etc.). INPs, wildlife and ILBs are just a few success stories that have been realised in Namibia. This is illustrated by the quantifiable results, following policy reforms and investment, which these products have shown. However, these success stories have not been publicized enough, both internationally and domestically.

In order for this to take place, cooperation between local, regional and international media needs to be strengthened. Coverage of such stories needs to be brought back to local

communities as well in order to encourage them to make more such efforts. Furthermore, it is also important to work closely with donors and partners. Success stories need to be shared with them to encourage them to scale up in terms of investment and support for such initiatives.

Finally, awareness needs to rise among consumers internationally, so that they recognize a product specifically produced in Namibia (as being of 'higher quality') and thus become willing to pay a premium price for it, benefiting Namibian producers.

5.5 Research and development

Essentially, Namibia needs to properly assess ecosystem services to determine their true value, so as to alert decision makers of their importance and call for policies and programmes that take these services into account and ensure sustainability. UNEP hosts the Secretariat of The Economics of Ecosystem and Biodiversity (TEEB) could be requested to assist with a proper valuation.

To move BioTrade from a set of niche sectors to Namibia's mainstream economy, a dedicated programme of research and development that examines markets, new product development, possible innovative ownership and financing is essential. A common challenge faced in many areas is the lack of comprehensive data on stakeholders (producers, traders and exporters) and production, which is needed in order to appropriately design and target policies, plans and projects. The MCA preparation phase and public consultation process was significant in filling information gaps, but more information at local level would improve the targeting of interventions.

In addition there are many gaps in knowledge which could be addressed through research programs: namely, the valuation of ecosystem services (building from Natural Resource Accounts), research into promising INPs and ICVs (demand and supply side), market research for new BioTrade products, in particular for ICVs and aqua/mariculture opportunities, and research into the poverty reduction strategies via various BioTrade products.

There is also need for a scoping study to identify opportunities for greening of Namibian economy with in depth analysis of different economic sectors. The development and poverty reduction gains achieved from greening of certain sectors, such as BioTrade, may be neutralized if other sectors of the economy follow a 'business-as-usual' polluting, extractive and unfair practices.

6 Conclusion

This paper makes a compelling environmental, economic and social argument for placing BioTrade prominently within Namibia's efforts for transition to a green economy. It advances the hypothesis that BioTrade offers a fresh and complementary approach to (mainly rural) sustainable development, while tackling challenging social and environmental issues and by utilizing the comparative advantages of various products unique to the arid yet rich biodiversity of the country, its extensive traditional knowledge and the strong position of communities in Natural Resource Management systems. The results illustrate the economic, ecological and social potential of BioTrade, in terms of its role in Namibia's transformation to a green economy. As Section 4 concludes, BioTrade could contribute to the overall economy and to the country's poverty reduction efforts and could result in remarkable economic, environmental and social benefits to the country.

The size of the BioTrade sector remains significantly smaller than other larger industries. Ensuring that BioTrade and green economy receive sufficient attention from policy makers will require further research and studies that clearly demonstrate the contribution of BioTrade to GDP over time, which will help justify the greening of other sectors of the economy who currently follow a 'business-as-usual' approach. A review of Vision 2030, NDP3 and NDP4 following the principles of green economy could set a research agenda that explores additional steps Namibia could consider as it moves its economy beyond BioTrade.

To sustain the growth of established BioTrade sectors and consolidate nascent BioTrade sectors, Namibian stakeholders need to take a proactive approach to promoting and strengthening linkages with private sector and financial industries, increasing investment in infrastructure (particularly in rural areas), harmonising BioTrade-related policies and supporting further research and development on BioTrade. These measures would be essential in ensuring that BioTrade becomes a part of Namibia's mainstream economy and not just be a set of niche products.





The Manketti (*Schinziophyton rautanenii*) tree has potential commercial value.
(Source: Barbara Curtis, *Indigenous Natural Products (INP) of Namibia Market Bulletin*, September 2010).

Annex 1. Overview of the diversity of Namibia's regions, relevance to poverty reduction and BioTrade

Region (Capital)	Economy	Environment
Caprivi (KatimaMulilo)	Tourism activities ³ , transportation, subsistence farming (crop production and animal rearing) ecotourism and cash cropping	Tropical area, with high temperatures and much rainfall during the December-March rainy season, making it the wettest region of Namibia. Swamps, floodplains, wetlands forest savannah and woodland. Home to 450 animal species.
Erongo (Swakopmund)	Mining, fishing, manufacturing, semi-arid communal and commercial farming. Well developed infrastructure and services, and tourism.	The Region has a number of climatic zones that run parallel to the coastline (cool foggy coastal zone, foggy interior zone, middle desert zone, eastern desert zone, pro-Namib, the escarpment and the Namibian highlands). Characterized by semi to hyper-arid climate. Drought and extreme climatic variation is a normal phenomenon in the region.
Hardap (Mariental)	Predominately by small stock farming, infrastructure, tourism, irrigated crop production, Ecotourism	Namib desert along coastline, rainfall varies between 75 mm and 200 mm annually
Karas (Keetmanshop)	Ecotourism and tourism, fishing, mining, small stock farming, game farming and irrigated agricultural production along Naute and Orange river	Pristine wilderness, unvegetated sand, succulent Karoo, a coastal belt, semi-arid Nama Karoo, home to unique water-storing plants and classified as the world's most biologically diverse desert area
Kavango (Rundu)	Ecotourism, small-scale farming (livestock farming and crop production), forest	Widespread of Kalahari woodlands (forest savannah and woodland), swamps and floodplains along the Okavango River
Khomas (Windhoek)	Agricultural farming (livestock and game farming), tourism	Shrub savannah, highland shrubland, rainfall is highly erratic and unpredictable over the entire Khomas Hochland region
Kunene(Opuwo)	Ecotourism activities, commercial and subsistence farming (mixture of livestock: small and large), irrigated crops production and tourism	Climate is strongly influenced by the Atlantic High and Benguela current, wilderness, costal belt, and four groups of vegetation: woodland, savannah, and grassland and shrub land
Ohangwena (Enhana)	Subsistence farming (crop production and livestock farming), variety income-generating activities	Relatively mild sub-arid climate, Mopane woodland and Kalahari Acacia-Baikiaea Woodland vegetation zones
Omaheke (Gobabis)	Farming mainly livestock farming, game farming	Arid to semi-arid climatic conditions
Omusati (Outapi)	Agricultural activities(livestock farming and crop production), Natural resources (plants and trees), less tourism activities	Kalahari Sandveld, Cuvelai system and Mopane Shrublands, semi-arid, high degree in variation of rainfall annually, mostly populated region.
Oshana (Oshakati)	Small holder agriculture (crop production and livestock farming), natural products (trees and plan), up-market accommodation establishments such as lodges and hotels.	Dominated by an extensive and intricate network of oshanas or shallow channels (Cuvelai system).
Oshikoto (Omuthiya)	Communal farming (agricultural production) – crops and livestock, tourism	The region displays a modest gradient of rainfall across the region, ranging between an annual average rainfall of 500-550 mm in the north-east to 400-450 mm in the drier south-western parts. A small part in the south-east receives up to 600 mm per annum.
Otjozondjupa (Otjiwarongo)	Agricultural production mainly livestock farming (dominated by commercial farming), ecotourism, game farming.	Forest savannah, thorn bush savannah

¹ Republic of Namibia, Central Bureau of Statistics, National Planning Commission, 2008, "A Review of Poverty and Inequality in Namibia, page 64. Available on <http://www.undp.org.na/SharedFiles/Download.aspx?pageid=19&fileid=5&mid=59> viewed on 21 May 2012.

² Human Poverty Index (HPI) – A measure of deprivation, meaning the proportion of households deprived of certain elements of human life considered to be pre-requisites for human development and takes into consideration longevity, knowledge and decent standard of living (UNDP, 2000).

³ These includes game parks such as Etosha National Park which covers more than one region, conservancies, campsites and game lodges.

Biotrade sectors of relevance	Population (Year)	Share of Namibia's poor ¹ (2003/2004) (%)	HPI ² (%)
Tourism (wildlife, nature, landscape based), Forest (community forest), agriculture (subsistence farming) and indigenous plant	79 826 (2001) 5.5/km ²	5.2	36
Tourism, fishing, agriculture (subsistence) and indigenous plant	107 663 (2001) 1.7/km ²	2.8	17.18
Tourism, agriculture (small stock farming), ecotourism and indigenous plant	68 249 (2001) 0.6/ km ²	5.1	25
Fishing, ecotourism, irrigated agricultural, game and small stock farming and indigenous plant	69 329(2001) 0.4/km ²	3.3	23.8
Forest (community forest), ecotourism, agriculture (traditional subsistence) and indigenous plant	202 694 4.2/km ²	17.8	30.3
Tourism, Agriculture (commercial farming) and indigenous plant	250 262 (2001) 6.8/km ²	4.0	17.9
Agriculture (traditional commercial and subsistence), indigenous plant and tourism (wildlife, nature and landscape based) and ecotourism	68 735 (2001) 0.6/ km ²	3	27
Agriculture (traditional and subsistence), indigenous plant and tourism (wildlife, nature and landscape based) and ecotourism	228 384 21.3/km ²	16.5	31.2
Agriculture (traditional commercial and subsistence), indigenous plant, tourism (wildlife, nature and landscape based)	68 039 (2001) 0.8/km ²	3.9	32
Agriculture (traditional and subsistence), indigenous plant and ecotourism	288 842 (2001) 17 km ²	11.9	27.1
Agriculture (traditional and subsistence), indigenous plant	161 916 (2001) 18.7/ km ²	6.1	24.3
Agriculture (traditional commercial and subsistence), indigenous plant and tourism (wildlife ecotourism)	161 007 (2001) 4.2/ km ²	12.7	29.9
Tourism (wildlife, nature, landscape based), agriculture (traditional commercial and subsistence) and indigenous plant	228 384 21.3/ km ²	16.5	31.2

Annex 2: Summary of findings of Namibia's BioTrade sector products and their growth potential

Sector	Products (examples)	Markets (current, potential)	Barriers to growth	Opportunities	Poverty reduction mechanism
Indigenous Natural Products	Marula oil, Kalahari melon seed (KMS) oil, manketti oil and ximenia oil (all for cosmetic use)	International (developed, and emerging economies)	Developing markets further, and identifying new markets	Well-suited to for eco-labelling and ethical trade Growing worldwide demand Inherently pro-poor	Can be a route out of poverty for very poor and moderately poor, primarily women
Wildlife	Non-consumptive wildlife viewing, ecotourism Trophy hunting Sale of live game, game meat	Estimated to triple to USD 300 million by 2030	Ensuring efforts are pro-poor	Bring game meat into FAN policy Significant MCA investment Suitable in drier climate change scenarios	Route out of poverty, but vulnerable to external factors
Agriculture					
Indigenous Crops and Vegetables	Mahangu or pearl millet and sorghum, indigenous leafy green vegetables, beans, cowpea and bambara groundnuts		Lack of investment Demand needs to be quantified to stimulate investment	Evident demand Regional potential Innovative financing	Can be a route out of poverty
Indigenous Livestock Breeds	Leathers (cattle, Karakul) Meats (goats, sheep, cattle)	Europe (established) South Africa, emerging economies (potential growth)	Further research on native breeds Reduced demand in recent years: Vegetarianism, Animal rights campaigning Non-suitability of standards for Namibian circumstance	Adaptive capacity to more aridity in climate scenario Potential growth through eco- and organic certification	Can be a route out of poverty for moderately poor and better off farmers
Indigenous Fisheries and Marine Resources	Fish (sardine and anchovy) Freshwater fish (via aquaculture) Oysters (via mariculture) Seal products		Declining stocks of natural resource; shift to aqua/mariculture Freshwater Seal products have been banned by the EU		Can be a route out of poverty, but depends on biomass more than biodiversity

Source: MCA, NBRI 2010; MCA, 2010.

Annex 3: Summary of proposed reforms and measures to “unlock” Namibia’s BioTrade and green economy potential

Category	Proposes reform / measure and rationale
Infrastructural investments and reforms:	<ul style="list-style-type: none"> A widespread barrier presented to several BioTrade sectors is the inadequacy of veterinary services in the Northern Communal Areas (areas north of the VCF). A large number of goats, traditional cattle breeds such as the Sanga as well as wildlife are found north of the VCF, hampered by access to potentially lucrative export markets. Government is aware of these constraints and intends to address it by 2015, and some support to this end is forthcoming through the MCA’s infrastructural investment in rural areas. The need for value addition and storage facilities has been outlined and for the benefit of rural communities and the sustainability of the industries, it would be better in most cases if these facilities were located close to production sites in the rural areas. Given the shortages of electricity in rural areas and general water constraints, there is major scope here for green technology investments. As benefits of a green economy become more evident and convincing to policy-makers, they should consider further attention to off-grid renewable energy supply for rural communities, local value addition enterprises, solar and wind powered boreholes, electricity free meat-handling and storage facilities and conservation agriculture techniques to boost indigenous crop yields. All of these represent examples of how investments in “green infrastructure” can stimulate and support the emerging BioTrade sector. Infrastructure should of course always comply with the relevant legislation including on EIAs.
Sustainability analysis:	<ul style="list-style-type: none"> Increasing incomes from BioTrade relies on increasing supply of biodiversity (as well as further ‘Namibianising’ the value chain). What is the upper limit of supply, and what mechanisms might be in place to ensure the supply is managed and sustained are important questions to address through EIAs and other assessment tools. The sustainability of the resource base, use of water and energy in resource-scarce rural areas, low and declining yields of some products (e.g., mahangu), and the effects of the limited harvesting season on supply of some products are all threats to growing the supply of BioTrade products. The risks of water shortage and limited energy supply in rural areas should be analyzed in detail, especially if considerable parts of the value chains of several ‘biotradable’ products should be established in Namibia. Potentials for using renewable energy should be taken into consideration as well as the ones for closed loops recycling management.
Harmonisation of policies:	<ul style="list-style-type: none"> A coordinated approach for BioTrade is already emerging through the CBBT, but reducing fragmentation, and having mutually supportive policies must be a broader policy goal (independent of time-limited projects). The development of sector- and product-specific BioTrade policies will require ongoing attention. The devil’s claw policy and its strict permit system is a good example of a mechanism to formalise the supply chain. A similar process is underway for mahangu since it’s gazetted as a controlled crop. Such policies could also be used to increase awareness of the potential significance and value of BioTrade among trade agreement negotiators and the public at large. Establishment of the Namibia Environmental and Trade Forum (NEAT) as a sub-body of the National Trade Forum, would be a major stride for BioTrade policy-making and harmonisation of relevant policies. The RTEA (Jones et al. 2009) noted that given the vast and rapidly growing proliferation of green labels, certification and fair trade schemes, it is no wonder that Namibia would have difficulty keeping pace with all of the relevant initiatives that can find their way into international practice (even law) and potentially serve to disadvantage Namibian products. The NEAT would need to be complimented by further consideration of domestic policies (noted throughout section 3) that could hamper BioTrade development.
Level and sources of investment:	<ul style="list-style-type: none"> Engaging the private sector beyond the scope of specific projects will be essential to success, as equipment, storage facilities, infrastructure – all of these require sustained investments to be maintained. Many interventions are predicated on an assumption that private finance will be availed once initiatives have demonstrated their ability to yield returns. A PPP between Agribank and commercial banks with a larger network of branches could promote investment in agriculture and BioTrade opportunities. However, the lack of collateral among communal farmers poses a barrier to accessing formal financing. Innovative BioTrade financing schemes need to be explored and developed such as agricultural insurance. Proponents of BioTrade must work closely with banks, insurance companies, purchasers, wholesalers and other private sector sources of capital today, and even from the outset of planning a BioTrade intervention. Tailoring appropriate financial solutions for the various BioTrade sectors should not be left as an afterthought once the proof of concept has been demonstrated. A potential venture under discussion is the formation of a new company (“NewCo”) involved in the valorisation and commercialisation of indigenous cosmetic oils, which currently lead the Namibian product development pipeline. An important aim is to secure private sector investment for continuing, at a higher level of technology, the development of pipeline products started by the IPTT. The PPT would be a “sleeping partner” in NewCo, leaving commercial decision-making to its more experienced private sector collaborators. The majority of the PPT’s earnings from its equity holdings would be disbursed directly to primary producers. While commercial partners have expressed interest in investing in NewCo, the details of this innovative benefit-sharing mechanism are still under negotiation. NewCo could be more widely targeted to a number of BioTrade products. An equity ownership mechanism is currently being explored to optimise economic returns to primary producers by securing for them a share in the downstream value of their resource. The latest development in this regard is the proposed formation of a Primary Producers Trust (PPT) to own “generic equity” in various public-private partnership (PPP) ventures on behalf of primary producers.
Dissemination of information	<ul style="list-style-type: none"> INPs and wildlife, and to a lesser extent Indigenous Livestock Breeds, are on the radar of decision-makers, and demonstrating quantifiable results from policy reforms and investments. ICVs and aqua/mariculture have fared less well but show promise. Still additional products indicated in section 3.2.1 hold promise, and for example markets for products like seal meat remain (unnecessarily?) controversial and their potential remains unexplored. Investments into growing the awareness and understanding of BioTrade by decision-makers could stimulate attention to these unexplored sectors, building from the evident successes in better-known BioTrade products. Elsewhere in the paper a recommendation is made to continue tracking the contribution of GDP to BioTrade. To do this successfully would require much better dis-aggregated data, in particular on agriculture and fisheries. Investments into more natural resource accounts would also be essential to show the satellite GDP of these sectors.
Research	<ul style="list-style-type: none"> A common challenge reflected in many areas is the lack of comprehensive data on stakeholders (producers, traders, exporters) and on production, to appropriately target and design efforts. The MCA preparation phase and public consultation process was significant in filling information gaps, but more information at lower resolutions would improve the targeting of interventions. Still some lack of awareness in terms of the potential value of these resources to different markets (regional, European, Asian, etc) and consumer knowledge. Section 3 identified many gaps in knowledge which could be addressed through programmes of research: namely, valuation of ecosystem services (building from Natural Resource Accounts): research into promising INPs and ICVs (demand and supply side); market research for new BioTrade products, in particular for ICVs and aqua/mariculture opportunities; and research into the poverty reduction pathways of various BioTrade products).

Notes

- 1 In the National Stakeholder Workshop “Exploiting the Potential of BioTrade for Transitioning to a Green Economy,” participants argued for the adoption of a definition that would address the realities and needs of Namibia. Thus, for the purpose of this study and in the implementation of the CBBT initiative in Namibia, BioTrade is understood as “biodiversity-based businesses”.
- 2 The sustainable use of timber products does not count as BioTrade, however this specific figure cannot be desegregated. For more information see section on Indigenous Natural Products.
- 3 Central Intelligence Agency, World Factbook.
- 4 UNDP (2005). World Development Report of people living on USD 2.00 or less per day.
- 5 Central Intelligence Agency, The World Factbook; a newly updated figure is forthcoming from the national Planning Commission in 2012, but preliminary results confirm a population of 2.1 million.
- 6 The Gini-coefficient measures the degree of income inequality and ranges from 0 (perfect equality) to 1 (total inequality).
- 7 Figure obtained from UNDP. Gini coefficient was 0.71 in 2003 showing that inequality has risen.
- 8 Ibid. Unemployment rate was 36.7 per cent in 2004 which shows that there has been a considerable increase in unemployment in a short period of time.
- 9 Source: CBS / NPC (2010).
- 10 NPC. (2001, 2008) and Bauer (2002).
- 11 The other is the newly recognized Horn of Africa.
- 12 There is in some cases a risk of double-counting the contribution of NTFPs to BioTrade, e.g., Marula oil.
- 13 Source: www.mopane.org.
- 14 Several others (Baobab oil and pulp, Nara oil, Mopane essential oil, Marula juice and fruit pulp, Commiphora resin, Devil’s claw, Hoodia, Terminalia root bark, Manketti fruit and Makalani fruit) are at various stages of the pipeline, and many other indigenous resources have been identified as possibly having commercial potential (Drews et al. 2008).
- 15 Precise figures are difficult to ascertain as on-the-ground activities are carried out by a wide range of organizations.
- 16 Bioprospecting refers to scientific tests and research conducted with the objective of identifying potential usages and applications of natural products.
- 17 Biopiracy refers to situations in which indigenous knowledge is exploited for commercial gain with no compensation to the indigenous people themselves.
- 18 Source: Drews et al. (2008).
- 19 Information updated February 2012 at http://www.nacso.org.na/SOC_profiles/conservancysummary.php
- 20 Source: <ftp://ftp.fao.org/docrep/fao/008/af315e/af315e00.pdf>
- 21 Such protection is unlikely to be necessary for any of the BioTrade-related industries. The reason being that BioTrade products are unlikely to compete on the domestic market with more competitive goods from abroad.
- 22 Importantly, it is not only financial assistance that is provided but also technical and marketing support.
- 23 Source: <http://www.leatherlux.com/index.php?id=28>, and <http://www.openafrica.org/participant/kalahari-wild-silk-company>
- 24 Sometimes there are shortages across the supply chain, especially due to unavailability of trained harvesting teams.
- 25 The concept of “food miles” is buying produce which has travelled the shortest possible distance from farm to plate. The concept of “fair miles” is buying produce which comes from less economically developed countries so that the money gives some of the poorest people a chance to earn a decent living (contributing to poverty reduction).
- 26 Figures are latest from the websites of the Figures from the Soil Association and Fair trade Foundations respectively.
- 27 See Leisher et al. (2010). Summary of Poverty Reduction Evidence for Conservation Mechanisms on page 14 for a useful state-of-knowledge review.
- 28 Source: <http://www.nacso.org.na/index.php/registry> updated in February 2012 to 71 registered communal conservancies.
- 29 Information of 2010.
- 30 FIDES Bank Namibia is the only microfinance bank in Namibia; it received its license from Bank of Namibia in February 2010, after the Koshi Yomuti ELO pilot project successfully demonstrated that microfinance operations can sustainably be conducted in the region. With headquarters in Ongwediva, in the North-Central part of the country, FIDES Bank Namibia has operations in the four ‘O’ regions (that is Ohangwena, Omusati, Oshana and Oshikoto). More information available at <http://www.fidesbank.co.na/>

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