

REPORT

# Formalisation and the non-timber forest product sector

Experiences from Southern Africa

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Center for International Forestry Research  
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## Reports

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# 1. Introduction and scope of study

This paper has been prepared as part of a wider study spearheaded by CIFOR on behalf of the European Commission, titled 'Policy and regulatory options to recognise and better integrate the domestic timber sector in tropical countries'.

The research seeks to answer the central research question that underpins the overall study: What are the reasons for formalisation, and the effects and costs of formalisation within each scenario?

This study, focused on the non-timber forest product<sup>1</sup> (NTFP) 'sector' in southern Africa, was commissioned as one of the case analyses on experiences of formalisation of informal sectors. By its very nature, the NTFP sector is largely informal and loosely regulated, and as such there is much to learn about the impacts of formalisation. To gain deeper insights into these impacts four case studies of commercialised species were analysed:

- The evolution of formalisation measures in Zimbabwe for bark and fruit harvesting of the iconic baobab tree, *Adansonia digitata*,
- The customary and statutory regulation in South Africa and Namibia of the marula tree, *Sclerocarya birrea*, and its products,
- The impact of diverse formalisation measures in South Africa and Namibia for *Hoodia*, a succulent plant under development as an appetite suppressant, and
- The complex governance arrangements that have evolved in South Africa and Lesotho to manage use of *Pelargonium sidoides*, which is incorporated into a top-selling bronchial remedy in global markets.

The paper is presented in four main parts. The next section provides an overview of some of the central governance issues affecting the use and trade of biodiversity and wild products, both globally and within southern Africa. It is followed by a more detailed analysis of the four case studies, which centre on NTFPs that are increasingly incorporated into herbal remedies, cosmetics, as well as novel and functional foods to supply a growing global market. The third section seeks to assess experiences within each case study regarding the drivers, impacts and effectiveness of formalisation, while the last section draws together key policy implications and recommendations.

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1 The term non-timber forest product (NTFP) is used to describe a wide range of biological resources that originate from the 'forest' except timber and fuelwood.

## 2. The governance of NTFPs and genetic resources: An overview

### 2.1. The diversity and complexity of NTFP and genetic resource governance

There has been increasing attention over the last few decades on the potential for NTFP commercialisation to contribute to biodiversity conservation and improved livelihoods for local communities (e.g. Clay, 1992; Plotkin and Famolare, 1992; Arnold and Ruiz- Pérez, 2001; Ruiz- Pérez *et al.*, 2005; Belcher and Schreckenberg, 2007; Marshall *et al.*, 2006). However, in most regions little attention has been given to the way in which formalisation has evolved to regulate these activities (Laird *et al.*, 2010).

Non-timber forest products contribute substantially to rural livelihoods (Neumann and Hirsch, 2000; Shackleton and Shackleton, 2004), but they do so in ways that are 'invisible' to policymakers and difficult to regulate, tax and manage as a sector. Harvesters are primarily drawn from the least powerful members of society, the rural poor, and few NTFPs are of great economic value (Hecht *et al.*, 1988; Shanley *et al.*, 2002; Shackleton and Shackleton, 2004). Those NTFPs that have attracted government attention are typically more industrialised.

Non-timber forest product regulatory frameworks are characterised by a complex and often confusing mix of measures, overseen by a wide range of sometimes competing institutions (Antypas *et al.*, 2002; Laird *et al.*, 2011). What laws do exist are often poorly implemented because government resources and capacity are rarely allocated for what are perceived as 'minor' products (Tomich, 1996).

In part, this state of affairs is due to the diverse nature of NTFPs. Unlike timber or agricultural crops, NTFPs include a broad range of species with extremely different ecological, livelihood and market niches, and equally diverse management and trade practices, end products and consumers. Policy measures are similarly diverse, varying from those that directly regulate resource use through to others that indirectly, but significantly, impact use, such as taxation, quality standards and trade restrictions (Laird *et al.*, 2010). Overlying these complexities are different types of land ownership – including communal, private and various tiers of state control – different access regimes, from strict prohibitions on use through to open access, along with the multiplicity of institutions involved in administering these different scenarios. Confusion often exists over what is being regulated and why, and there is inconsistency in the development and implementation of different bodies of law and policy. Moreover, surprisingly little attention has been given to the role played by customary law in regulating use of NTFPs.

The governance<sup>2</sup> of NTFPs and genetic resources has become even more complex over the past 20 years, in large part due to the 1992 adoption of the Convention on Biological Diversity (CBD). As a result of the CBD, companies and researchers wishing to obtain access to biological material and

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2 By governance we refer not only to government regulation and law enforcement, but also to the 'political, institutional, and cultural frameworks through which diverse interests in natural and cultural resources are coordinated and controlled' (Cronkleton *et al.*, 2008, p. 1).

associated traditional knowledge are now required to show how the providers of resources and knowledge will benefit. Moreover, such access is conditional on benefits being fair and equitable and on receiving the prior informed consent of providers. The CBD set in place an access and benefit-sharing (ABS) framework to address decades of inequitable exchange between rich and poor nations, but the activities it sought to regulate, and its objectives, are diverse and have proved difficult to implement in simple and effective ways in many countries (Wynberg and Laird, 2007a; Laird and Wynberg, 2008).

Although the ABS concept has been embedded in international law for almost 20 years, this has been confined largely to ‘genetic resources’, and based on traditional bioprospecting activities such as the collection and screening of biological samples to identify novel compounds for drug development, new crop varieties, cosmetics or biotechnology products. Increasingly, however, wider trade in biodiversity beyond genetic resources that includes ‘biological resources’ or NTFPs – commonly referred to as ‘biotrade’ – is incorporated into ABS regulatory frameworks in an effort to bring the equity and sustainability concerns of ABS to commodity raw material trade for herbal medicines, cosmetics, and food products. The result is an added layer of complexity to an already unwieldy ABS policy process, with potential concerns that this recent expansion of the scope of ABS will negatively impact livelihoods and sustainability. Moreover, the addition of ‘biological resources’ draws into the ABS process a range of existing measures in forestry, agriculture and other bodies of law that already suffer from poor design and implementation (Laird *et al.*, 2010). This, overlain with a broader suite of policies and laws to regulate the movement of genetic and biological resources, means that the governance of these resources has increasingly become entangled with issues pertaining to intellectual property rights, trade, species conservation, science and technology, bioethics, health, poverty alleviation, taxation and a suite of standards linked to fair trade, corporate social responsibility and organic certification.

## **2.2. The governance of NTFPs and genetic resources in southern Africa**

The complexity of these policy frameworks is well reflected in southern Africa, a region that not only contains a remarkable richness of biodiversity, largely due to its mix of tropical and temperate climates and habitats, but is also the hub for a number of NTFP commercialisation initiatives. Common to all countries are massive development problems, the highest rates of HIV/AIDS in the world, rising unemployment and levels of income inequality considerably higher than in the rest of Africa (Sawer and Stillwagon, 2010). Excluding South Africa, 71% of people in the region live on less than US\$2 per day (Sawer and Stillwagon, 2010) and, although some headway has been made in recent years, millions of people still lack access to basic services such as water, sanitation and electricity.

The case studies that follow draw on experiences from South Africa, Namibia, Zimbabwe and Lesotho, and are thus located within a diverse array of policy and regulatory frameworks and political contexts and at a variety of scales. Zimbabwe, for example, has undergone a number of intense governance changes from the colonial to post-colonial period, including initiatives to centralise, decentralise and democratise natural resource governance, and economic and land reform policies with far reaching effects (Kozanayi *et al.*, 2012). NTFPs are typically managed *de facto* by customary systems, but alongside statutory laws and against a background of extreme political instability. South Africa and Namibia have a similar context of legal pluralism, but are relatively stable politically, albeit with vastly different geographies, economies and political administrations. Systems of customary governance for natural resources exist in both countries, but are much more pronounced in Namibia and in rural parts of South Africa which retain effective and

legitimate traditional institutions. These are overlaid by statutory systems which, in South Africa, regulate NTFPs concurrently at both national and provincial tiers of government, and in Namibia at national level only. In all case study countries, tensions are evident between trends towards decentralisation and locally based natural resource management on the one hand, and approaches that favour centralised political control on the other. This tension is manifested in a lack of clarity surrounding the regulation of NTFPs.

Increasingly, biodiversity conservation, NTFP trade, traditional knowledge, intellectual property protection and ABS are under the legal spotlight in the region, and many countries, including South Africa, Namibia, Zimbabwe and Lesotho, have adopted national and regional laws to comply with international agreements and policies governing these issues. Some of the key international treaties are the CBD, the Convention on Trade in Endangered Species (CITES), the International Treaty on Plant Genetic Resources for Food and Agriculture and the Trade-Related Intellectual Property Rights (TRIPS) Agreement of the World Trade Organization. These treaties have been complemented by policy statements such as the United Nations Declaration on the Rights of Indigenous Peoples, which represents a crucial advance in furthering the rights of indigenous peoples (UN, 2008). National and regional experiences of implementing these various agreements are extremely varied but, as the case studies below describe, have in common a certain degree of legal novelty and fluidity because of the untested nature and newness of the issues.

## 3. Formalisation case studies

The following case studies are based on empirical work carried out in southern Africa over the past decade. The resources examined in each of the cases fulfil different roles in the lives of communities involved in their use, and different approaches towards formalisation have been implemented by the governments of the southern African states where these resources naturally occur. By focusing on the interface between government and customary regulation, and examining the distribution of benefits and costs, each case study proffers a set of lessons for formalisation in other sectors.

In each case:

- the resource, its local and commercial uses, and key actors in the value chain are introduced;
- the history of formalisation is explained, including underpinning reasons for and approaches to formalisation;
- the effectiveness of formalisation – especially in terms of the impact on informal systems is analysed; and
- the overall impact of the formalisation process is briefly summarised.

### 3.1. Case study 1: Baobab

By Witness Kozanayi

#### 3.1.1. Introduction

Baobab (*Adansonia digitata*), also known as ‘the upside-down-tree’, is one of the most distinctive and useful trees in the African landscape and is reported to be able to survive as long as 5000 years (Sidibe and Williams, 2002). The tree is usually found in the drier parts of the savanna although it also occurs in forest areas, probably in association with human habitation (Mudavanhu, 1998; Sidibe and Williams, 2002). Historically, management of baobab trees has always fallen under the purview of customary systems, but with increased effort to commercialise products made from the trees, the state has intervened through putting in place formalisation measures aimed at ensuring ecological and economic sustainability.

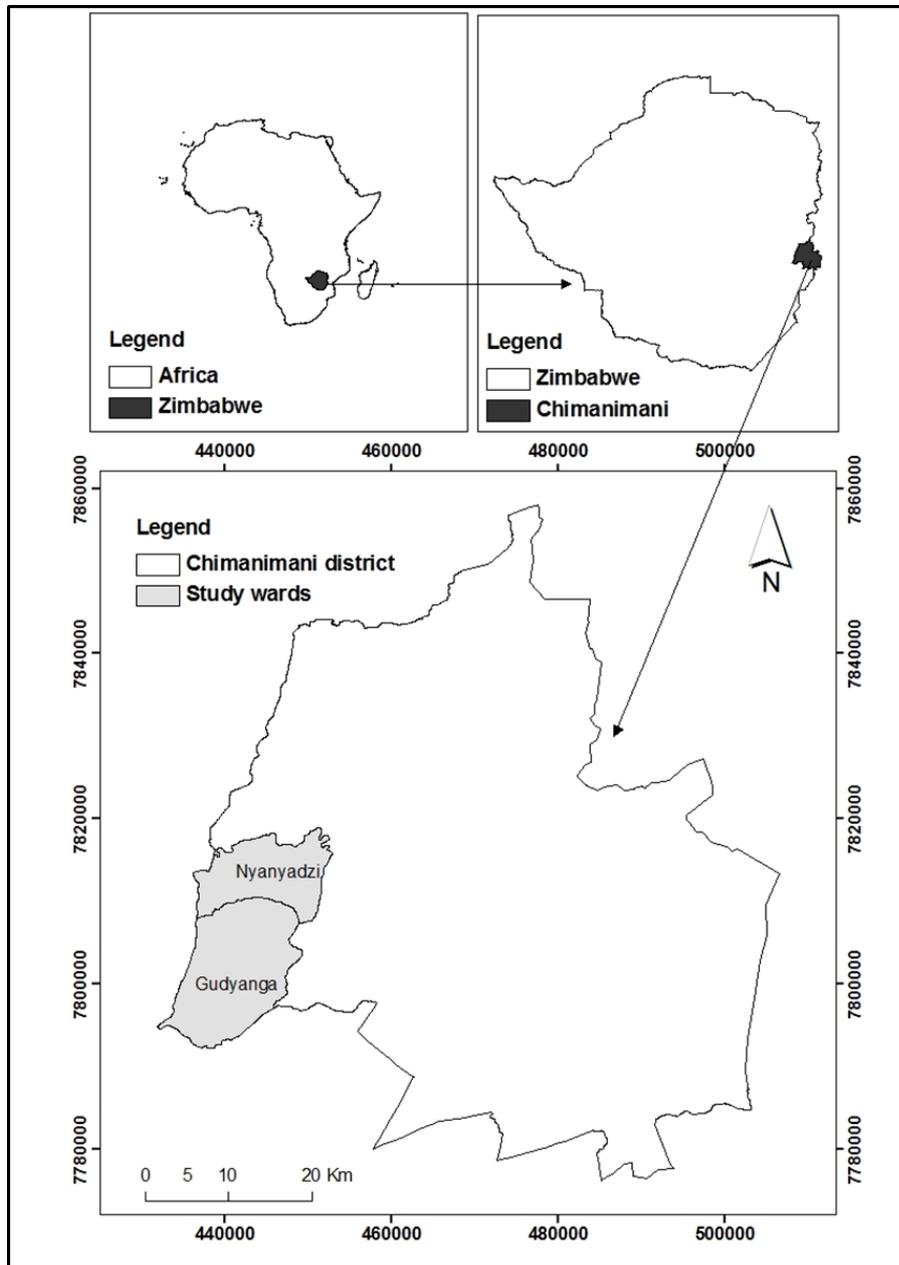
This case study reports on research conducted in the Chimanimani District, Manicaland Province, Zimbabwe, situated on the border with Mozambique. Annual rainfall for the area is 450mm – too little to support rain-fed crop production – and there are recurrent droughts in the area. Despite conservation by-laws, protection of natural resources in the district is weak. The indiscriminate debarking of baobab trees has been identified as one of the key environmental challenges in the 5-year strategic plan for the district (CRDC, 2012).

Research was carried out in two wards in Chimanimani District, namely Nyanyadzi and Gudyanga (see Figure 1). Both wards have a long history of baobab product use. Most baobab trees in the area are communally owned, and have historically been managed via customary systems.

#### *Uses of the baobab tree*

The baobab tree has a multitude of uses, with Sanchez (2010) reporting over 300. Besides utilising the fruit, bark and leaves, the size and shape of the tree lends itself to spaces for water storage, prisons, toilets, burial grounds, sleeping places, shelters, ritual sites and venues for prayers (Mukamuri and Kozanayi, 1999; Wickens and Lowe, 2008).

The study area has one of the highest baobab densities in the district at 3 to 21 trees per hectare (Mudavanhu, 1998; Romeo *et al.*, 2001) and at least 70% of residents use baobab products (Mutasa, 2008). Some households in Nyanyadzi realise between US\$350 and US\$1500 per year from direct or indirect involvement with baobab-related projects (Kwaramba, 1995; Luckert *et al.*, 2001).



**Figure 1. Location of baobab study sites**

### *Commercialisation of baobab products*

Commercial use of the tree centres on its fruit, seeds and fibrous bark. Local residents have been making crafts from baobab fibre and exporting these to South Africa since the early 1990s. Business for baobab fruits is also booming as fruits are sold in urban areas or processed into pulp which is either sold to national confectionery companies or exported. The seed oil is also exported for use in the cosmetics industry.

The existence of a ready market has contributed significantly to the fast growth of the baobab industry. The recent granting of Novel Foods status for baobab by the European Union (OJEU, 2008) and Generally Regarded As Safe (GRAS) status by the USA in 2009 has opened up new and bigger markets for baobab products (Addy, 2009). The Overseas Development Institute (ODI, 2006) has projected that the European market for baobab products could initially generate more than US\$750 million annually for producer countries in southern Africa per year, making it the highest earner of all traded NTFPs in the region. With increased volumes, this annual income could rise to an estimated US\$1 billion, benefiting over 2.6 million people along the marketing chain (Bennet, 2006; RTFP, 2007).

Zimbabwe has great potential to export baobab products, and the high density of trees in the study area provides a ready resource for these markets. There is therefore a need to manage the resource base to avoid over-exploitation and skewed distribution of benefits.

#### *Members of the value chain*

A number of stakeholders are involved in the baobab value chain. These include local harvesters, the private sector, the state, non-governmental organisations (NGOs), and traditional authorities. PhytoTrade Africa, a non-profit trade association promoting sustainable production and fair trade for southern African natural products, is one of the biggest players in the processing and export of baobab products. It has 58 member organisations that supply it with dried fruit pulp and baobab oil and collaborates with local NGOs to mobilise rural communities in the sustainable harvesting and processing of baobab products. Some commercial banks are also actively involved in the baobab value chain through provision of credit lines to groups in rural areas that supply baobab products. At the local level skilled crafts people process baobab fibre into crafts and specialised bark collectors supply the craft industry with raw material. Groups of fruit collectors crush the fruits to extract pulp which is sold to local 'cottage industries' or to buyers like PhytoTrade Africa and Speciality Food Africa. Figure 2 provides an overview of the baobab value chain.

### **3.1.2. The formalisation process**

#### **Key drivers of formalisation**

A number of factors have driven the formalisation of baobab management, including the need to meet global obligations, ecological concerns, local authorities seeing it as a vehicle for raising revenue and the state's attempt at ensuring social justice.

#### *Need to meet global obligations*

At the global scale, the signing of the CBD and Zimbabwe's participation at the Rio Earth Summit in 1992 were landmark developments in the management of local resources with regard to the rights and role of local communities. In particular, the CBD articles 8(j), 10(c) and 15 gave credence to respecting and recognising cultural values in the management of natural resources. Zimbabwe started the process of revising its environmental laws in 1992, culminating in the enactment of the Environmental Management Act (EMA, Chapter 20:27) in 2002. The reforms were meant to produce an Act that would ensure biological conservation and improvement of the welfare of local resource users. Active participation of the local populace in the management of natural resources was also incorporated into EMA. Thus, the intent was that communities could benefit from local resources.

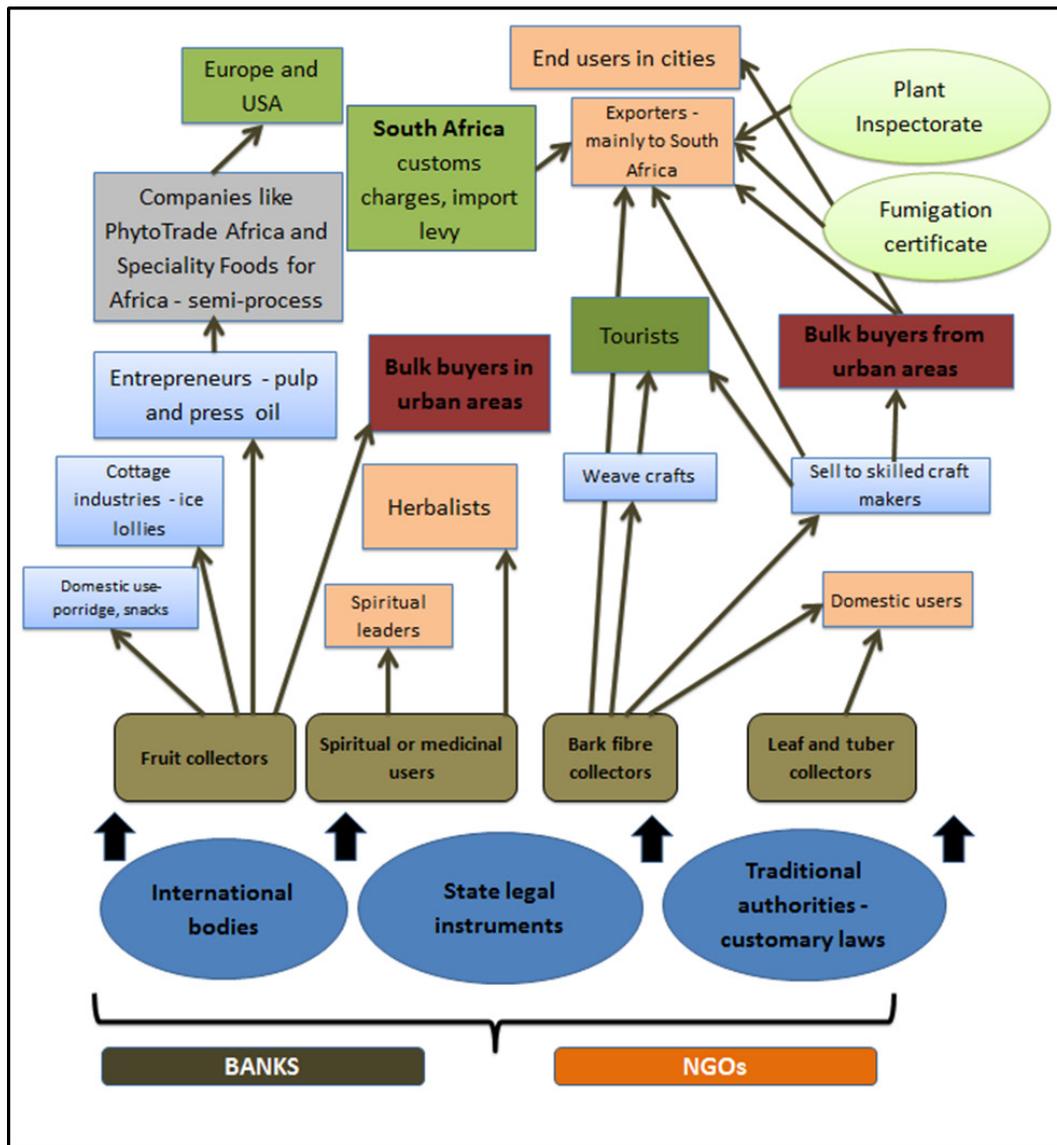


Figure 2. Value chain for baobab products

*Over-harvesting and ecological concerns*

Ecological concerns were another factor driving the development of formalisation initiatives. Government officers mentioned that they actively had to intervene in the management of baobab trees because they had a duty to care. In particular they were concerned about bark over-harvesting.

Debates about the conservation of the baobab tree started with the discovery of black soot disease in the 1940s and later in the 1980s (Calvert, 1989). However, serious concerns about the management of the tree in Nyanyadzi began in the 1990s when there was heavy debarking of trees by locals to get fibre to make mats for sale to a booming tourism industry. Deservedly, Nyanyadzi has been identified as the epicentre of baobab degradation by the Forestry Commission (FC), which is focusing its efforts on addressing the problem in this area.

### *Source of revenue*

Economic incentives constitute an important driver of formalisation. The Council has few funds and wants to boost its coffers. It makes sporadic trips to the study site to collect harvesting levies or impose fines on those members who are fully paid up. Once ticketed for non-compliance, producers are expected to pay the fine at Chimanimani. The Council controls all fiscal matters – it does not devolve that role to local actors as it does other responsibilities, such as resource use monitoring.

### *Ensuring social justice*

To ensure that proceeds from the baobab industry were equitably distributed, the state had to come up with mechanisms that ensured social justice. All stakeholders involved, including Council as the appropriate authority responsible for all natural resources in its jurisdiction, had to benefit from commercialisation of baobab products. Council officials claim that when they realised that the baobab industry was lucrative they decided to intervene to ensure that everyone in the community benefited, including themselves as the appropriate authority for all natural resources. The Council would benefit through collection of marketing levies while the state at large would benefit through a permit system administered by the FC for all bulk harvests and exports.

### **Governance context**

A number of laws regulate the use of natural resources in Zimbabwe and impact on customary systems. Table 1 summarises the key impacts of each of the initiatives and suggests that most laws recognise the role of local people in the management of natural resources and make a case for the involvement of traditional authorities. However, by and large, technical officials view local people as agents of resource degradation, and not as potential co-managers.

### *Approach to formalisation*

Along with the laws described in Table 1, ecological factors such as the discovery of black soot disease, economic factors such as the tourism boom in the 1990s, and the subsequent economic meltdown around 2009, as well as government interventions at the national level not strictly related to natural resources, for instance the land reform programme, all had an impact on the formalisation process. Figure 3 illustrates the history of formalisation initiatives for baobab in Zimbabwe.

### ***The Traditional Leaders Act (TLA) (1998)***

This act bestows powers on traditional leaders which had previously been taken away from them by the state. While the TLA gives traditional leaders authority to partake in the management of natural resources, such powers are limited though the provisions of the more powerful Rural District Council Act which recognises the Rural District Council (RDC) as the supreme authority responsible for all natural resources in its jurisdiction. To many analysts, the intention, if not spirit, of the TLA was largely to pacify traditional leaders and resolve the acrimony, which had emerged between the traditional leaders and the newly instituted parallel governance structure of village and ward development committees.

**Table 1. Key laws that influence customary systems and baobab use patterns**

Act	Key provisions	Implications for baobab use
Environmental Management Act (EMA) Chapter 20:27 (Act No. 13 of 2002)	The principal legislation in the country providing a broad framework for the conservation and sustainable use of all natural resources. It makes explicit the rights of communities to have access to and enjoy the benefits of participating in the conservation of the country's biodiversity.	The EMA has the potential to support local management for baobab.
Traditional Leaders Act (TLA) 29:17 (Act No. 28 of 1998)	Empowers traditional leaders to participate actively in the conservation of all natural resources that fall within their jurisdiction. Bestows a wide range of powers on traditional leaders. Provides for the appointment of traditional leaders from village head through to chief.	Very few traditional leaders are conversant with the provisions of the TLA.
Rural District Councils (RDC) Act Chapter 29:13 (Act No. 8 of 1988)	Vests Councils with powers to raise revenue from levies, taxes and tariffs. EMA, through statutory Instrument 8 of 2009 replaced Natural Resources Subcommittees (RDC Act, section 61 of RDC Act Chapter 29:13) in 2009 with Village and Ward Environment Management Committees (VEMEC and WEMEC) which have powers to arrest anyone found violating district environmental by-laws.	Resource users feel that the Chimanimani RDC is using its fiscal power excessively by collecting annual levies – even from poor traders. The RDC is allegedly not providing services commensurate with taxes or levies collected. VEMECs and WEMECs sometimes fight with traditional authorities on matters of procedures. WEMECs are not incentivised.
The Communal Land Forest Produce Act Chapter 19:04 (Act No. 20 of 1987)	Restricts exploitation of natural resources by local communities to own/personal use. Commercial harvesting is regulated by RDCs – usually through issuance of concessions. Provides for the gazetting of certain tree species, largely on the basis of extinction threats.	Criminalises commercial utilisation of natural resources. Sometimes used by the FC to prosecute those who harvest baobab products for commercial use. The baobab tree is not gazetted despite its importance and threat from over-harvesting.
The Forestry Act Chapter 19:04 (Act No. 37 of 1949)	Deals with all forestry resources in the country, regardless of tenure. The FC is the regulatory authority on all forestry issues and grants permits to all timber and non-timber resource harvesters.	The FC is seen as trying to usurp the fiscal role of the traditional authority regarding use of baobab products through collection of levies from baobab craft vendors and collection of fines from offenders.
By-laws at ward level as enshrined in the RDC Act (Act No. 8 of 1988)	Residents in Gudyanga and Nyanyadzi, with the help of EAfrica, a local NGO, and the RDC, EMA and FC have crafted by-laws that govern the management of baobab resources.	Enforcement of the by-laws is problematic due to lack of incentivised personnel on the ground. Logistical problems include the need for the Ward Councillor, Village Head and WEMEC to jointly approve harvesting of baobab products especially fibre yet these live apart.

Source: (Kozanayi *et al.*, 2012)

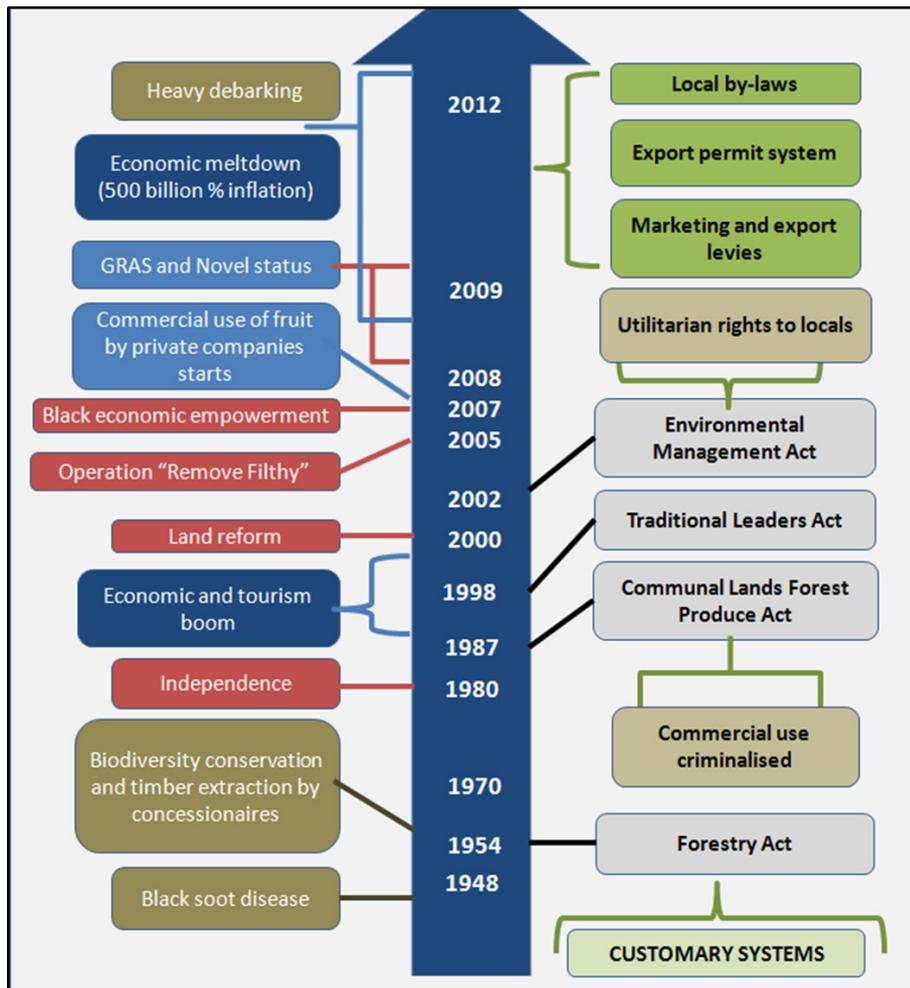


Figure 3. The evolution of the formalisation process in the baobab industry

As the state's support from the electorate continued to wane in the face of a powerful opposition, it further enticed traditional leaders by giving paramount chiefs vehicles and electrifying their homesteads, while allowances for village heads and headmen were constantly reviewed upwards. While this was a strategy meant to win back the allegiance of traditional rulers for purposes of votes and political expedience, the strategy had unintended consequences. This practice has undermined the authority of the traditional leaders who are now viewed by local people as an extension of the state, which is losing popularity among the electorate.

### ***The land reform programme (2000 and beyond)***

The fast-track land reform program in Zimbabwe was a watershed moment in the ownership and use of natural resources in the country. Resources that were previously privately owned, such as baobab trees in the Devure/Save Conservancy became communally owned after part of the conservancy was annexed and redistributed to new farmers. Use patterns of resources under the new regime also changed, becoming indiscriminate (Chigumira, 2010). The mantra around land reform has been that 'land is the economy, and the economy is land', with land and every resource on it being used to boost the economy. Thus intensive use of natural resources, however disastrous, was synchronised with the national drive. Local residents claim that the post-2000 period ushered in an era of wanton destruction of natural resources, including the baobab tree.

### ***Operation Murambatsvina ('Operation Remove Filthy') (2005)***

A government intervention that had a profound impact on the formalisation process is Operation Murambatsvina ('Operation Remove Filthy'), a hugely unpopular national programme initiated by the government in 2005 to destroy all illegal settlements – initially in urban areas, and then along major highways. More than 90% of all market stalls for baobab crafts in the study site were destroyed as part of this programme.

### ***Black economic empowerment (2007)***

The Indigenisation and Economic Empowerment Act (14 of 2007) was a deliberate attempt to involve indigenous Zimbabweans in the country's economic activities to which they previously had no access, so as to ensure the equitable ownership of the nation's resources. The euphoria with which this Act was received was similar to that of independence in 1980, which was viewed as freedom to do anything one wanted including settling in fragile environments that had previously been demarcated as grazing areas. Locally, economic empowerment has been taken to mean the liberty to use resources in any way for one's own benefit.

### ***By-laws of Chimanimani (2007)***

Despite the participation of local people in the crafting of by-laws, compliance is very weak. Locals attribute this to weak monitoring and enforcement. The only structures that are on the ground to enforce the by-laws are the ward councillors and the Ward Environment Management Committees (WEMECs). The ward councillor as an elected office bearer and a politician would not enforce policies that cost him/her political capital. Such policies would include denying locals access to their lifeline of baobab products. WEMEC is demotivated and there are no incentives for enforcing otherwise unpopular policies among their kith and kin.

### ***Permitting arrangements***

Other mechanisms that govern baobab use include the introduction of an annual marketing levy (US\$10) that all traders have to pay. Council collects the levy and is supposed to invest part of the revenue in local projects. However, to date, no such projects have been supported using such revenue.

The FC monitors local-use patterns through issuing harvesting permits to 'bulk' harvesters.<sup>3</sup> The process followed is thus: before harvesting commences, the resource harvester has to approach the FC who inspects the resource base at a cost of US\$20. If the FC is satisfied with the harvesting mechanism, they certify that harvesting may go ahead, upon which the harvester will then have to pay a harvesting fee to Council (the local authority with jurisdiction over all natural resources in the district). Once the resource has been harvested, the harvester will still have to pay the FC for a movement permit to be able to move the resource from one area to another. Exporters have to pay US\$10 or 1% of the value of the goods to be exported (whichever of the two is greater) to the FC.

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<sup>3</sup> The Communal Lands Forest Produce Act (1987) is the basis for this system and stipulates that use of natural resources should be for own or local use without giving indications of quantities that qualify as local use.

The Ministry of Agriculture through the Plant Inspectorate Department also monitors export through issuing fumigation certificates to craft exporters. Cross-border traders reported that they pay R100 (about US\$12)<sup>4</sup> to get the certificate.

Overall, the permitting system is complicated and costly to both the harvesters and the government departments involved in policing. Government departments are stationed over 130 km away from Nyanyadzi and do not have vehicles to move around. On the other hand, it is costly for resource harvesters to travel to and from Chimanimani Administrative Centre (a one-way trip by public transport costs US\$14).

### **3.1.3. Effectiveness of formalisation**

#### **Social costs and benefits**

##### *Women are left out of the export business*

Corruption is reportedly rampant at the border if one wants to avoid the hassle and financial cost of paying levies. Former female cross-border traders claimed that some of the actors involved in the 'wheeling and dealing', e.g. *Maguma guma*,<sup>5</sup> ask for sexual favours as a form of payment. With a high HIV and AIDS infection rate (17%) in the area, compliance is a very risky pursuit. Because of the abuse at the border, many cross-border female traders now focus on working as weavers and leave the more lucrative cross-border trade to men.

##### *Craft makers and traders are demanding fiscal accountability*

Craft traders with marketing stalls along the highway demand services that are commensurate to the tax they pay to the RDC. In particular, they argue that Council should construct toilets at key vending sites. Until and unless the RDC is able to provide these, some of the craft makers have vowed to withhold the craft sellers' levy to the RDC. This chokes the RDC as taxes/levies from residents in the district are one of the key sources of revenue for the district (CRDC, 2012).

##### *Erosion of local practices*

Because of a ready market for baobab products, fruits are harvested before they fall onto the ground as dictated by customary practices. Harvesting of unripe fruits is taboo, as it is believed that it will court the rage of spirits of the land.

##### *Destruction of sources of livelihoods for the local traders*

Permanent vending stalls along the highway, some of which were constructed in the 1940s, were demolished in 2005 by the state under a UNDP-condemned operation, code-named Operation Murambatsvina (Operation Remove Filthy), initiated ostensibly to sanitise all urban areas by removing illegal structures. While this operation had urban areas as its target, it was later expanded to include small settlements and highways, meaning that affected households lost their source of income (Tibajuka, 2005).

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4 Exchange rate at 13 July 2012 (US\$1 = R8.3)

5 Touts who help dealers and people crossing the border illegally to evade customs and immigration officials. It is alleged they also double as agents for corrupt government officials at the border.

## **Ecological costs and benefits**

### *Increased debarking*

Since the introduction of the annual marketing levy there has been a concomitant rise in the level of debarking of baobab trees. Reasons proffered by some traditional leaders were that payment of an annual marketing levy has been misconstrued by resource harvesters as a license to harvest baobab products freely.

Even trees around homesteads have not been spared from the heavy debarking regime. This is partly because traditional leaders (the main regulatory authority) have restricted influence or control over trees around individuals' homesteads. A homestead owner may claim that he/she has undertaken some rituals under trees at the homestead, thereby making the tree sacred and safe from debarking.

### *Removal of germplasm from the area*

The FC recognises pulp and oil-producing groups in the study area and encourages harvesters to form groups for easy monitoring. Fruits are either sold in urban areas or crushed into oil leaving no genetic material for reproduction, resulting in reduced recruitment. Local leaders fear that by allowing such practices, not enough seed is left to germinate. Further, it is believed that this practice disturbs the ecosystem, as wild animals that depend on baobab are left starving.

### *Reduced fruiting*

Locals mentioned that the fruiting pattern of the baobab has been negatively affected by heavy debarking and an upsurge of black soot disease. Preliminary results from an ecological survey show that at least 31% of the sample trees did not produce any fruit during the 2010/11 fruiting season, while the majority produced less than 200 fruit. Earlier work done in the study site before the level of debarking rose showed that on average fruit trees produced 450 fruits per season (Mudavanhu, 1998).

### *Heavy use of complementary tree products*

Baobab bark fibre is boiled with bark from other species such as *Berchemia discolor*, *Acacia* spp., *Commiphora* spp. and *Ficus* spp. to dye it. Like the baobab tree, these trees are also heavily debarked. *B. discolor* is worst affected, as craft makers use the roots to dye the baobab fibre.

## **Economic costs and benefits**

### *Financial beneficiaries*

Formalisation has brought a number of costs and benefits to different actors. Benefits to local users are few, with young, educated men who are able to export crafts to neighbouring countries being the main beneficiaries. Remaining community members tend to occupy the lower end of the production chain where they semi-process products such as fibre (into cords for weaving) or fruit (for pulp collection).

Other actors who have benefited include corrupt traditional leaders who charge 'expedite fees' to product harvesters as a way to navigate the WEMEC's onerous permitting systems. It is difficult to account for the benefits accruing to the corrupt officials due to the illegitimate nature of the transactions involved. Others who benefit include the *Maguma guma* who 'facilitate' the export of crafts without payment of requisite taxes and levies.

### *Lost revenue*

Craft traders cannot display their wares along the highway fearing that the FC may pounce on the market and take away all the crafts if the trader has not paid the annual marketing levy. Instead, craft makers display poor quality crafts which, if taken away by the state during sporadic raids, will not be such a huge loss.

The state also incurs high costs in attempting to enforce policy. The RDC is located at least 120 km away from Nyanyadzi. Travelling to and from Nyanyadzi to collect revenue or tax is costly. The local WEMEC officer is not allowed to collect any cash for monitoring purposes, he only has powers to issue fines.

It is noteworthy that some of the early craft makers were able to invest in projects such as grocery shops, and could build modern houses and invest in the education of their children by enrolling them at boarding schools, where the quality of education is usually of a good standard. Annual incomes from trade in baobab products range from US\$350 to US\$1500 per household (Kwaramba, 1995; Luckert *et al.*, 2001); however, stringent export requirements, coupled with a decline in the performance of the national economy, have reduced the income craft makers used to get from their trade.

### *Complex tax regimes*

Exporters of baobab products to South Africa are required to pay for Plant Inspectorate and Fumigation Certificates, which cost R100 (US\$12) each. Ideally, the issuance of the fumigation certificate should be accompanied by the actual fumigation of the crafts. However, this is not done and baobab bark products, especially mats, can become mouldy if they are exposed to wet conditions. The exporter must also get a forestry export permit. The licence shows that whatever forest product the trader is exporting or selling has been certified by the FC as appropriately harvested. On the South African side, the South African Revenue Services (SARS) charges an import duty – pegged at R5.80 (US\$0.8) per mat. To circumvent the bureaucracy of getting the certificates, cross-border craft traders engage in corrupt practices with customs officials.

During the period of serious foreign currency shortage (2007/08), all informal traders were required to have a foreign currency bank account into which they would deposit revenue from their trading business. The state would then levy 5% on the depositors as an administrative fee. This requirement forced informal traders to resort to importing goods (especially food) for resale rather than repatriating or banking cash generated from sale of baobab crafts. Big exporters are expected to have an Import General License. While getting this document has some administrative challenges, being in possession of it enables one to access lines of credit from banks more easily. Most of the small informal cross-border traders in Nyanyadzi reported that they do not have either a Forex bank account or the Import General License. They argued that they were too small to be detected by the state. More importantly, they argued that once they registered their business they would have to pay tax to the government. Good behaviour, so goes their argument, is punishable by the state through imposition of a biting tax regime. Thus, we can conclude, formalisation has had the effect of driving local people's business 'under the state radar'.

## **Overall impact on informal systems**

### *Softening of stance by the state*

'I am in a tricky situation. You know they say once a forester, always a forester. If there are no trees around, then I become irrelevant as a forester. But we cannot say to the local people do not debark the baobab trees, all we say is harvest but come up with a management system that ensures ecological sustainability'.<sup>6</sup> This statement by the FC officer seems to epitomise the policy shift in government regarding use of the baobab tree. The state is trying to show a human face in its dealing with the baobab issue. However this could be due to lack of resources to enforce its policy. There is only one FC office covering the whole district which is 3353 km<sup>2</sup> in area. The same applies to EMA and the RDC. Additionally, the EMA and RDC are not motorised, which greatly compromises their mobility to reach the resource users.

### *Collapse of informal customary practices*

A number of the customary practices and institutions regulating use of baobab products have been weakened by the introduction of state institutions and institutional arrangements. A typical example is the gradual usurping of the roles of the traditional village heads in the management of baobab products by the WEMECs. These committees have wrestled powers from the traditional leaders to fine culprits and even grant harvesting rights, yet until the election of the WEMECs, the traditional leaders had coordinated the management of baobab trees with modest success. In some cases the local residents, in their attempt to register frustration with an otherwise repressive state, have remained subservient to traditional leaders as opposed to the WEMECs. These residents argue that if they pay a fine to WEMEC, the money ends up in the coffers of the RDC which does not plough the money back into the community, in contrast to the traditional leaders who share part of the fines with members of their council.

### **3.1.4. Conclusions**

Formalisation of the baobab trade has had multiple unintended consequences. This is partly due to weak enforcement as the state is poorly equipped for the task. Additionally, because of the political polarisation prevailing in the country up until 2010, collaboration between the state and local communities has been problematic.

By commission or omission, state laws are used to exploit baobab without any concern for local cultures and the resource base, the collection of levies being a case in point. It is a customary taboo to sell a God-given resource, yet by imposing levies on baobab products the state is actually violating this customary practice.

Benefits of commercialisation include improved cash incomes and employment opportunities for different actors involved in the baobab value chain. However there has been a reversal of these benefits due to biting economic challenges experienced in the country since 2000. The tourism sector, which used to be a key buyer of baobab crafts, and the private sector, which used to provide a market for baobab fruit pulp and oil, are struggling under the economic and political challenges that are besieging the country.

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<sup>6</sup> The District Forester for Chimanimani during an interview on 3 January, 2011.

Problems of baobab governance seldom fall snugly in the purview of either the state or traditional systems of governance – they require a hybrid of solutions from both sectors. On account of their proximity to the resource base, traditional leaders are better placed to be the first line of contact. The problem for state intervention is determining when and how to intervene. Poorly timed and calculated interventions may have unintended consequences which could result in degradation of the resource base or further impoverishment of the weak members in society.

Planting helps to resolve some of the management problems as ownership of planted trees is clearer and, therefore, use patterns of such trees are much easier to define and regulate. A challenge that can arise, however, is the availability of land on which to plant the trees. Generally, there is land shortage in the area, exacerbated by the migration of former commercial farm workers who were displaced by the state from annexed commercial farms as part of a national programme to redistribute land among the black indigenous people.

The state needs to devote more resources towards the management of the baobab tree. If use patterns continue at the current rate, the baobab trees in Nyanyadzi and Gudyanga will die from excessive debarking, the livelihoods of many people will be threatened and the ecosystem will be at risk. The current tax regimes seem not to benefit any one stakeholder in particular. On paper, the government can realise a lot of revenue, but it is failing to do so due to weak monitoring mechanisms as well as uncooperative behaviour from a disgruntled local population.

## **3.2. Case study 2: Marula**

By Rachel Wynberg and Sarah Laird

### **3.2.1. Introduction**

*Sclerocarya birrea* – commonly known as marula – is one of the most revered and economically important trees in the semi-arid savannas of sub-Saharan Africa. Few wild species compare with its economic, spiritual and cultural significance, and it has been aptly described as one of the great trees of the continent (Palmer and Pitman, 1972). This case is included as an example of how the *absence* of formalisation may well lead to positive outcomes, and the importance of context in determining the extent of formalisation required, if any. It also demonstrates the links between formalisation and resource conservation, illustrating that in cases where resources are abundant and not threatened, it may well be best to under- rather than over-regulate.

#### *Study area*

While marula is widely used across southern Africa, its use and management vary considerably from community to community. This case study draws on research conducted in three areas selected to represent a diversity of ethnicities, nationalities, local governance structures and marula commercialisation activities. In South Africa, research was undertaken in the Bushbuckridge district of Limpopo Province (hereafter referred to as Bushbuckridge) and the Ophande ward of the Makhathini Flats, Ubombo District, in northern KwaZulu-Natal Province (hereafter referred to as Makhathini). In Namibia, the research drew on studies conducted in the north-central communal farmlands (hereafter referred to as north-central Namibia). These areas are illustrated in Figure 4, while Box 1 describes them in further detail.

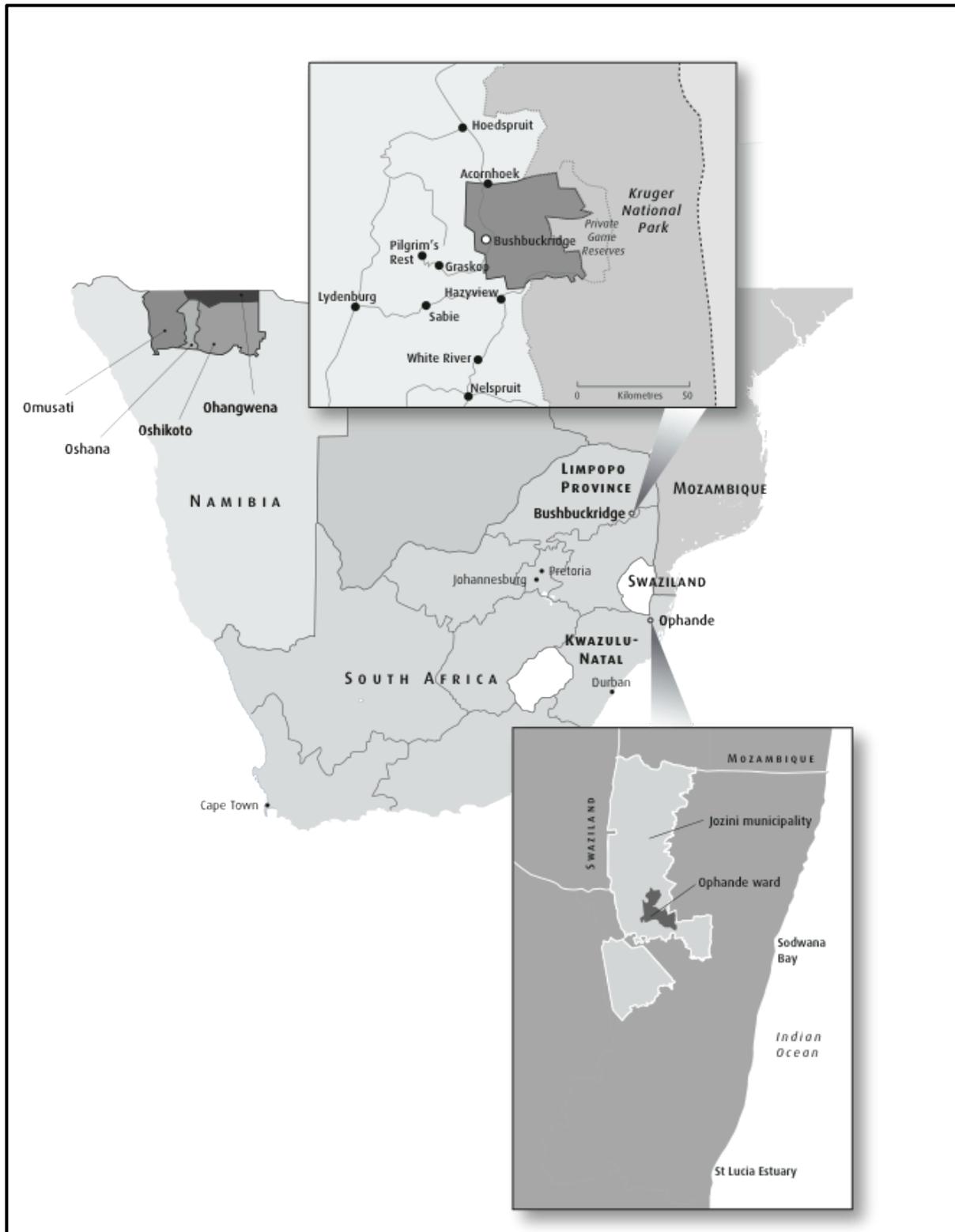


Figure 4. Marula producer communities in the study areas

### **Box 1. Marula study areas**

#### *Bushbuckridge, Limpopo Province, South Africa*

Bushbuckridge is located in a politically, culturally and environmentally complex region, bounded on the east by the Kruger National Park and on the west by the Drakensberg mountains, and comprising pieces of two apartheid 'homelands', Gazankulu and Lebowa (Figure 4). Like many other parts of South Africa that fall within the former 'homelands', residents of Bushbuckridge were victims of the apartheid government's policy of separate development, which entailed the forced removal of people and their relocation to pockets of land considered marginal for agriculture or mining. Through years of apartheid policies, community identity and organisation have been undermined, or have come into conflict with state-appointed tribal authorities or newly emerging local government structures (Ntsebeza, 1999). This has been exacerbated by competing ethnicities and political differences in leadership form (Thornton, 2002). The frequently conflicting jurisdiction of traditional authorities and political or administrative representatives of the state further complicates matters, in many cases resulting in an administrative vacuum (Wynberg *et al.*, 2002).

#### *Makhathini, KwaZulu-Natal Province, South Africa*

Social and environmental disruption also characterises the Makhathini study area in KwaZulu- Natal, from which many of the original Amathonga residents were removed during the creation of the Pongola Dam and Makhathini Irrigation Scheme in the 1970s and 1980s. Residents were resettled into 'villages', and allocated 10 ha plots (Bembridge, 1991). Joblessness, poverty and hunger have spiralled over recent years, and unemployment stands at 53% (Statistics SA, 2002). Rates of HIV infection are some of the highest in the country. Despite decades of deformation by colonial and apartheid policies, and a multitude of development interventions, governance systems in this deeply rural region are still based on traditional models.

#### *North-central Namibia*

Marula producers in north-central Namibia live in the Oshana, Ohangwena, Omusati and Oshikoto regions, home to about 800 000 people – almost half of Namibia's population (den Adel, 2002). Most people are members of Oshiwambo-speaking groups who settled along the Cuvelai River hundreds of years ago. The region is characterised by a strong system of traditional governance and all tribal authorities, with their sub-headmen, village headmen, senior headmen, and Chief/King, are still functional, and to some extent acknowledged by the government (den Adel, 2002). Moreover, traditional authorities have their own courts for settling disputes and allocating land and grazing rights. Regional governments in the four political regions are divided into 41 constituencies, administered by governors and councillors. Local authorities are, in turn, responsible for the affairs of towns and larger villages.

#### *Local and commercial use of the marula tree*

A rich traditional knowledge exists of the tree and its products, distinct to particular regions and communities, reflected by the range of uses found across the region (Shackleton *et al.*, 2006, 2011). The fruits, bark, leaves and oil are all used for subsistence purposes and, until last century, the wood was also a valued commercial timber (Watt and Breyer-Brandwijk, 1962; Shone, 1979; Shackleton *et al.*, 2002a). By far the most prevalent use, however, is the production of marula beer; nearly 2 tons of marula fruit – equating to about 150–350 l of beer – is consumed per household each season in Namibia and South Africa (Shackleton, 2004).

In addition to its subsistence use, marula is also traded locally and sold to commercial enterprises (see Figure 5 for an illustration of the variety of value chains involved). In the 1980s a marula-based

liqueur, Amarula Cream, was launched and today is exported to 28 countries around the world, using about 2000 tons of fruit per year (Mander *et al.*, 2002; Wynberg, 2006). This initiative, together with post-independence relaxations on informal trade, catalysed broader interest in the commercial potential of marula in both South Africa and Namibia. In the late 1990s informal trading in marula beer commenced, despite customary prohibitions on its sale, largely due to democratisation processes in the region and increased urban demand for the beer. A range of enterprises have subsequently been initiated, focused predominantly on the kernel oil, leading to agreements with foreign buyers and the generation of income for local collectors and processors.

But the benefits of marula extend beyond financial returns. Of particular significance are the collective 'work parties' stimulated by the collection of marula to process the fruit; and the neighbourhood 'marula gatherings' where the freshly brewed beer/wine is drunk. These are important in building social networks and reciprocal relations, and in cementing existing bonds (Shackleton *et al.*, 2002b). Especially noteworthy is the central role played by women in collecting, processing and trading marula, and the timing of marula sales at the beginning of the school year, which helps women pay school fees.

#### *Conservation as a driver of formalisation*

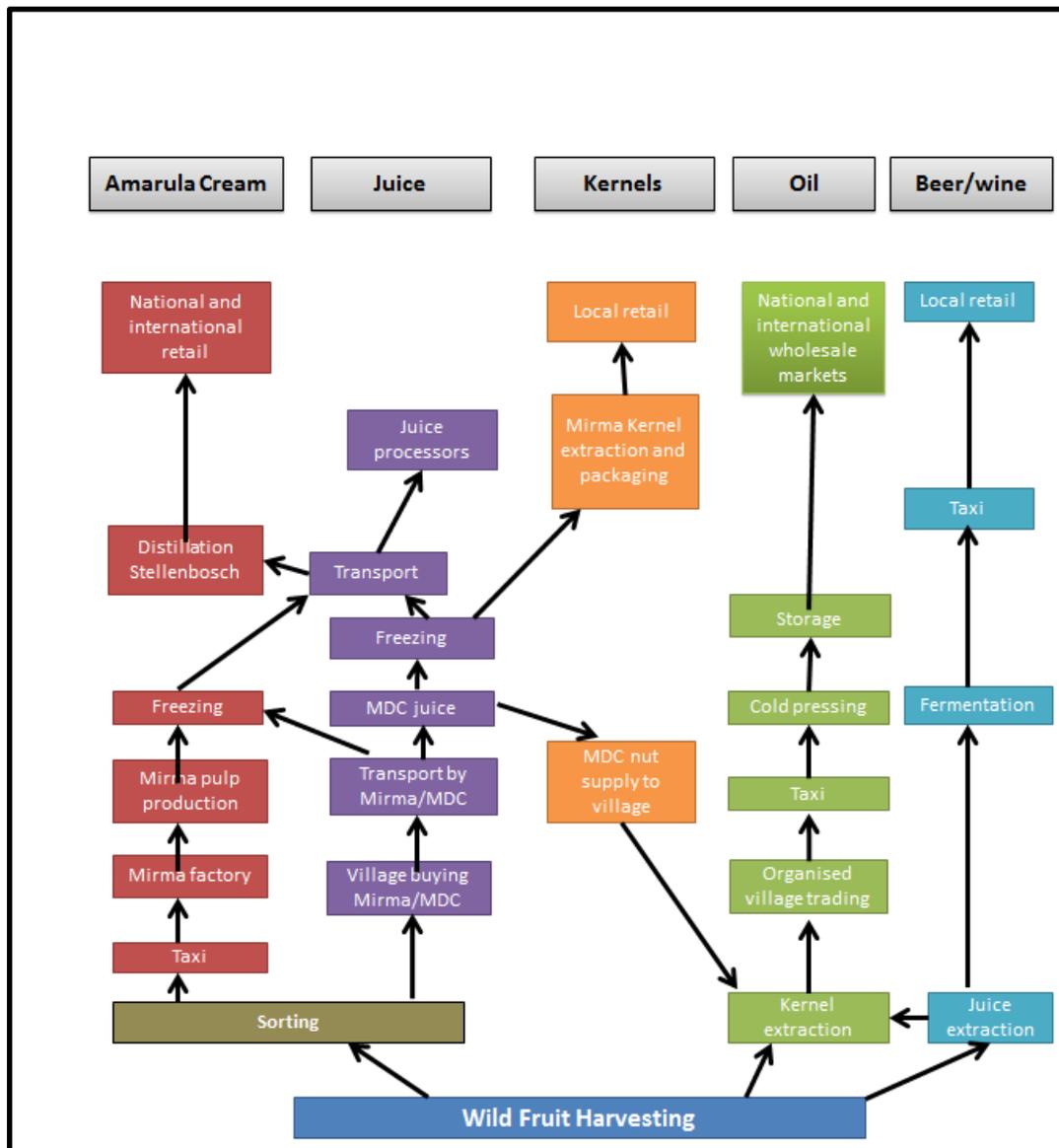
As described earlier, there has been little formalisation of marula use in southern Africa, with the exception of rules to prohibit felling. Conservation has thus been the primary driver of existing formalisation initiatives. In South Africa, efforts to protect marula legally were initiated as early as 1941, when timber shortages in World War II led to increased use of the tree and thus concern about its overexploitation (Figure 6). A series of measures to protect marula was met by continued opposition from loggers and saw millers but by 1962 a complete prohibition was imposed on felling (Shone, 1979).

Currently, the National Forests Act (84 of 1998) lays out measures to protect trees in South Africa, allowing the minister to declare a tree, a woodland or a species of tree protected, and setting out a number of restrictions for the use of protected trees, and for indigenous trees occurring in a 'natural forest'. A national list of protected tree species has been developed in terms of this legislation, including *S. birrea* subsp. *caffra* (Republic of South Africa, 2004), which means that marula may not be 'cut, damaged or disturbed or its products transported or sold without a licence'. Such protection applies across the whole country, allowing for legislative coherence to be achieved at the provincial level where a host of sometimes conflicting legislation exists for marula use and conservation. Although not actively enforced, the implication of marula's protected status is that all commercial harvesting of marula fruit will henceforth require licensing. However, an unpublished proclamation notice issued in terms of the National Forests Act exempts fruit collected for domestic, non-commercial use from these provisions – up to a maximum of 50% of the fruit or seed of any tree (Republic of South Africa, 2006).

Namibia closely followed South Africa's legislative efforts to protect marula and included the tree as one of 23 protected tree species in The Preservation of Trees and Forests Ordinance 37 of 1952. This law and its 1968 successor were repealed with promulgation of the Forest Act (12 of 2001), which is now the primary policy instrument regulating wild fruit trees, and also prohibiting marula felling. However, no specific provision restricts the use of fruits and anyone is entitled to collect fruit so long as the tree is not damaged. Section 22(5) allows for the declaration of a protected plant or species while Section 24 enables the 'legal occupiers' of land to harvest and dispose of forest produce in any way he or she likes.

*Commercialisation, formalisation and customary laws*

It is noteworthy that despite the proclamation of marula as a protected tree, and increases in commercialisation of its products, the tree is not considered threatened and there have been few formal attempts to restrict use. Two reasons account for this lack of attention: one, the most widely utilised part of the tree, the fruit, is considered to be widely available and abundant (Shackleton *et al.*, 2003); and two, there exist strong customary systems to manage use of the tree's products (Wynberg and Laird, 2007b). Lessons can be derived for other formalisation initiatives, emphasising the importance of both ecological and cultural context.



**Figure 5. Processing steps in marula value chains in Namibia and South Africa**

Notes: Mirma indicates the processing factory in Phalaborwa, and MDC indicates the Mhala Development Centre in Bushbuckridge.

Source: Mander *et al.*, 2002.

### 3.2.2. Formalisation, customary controls and resource rights

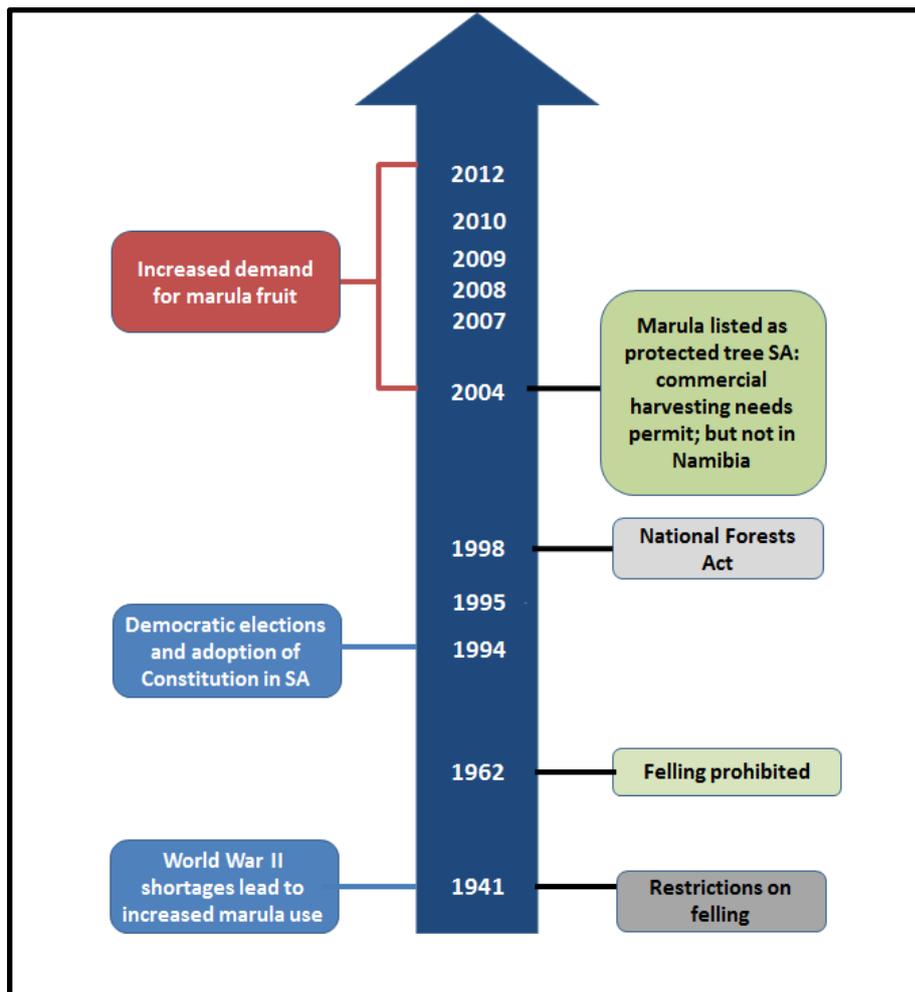


Figure 6. Formalisation of marula

The existence of a strong body of customary rules and practices is also noteworthy. The statutory laws described above for South Africa and Namibia apply to marula found on private, state, municipal and communal lands, but the most important source of marula for local communities – communal lands, private fields, farms and villages – also fall under a layer of customary law. These laws are often the system best understood and most widely implemented by local communities. Customary controls exist in both South Africa and Namibia for felling wild marula fruit trees and harvesting fruit and bark (see Table 2), and are reportedly stronger than those for other fruit trees. Customary laws also regulate the ways in which marula can be used, and the behaviour of community members during marula season. For example, during marula season in Namibia, there is a prohibition on carrying knives or weapons, traditional courts are closed, and part of the *omaongo* (marula wine) harvest is provided to the traditional authorities (Botelle, 2001).

Traditionally, the felling of marula trees, in particular female trees, was strictly taboo amongst most rural societies where this species occurs (Cunningham, 1989). When marula trees are felled or pruned, it is usually for use as fuelwood, and in some cases to clear areas for agriculture. Our research suggests that the cutting of marula, and indeed any other fruit tree, is still strongly

prohibited in the study areas surveyed. Moreover, permission is required from the headman, or *induna*,<sup>7</sup> before cutting non-fruit trees that are deemed important by the community.

Despite these statutory and customary controls, there is a gradient of compliance across study sites, depending to a large extent on the robustness of traditional governance systems and the social and economic pressures faced by the residents. Marula felling in Bushbuckridge, for example, is widespread and on the increase. At the same time, there is increased over-harvesting of fruit and unsustainable bark harvesting by outsiders to feed commercial trade. The reasons reported for these trends include: increased local populations and an influx of refugees from Mozambique; a breakdown of respect for traditional authorities and confusion as to the different roles of leadership structures; reduced control by nature conservation authorities; difficulties in paying for electricity, and therefore the use of wood as firewood; increased seeking of fruits and bark to sell for cash; and the psychological and governance changes that have emerged since democracy in 1994, leading to a belief that trees are a free resource, that former apartheid rules do not apply and that people can help themselves.

Marula fruit is widely collected throughout the region and strong customary laws govern harvesting. Across all study areas, and for all wild fruit trees, fruit must first fall to the ground before harvesting is permitted. As explained above, however, the clarity and effectiveness of these laws vary by area, reflecting the strength of existing traditional institutions, the homogeneity and remoteness of communities and commercial pressures.

In communal areas across all study sites, customary law governing marula use and management generally had greater influence than provincial or national law, both in terms of local knowledge of rules and regulations, and enforcement. It was also often the only system recognised in practice. However, the efficacy of customary law relies substantially on the legitimacy of traditional authorities. Strong traditional structures at Makhathini and north-central Namibia, for example, ensured that control over communal lands was exerted, whereas the more tenuous authority of traditional structures at Bushbuckridge led to reduced control over these areas. The monitoring and enforcement of laws also varied considerably across study sites. The extent of respect for the law and its enforcement hinged upon the levels of cooperation between traditional authorities and government, acceptance of the rules by user groups and the levels of capacity that existed within authorities.

#### *Land and resource rights*

Secure land tenure and resource rights are critical components of any strategy that aims to manage resources sustainably and deliver fair and equitable benefits to communities from the commercialisation of NTFPs (Ros-Tonen *et al.*, 1995; Neumann and Hirsch, 2000; Shanley *et al.*, 2002; Fabricius *et al.*, 2004). This is especially apparent in southern Africa, where communities harvesting NTFPs face ongoing constraints in excluding outsiders from harvesting resources from communal lands with ambiguous tenurial status (Schreckenber, 2003; Fabricius *et al.*, 2004, Wynberg, 2004a;). Neumann and Hirsch (2000) noted in their review of the literature on NTFPs and land tenure that in southern Africa interactions between NTFP commercialisation and tenure systems varied greatly even within small geographic areas. This was borne out in this study, in which clear differences emerged across the three research sites with regard to land tenure, resource rights and the harvesting of marula products.

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<sup>7</sup> Zulu name for a state official appointed by the king or by a local chief.

In most cases marula was harvested under a ‘user right’ that carried no legal status, from lands to which communities had no clear legal title. This was particularly the case in South Africa, where most communal land in the country – the site of the bulk of marula harvesting - is registered in the name of the state. This situation reflects the legacy of South Africa’s colonial past, where the majority of land occupied by black people was designated as Crown Land. Under apartheid, various discriminatory laws and practices prevented land ownership by black people, who could historically hold land only under weak and legally insecure forms of tenure, such as a ‘Permission to Occupy’ (PTO) certificate (Makopi, 1999). Although this PTO system has now been abolished, ownership of communal lands remains unresolved and highly contentious.

In Namibia, communities suffered under a similar suite of discriminatory land policies until independence in 1990. Today, efforts to resolve land tenure reflect tensions similar to those in South Africa, between Western notions of titling and African systems of land tenure, with policy approaches now favouring individualised leaseholds, available to all citizens, not just local inhabitants (Alden Wily, 2002). Although in the north-central regions of Namibia, communal land ownership remains vested in the state, most marula fruit here is harvested from people’s fields or homesteads, and virtually all marula trees are tenured to individual households.

Although traditional legal structures remain stronger in Namibia than in South Africa, here too there has been an erosion of the role of traditional authorities. Especially noteworthy is the shift in the manner in which marula has traditionally been owned and managed, towards a system of increased private ownership. Whereas in the past all marula trees belonged to the King and the headman, today the men of the household typically own marula trees (and the women ‘other’ fruit trees), with only some marula trees being assigned to the King, senior headman and village headman (Tatekulu Moongo, Senior Headman, Ondangwa area, pers. comm. 2002). However, in contrast to the South African sites, customary law in Namibia appears to regulate marula fruit harvest and felling effectively.

**Table 2. A summary of policy and practice for marula use across study sites**

	<b>Bushbuckridge, South Africa</b>	<b>Makhathini, South Africa</b>	<b>North-central Namibia</b>
Study area: legal and institutional characteristics	Fractured history and weak community institutions. Contested leadership. Conflicting jurisdiction of traditional authorities and state.	Severe social and environmental disruptions but governance is still strongly traditional. History of extensive external development interventions.	Strong system of traditional governance and high respect for and legitimacy of traditional authorities.
Statutory laws	Marula is listed as protected tree species (National Forests Act 84 of 1998). Commercial fruit harvesting needs a permit but not subsistence use. Provincial legislation governing marula use is confusing and inconsistent.	Marula is listed as protected tree species (National Forests Act 84 of 1998). Commercial fruit harvesting needs a permit but not subsistence use. Provincial legislation governing marula use is confusing and inconsistent.	Marula is listed as a protected tree (Forest Act 12 of 2001) but no restrictions exist for the collection of wild fruit. No provinces exist in Namibia.

	<b>Bushbuckridge, South Africa</b>	<b>Makhathini, South Africa</b>	<b>North-central Namibia</b>
Marula ownership	Fruit predominantly harvested from communal areas, which are state-owned and increasingly regarded as open access.	Fruit predominantly harvested from communal areas, which are state-owned but strongly managed by traditional authorities.	Marula fruit predominantly harvested from people's fields.
Marula cutting	Cutting of any fruit tree strongly prohibited by customary law, pruning permitted.	Cutting of any fruit tree strongly prohibited by customary law, pruning permitted.	Cutting of any fruit tree strongly prohibited by customary law, pruning permitted.
Marula fruit harvesting	Permission required to harvest fruit in household yards or farms but communal areas open access.	Permission required to harvest fruit in household yards or farms and access to communal areas controlled; distinction between outsiders and community members.	Most stringent customary laws. Permission required to harvest fruit in household yards or farms and access to communal areas tightly regulated and by invitation of the headman.
Marula bark harvesting	Bark harvesting permitted on limited basis with customary laws to restrict offtake.	Bark harvesting permitted on limited basis with customary laws to restrict offtake.	Marula bark seldom used.
Adherence to and implementation of customary law	Widespread tree cutting despite prohibitions. Bark over-harvesting. Increased collection of fruit by outsiders.	Likely increase in tree cutting despite prohibitions.	Good adherence to customary law.
Monitoring and enforcement (M&E)	Lack of clarity as to responsibility for M&E. Weak enforcement.	General agreement as to institutional responsibilities for M&E between traditional authorities and government. Weak enforcement.	Coordinated approach to M&E between traditional authorities and government. Emphasis on community-based M&E. Weak enforcement.
Relative influence of customary law in influencing marula use	Low	Moderate	High

### 3.2.3. Effectiveness of formalisation

As described above, the level of formalisation in the marula value chain has been relatively low. Thus, instead of formalisation having significant positive or negative impacts on the marula resource and its users, external factors such as population increases, disputed leadership structures and increased involvement of 'outsiders' have had a more significant impact.

A major finding of a 'lighter' approach to formalisation is that 'less' is often 'more' when it comes to government regulation of marula. Where land tenure and resource rights are secure, customary laws are still strong, and local capacity exists to manage the resource base and deal with commercial pressures, customary laws often provide a more nuanced approach to regulation, integrating unique local cultural, ecological and economic conditions in ways that better suit this category of products. In cases where customary law has broken down to a significant degree, or outside commercial

pressure has intensified well beyond the carrying capacity of traditional measures, governments can offer important and necessary complementary levels of regulation, something often requested by local groups.

Existing administrative arrangements also play a key role in determining the efficacy of government regulation. In South Africa, there is a need to consolidate, integrate and update the policy framework for NTFPs, which is characterised by a plethora of inefficient and sometimes contradictory national and provincial laws, overlaid by customary systems that may have eroded due to years of colonial and apartheid administration. Similar overlaps are evident in Namibia, but the relatively simpler administrative system in this country, and specifically the absence of separate provincial laws, has provided a less bureaucratic and more enabling policy framework for NTFP management. Both countries, however, face significant governance problems for natural resources, often dispersed over vast areas, remote from government officials.

In post-apartheid South Africa a new suite of issues arises for communities and resource management. Since the emergence of a newly democratic state, a common trend reported in a number of divergent cases throughout the country (e.g. Kepe, 2002; Palmer *et al.*, 2002; Carnie, 2005) has been for local people to take charge of natural resources considered to have been unfairly appropriated from them during apartheid. This, combined with a 'culture of lawlessness' in South Africa, has meant that in some areas local people interpret 'democracy' to mean a free-for-all, in which old rules – including customary laws – no longer apply, and individuals are free to make a living as they see fit.

In this study, the physical dislocation of inhabitants in Makhathini and Bushbuckridge through apartheid and the highly contested governance structures in Bushbuckridge are vivid examples of the political and social complexities that need to be considered when introducing new laws to regulate marula use, or indeed use of any NTFP. An influx of refugees, massive unemployment and further breakdown of community structures in areas such as Bushbuckridge mean that many individuals resort to any means to make a living. Unlike those who for generations have harvested marula fruit to supplement their income, or as part of subsistence cultural traditions, these newcomers to the marula trade 'mine' the resource for short-term gain. The absence of new rules further complicates matters, and this is exacerbated by the lack of adequate legal recognition of communal tenure systems and traditional resource management and rights, leading to a situation where communal areas are increasingly considered as 'open access' areas. Moreover, in the context of extreme poverty and hardship, the validity of rules regulating the harvest of widely available products such as marula is tacitly questioned, despite acknowledgement of the need for regulation.

In Makhathini, by contrast, customary law and traditional structures have been maintained to an extent that allows communities to function and remain viable, and for shared community objectives to be expressed through these means. In comparison with Bushbuckridge, governance structures are less contested, political boundaries are more secure, the area is more rural and remote from market and cash economies, and the social structures are more intact and less subject to the pressures introduced by the large influx of outsiders and refugees evidenced in Bushbuckridge. In this area, regulated harvest of marula products is viewed as a desirable means of ensuring long-term benefits for the community, although traditional, customary regulations are those viewed as most legitimate.

The privately tenured nature of marula trees in north-central Namibia, and the strong system of traditional governance in this region are central features that suggest that where tenure is secure, customary laws are strong, and local capacity exists to manage the resource base and deal with

pressures of commercialisation, customary law achieves a desired balance between resource use and livelihood needs.

In both South Africa and Namibia, persisting insecurities in land tenure and resource rights could create significant problems if commercialisation of resources such as marula expands. These include increased conflict in areas such as Bushbuckridge; lack of resolution on the allocation of resources for subsistence purposes versus those needed for commercialisation; a tendency to 'privatise' and 'enclose' communal areas and resources through adoption of Western titling approaches to tenure, and an erosion of indigenous resource tenure systems and resulting limits in benefits accruing to the community at large; and an ad hoc and potentially conflict-ridden approach to controlling and managing natural resources.

The case of marula makes clear the need to identify whether the objectives policy frameworks are intended to serve reflect complex local realities and needs, and whether intervention in the form of 'improved' policy is in fact a gain for local people and conservation. For example, although changing patterns of land use, expanding rural settlements, and increases in local and commercial use of marula indicate the need for careful management and use of the tree – more especially in poor recruitment years and with increased commercialisation (Shackleton *et al.*, 2003) – marula use does not raise pressing resource management issues. The tree is widespread and common, fruits abundantly and is planted in yards, retained in fields and otherwise well managed, for the most part, in the region. A tendency to assume the worst-case scenario on the part of conservation bodies, and to prescribe policy interventions, could lead to conflict, damage local livelihoods, and undermine local control over an important resource for communities, a pattern common with NTFP policy prescriptions (Arnold and Ruiz-Pérez, 2001). But local communities can also lose out as species gain in commercial value, harvesting pressures intensify and outsiders come into their area to harvest products (Lynch and Alcorn, 1994).

#### **3.2.4. Conclusion**

Some interventions are clearly vital for both communities and species conservation, but they must be designed in a way that is consistent with local needs, based on local input and the engagement of NTFP producers and harvesters, and as part of a coherent policy framework with clear objectives (McLain and Jones, 2001). In the case of marula, for example, the primary concern for policy-makers should not be resource conservation, but rather maintenance and improvement of benefits for local groups from marula harvest, guarding against the erosion of these benefits that might result from intensified commercialisation and pressure from outside groups on the local resource base. Promotion of marula domestication, for example, could induce shifts in benefits from poorer groups of farmers to richer ones, or to multi-national companies if the benefits to poor farmers are not protected and if industrial demand becomes considerable. Harmful outputs from domestication and commercialisation could also potentially arise if interest in growing new tree crops expands to the point where outsiders with capital to invest develop local, large-scale monoculture plantations for export markets (Wynberg *et al.*, 2002). Similarly, changes in tenure and access rights are critically needed but must be implemented with caution as they could also lead towards increased privatisation of the marula resource, with detrimental consequences for those who do not have access to the resource. Intensified commercialisation could also shift benefits away from the most marginalised producers, through, for example, the introduction of new mechanised technologies that attract men to enterprises and diminish the role of women in marula commercialisation (Shackleton *et al.*, 2006).

### 3.3. Case study 3: *Hoodia*

By Rachel Wynberg

#### 3.3.1. Introduction

The complexities of formalising informal trade are vividly illustrated by the case of *Hoodia*, a succulent plant that has undergone rapid commercialisation in the past decade. The case is particularly interesting because of the plant's traditional use to stave off hunger and thirst by the indigenous San peoples, the oldest human inhabitants of Africa (Pappe, 1862; White and Sloane, 1937). Policy frameworks that have evolved to regulate *Hoodia* have thus had to take into consideration both the conservation and trade aspects of *Hoodia* use, as well as the emerging legal arena of 'access and benefit sharing', concerned with the rights of indigenous peoples, and ways in which benefits arising from the commercial use of traditional knowledge and genetic resources should be fairly distributed.

This has been complicated by the fact that both the traditional knowledge that was used in the commercial development of *Hoodia* and the species involved cross national borders, involving the governments of South Africa, Namibia and Botswana, as well as indigenous communities of the San, Nama, Damara and other groups (see Figure 7). However, each of the three countries with which *Hoodia* and its knowledge are associated has evolved a distinct regulatory approach to the plant's conservation and use, and to the way in which access and benefit-sharing issues are framed.

A bewildering complexity of policies and laws has consequently emerged in southern African countries to regulate the harvesting, trade and commercial development of *Hoodia*, existing at a convoluted interface between biodiversity conservation; access and benefit sharing; intellectual property rights; and traditional knowledge. As this case study illustrates, the manifold laws that regulate each of these components typically have little coherence, at best, or are contradictory, at worst. Additionally, they are administered in substantially different ways by a range of government institutions with overlapping mandates and unclear roles and responsibilities. The case is thus a useful one to explore with regard to the overall benefits and impacts of formalisation.

#### *The commercial development of Hoodia*

The commercial development of *Hoodia* is a fascinating story that has captured the imagination of policymakers, academics and community activists alike. The history is summarised by Wynberg *et al.* (2009), who describe how traditional knowledge about the appetite-suppressing qualities of *Hoodia* was used by the South African-based Council for Scientific and Industrial Research (CSIR) towards the development of an intensive research and development programme, in partnership with various international firms. Although this was done without the consent of the San, the CSIR was eventually pressurised to develop an agreement to share the benefits arising from the commercial development of *Hoodia* (Wynberg, 2004b). The publicity generated by the agreements, the marketing opportunities offered by the San use of the plant and the CSIR patent led to a frenzied interest in *Hoodia* amongst plant traders. By 2002 a parallel market had emerged, based on wild-harvested *Hoodia* that had simply been dried, sliced and exported. By 2005, trade had escalated exponentially – and, in many cases illegally – from just a few tons to more than 600 tons of wet, harvested material, sold as ground powder for incorporation into non-patented dietary supplements. In South Africa and Namibia, illegal trade and harvesting of *Hoodia* resulted in a number of prosecutions and arrests; the high prices commanded for the dry product of up to

US\$200 per kilogram had led to the incorporation of the plant into a global underground network of diamonds, drugs and abalone (Wynberg and Chennells, 2009).

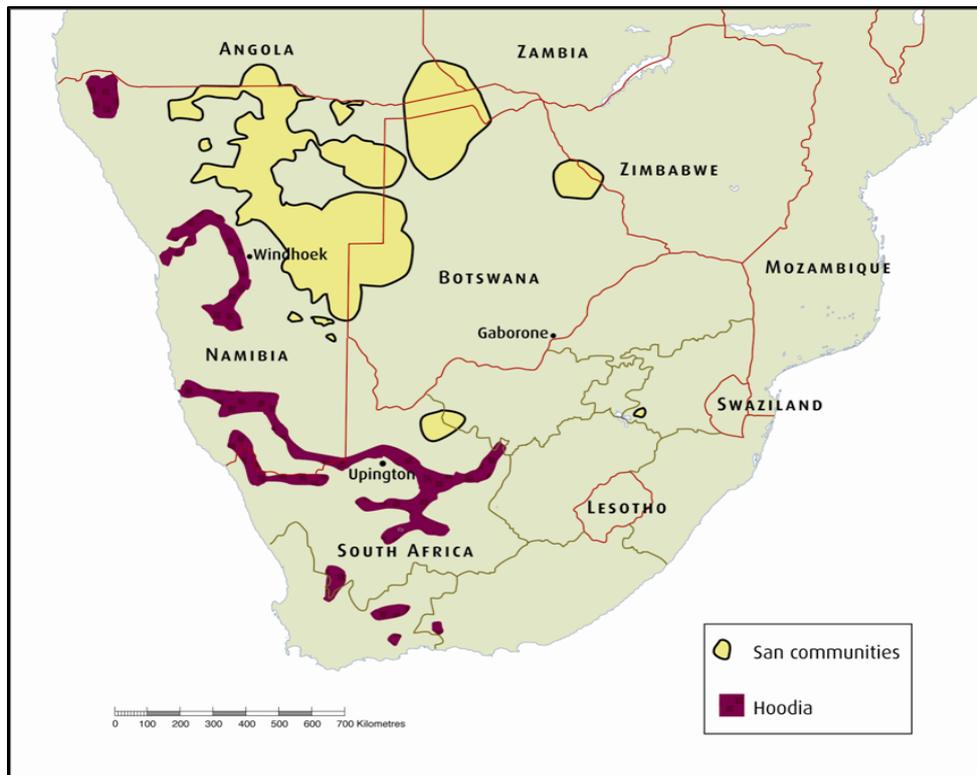


Figure 7. *Hoodia* species distribution and occurrence of the San in southern Africa

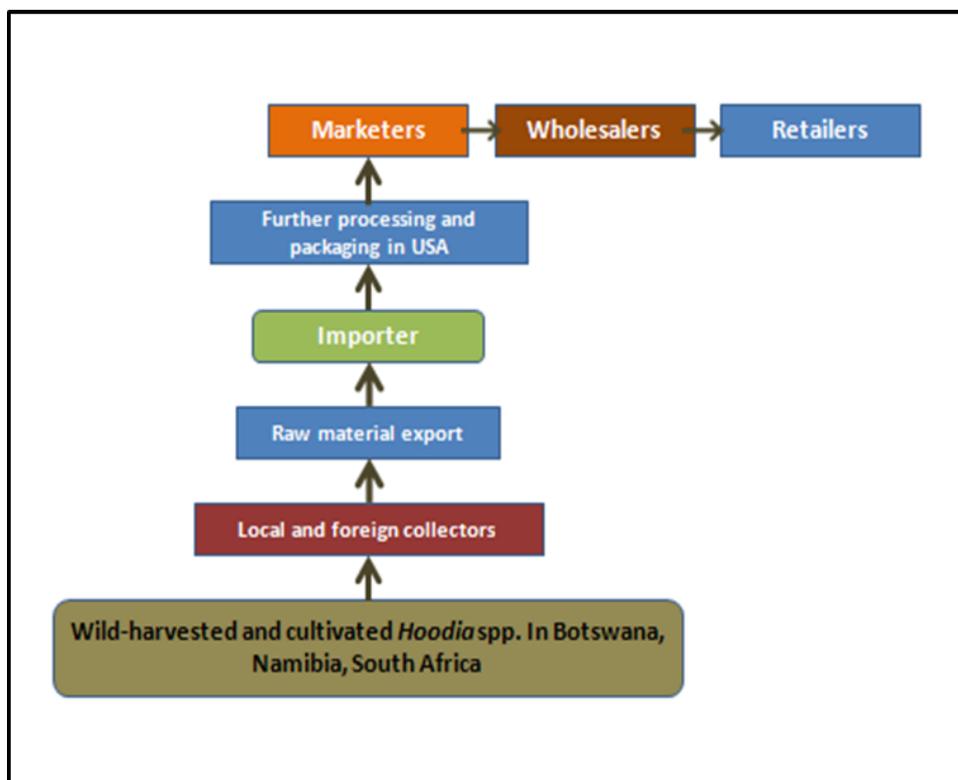
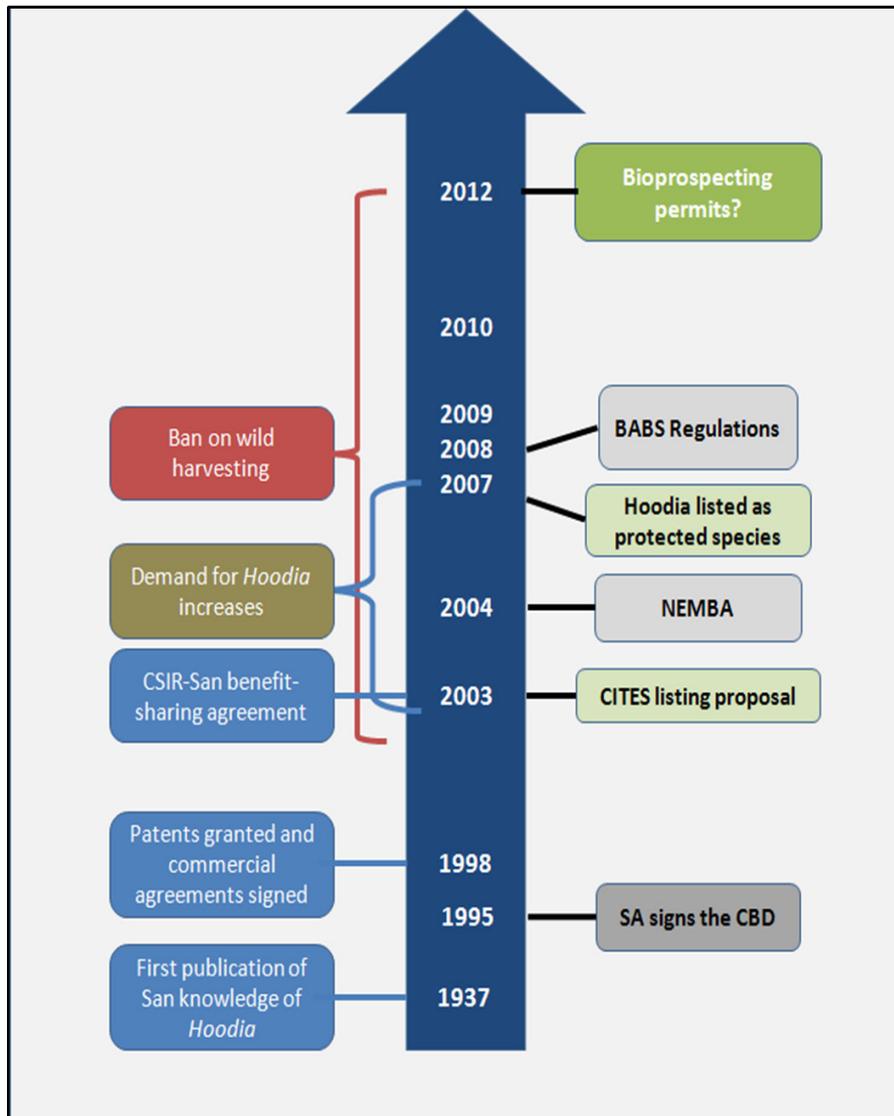


Figure 8. *Hoodia* value chain based on trade of raw material

### 3.3.2. Formalising the conservation, trade and use of *Hoodia*

Two broad drivers of formalisation have emerged in response to *Hoodia*'s commercialisation: the first based on concerns relating to illegal trade and over-exploitation, reflected in approaches such as protocols for species management, conservation, sustainable use and trade, and the second in response to international recognition of the importance of sharing benefits with holders of traditional knowledge and genetic resources. Figure 9 summarises the historical evolution of various formalisation initiatives.



**Figure 9. Increased formalisation in the *Hoodia* industry**

Notes: BABS indicates Bioprospecting, Access and Benefit Sharing; NEMBA, National Environmental Management Biodiversity Act (10 of 2004); CITES, Convention on International Trade in Endangered Species of Wild Flora and Fauna; CBD, Convention on Biological Diversity).

#### *Conservation as a driver of formalisation*

*Hoodia* production has become increasingly formalised since 2000, in parallel with the growth in the plant's trade. These policy responses have been enfolded within a well-established legal and institutional framework for species conservation in southern African countries. At the time of the

spike in *Hoodia* trade in 2002 and 2003, most species were already protected to varying extents by nature conservation legislation in South Africa, Namibia and Botswana. Up until 2002, however, there had been little demand for *Hoodia* and governments thus adopted a passive approach towards its regulation, relying predominantly on existing nature conservation laws. But the escalation in demand necessitated new regulatory approaches. In 2004, concerns about the threats posed to natural populations through unregulated collection led to the inclusion of *Hoodia* spp. in Appendix II of the international Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) (CITES, 2004). In response, southern African governments began developing a more tightly regulated permitting system for *Hoodia* use and trade, although this was done differentially both within and between countries.

In South Africa, a different set of formalisation approaches evolved between the Northern Cape and Western Cape provinces, the areas in which most *Hoodia* species occur in that country. The initial response from the Northern Cape, which mirrored that of Namibia and Botswana, was to place a moratorium on wild harvesting and trade of any *Hoodia* species. Insufficient information was available about the resource, it was contended, to determine sustainable off-take rates, and therefore a precautionary approach was warranted (Powell, 2005). Moreover, permit applications for harvesting, cultivation and trade of *Hoodia* had increased substantially, along with reports of illegal harvesting, and, because of the difficulties of determining species not in flower, there was a risk of collecting 'look-a-like' but incorrect species (CITES, 2004; Powell, 2005).

The Western Cape, however, adopted a different approach. A moratorium, they argued, would simply drive the *Hoodia* industry underground and make the trade more difficult to track and manage (Paul Gildenhuys, CapeNature, pers. comm.). Moreover, a comprehensive permitting system already existed to comply with CITES 'non-detriment requirements' (essentially to show that harvesting has been conducted in accordance with sustainability guidelines) and to regulate the export of parts, derivatives or whole plants. Thus a number of permits were issued by CapeNature, the provincial authority in the Western Cape responsible for biodiversity conservation, to traders for the wild harvesting and export of *Hoodia* spp. A number of conditions were attached to the permit, including restrictions on the size of the plant harvested, but, astonishingly, with no specifications of tonnage. This so-called 'open permit' had been used for years by CapeNature, based on a regulatory model developed for the flower industry that had never before presented problems (Kas Hamman and Paul Gildenhuys, CapeNature, pers. comm.). *Hoodia* was different, however, because of the extremely high price that it commanded, encouraging the collection of as much material as possible.

Because of moratoriums elsewhere, the Western Cape was now the only legal point of export in southern Africa for *Hoodia* material, and the open-ended nature of the permit provided the perfect means through which illegally harvested material from the region could be included and legitimately exported under a CITES permit. In 2005, for example, a total of 500 tons was reportedly exported from the Western Cape, far exceeding the estimated amount of plant material available in the province and thus verifying suspicions about the inclusion of material from Namibia and other provinces in South Africa (Gosling, 2006). Over the same period, reports of illegal *Hoodia* harvesting surged in the Northern Cape and Namibia, including stories of microlights assessing *Hoodia* populations, the nocturnal smuggling of *Hoodia* in boats across the Orange River from Namibia to South Africa using children flashing torch signals, and the hiding of material in animal carcasses (Charles Musiyalike, Ministry of Environment and Tourism, pers. comm.).

### *Towards proactive formalisation*

Increasing awareness of these problems, combined with concerns about the quality and safety of material sold as *Hoodia*, and recognition of the need to ensure the sustainability of *Hoodia* supply, led to a rapid response from conservation authorities across the region, along with an attempt to bring greater cohesion and standardization to policies. The Northern Cape lifted restrictions on wild harvesting and, together with the Western Cape, established resource assessment procedures as the basis for determining a quota for each permit, with specific harvesting procedures prescribed. As an interim measure, both the Northern Cape and Western Cape also required anyone harvesting *Hoodia* from the wild to reinvest some of their profit back into the establishment of cultivated *Hoodia* plantations. Restrictions were also now placed on the permissible volumes to collect.

In 2007, however, a decision was taken by both the Northern Cape and Western Cape to stop issuing permits for wild-harvested *Hoodia* and all existing farmers were required to cultivate the species if they wished to continue trading it, a situation that still applies today. Moreover, most *Hoodia* growers are now organised to some extent through an organization known as the Southern African *Hoodia* Growers Association (SAHGA). This organization represents the interests of commercial growers of *Hoodia* in South Africa who have agreed to comply with certain standards of best practice, safety, fair trade and benefit sharing, and who wish to supply *Hoodia* as a food or as a dietary supplement as approved by food and drug quality control authorities worldwide.

In Namibia a similar body known as the *Hoodia* Growers Association of Namibia (HOGAN) has been constituted, and here too there have been incremental efforts to implement a regulatory system for *Hoodia* that both ensures conservation and promotes the development of a viable industry. Initial policy outlawed wild harvesting completely, but now 'salvage' harvesting is permitted of plants that have died through natural circumstances. Such harvesting is only permitted once active cultivation and enrichment planting programmes have been established. Unlike South Africa, where cultivation is predominantly focused on private lands, Namibia has pursued a far greater developmental role for *Hoodia*, actively promoting its cultivation as an economic opportunity for small farmers living on communal lands. This is also the case in Botswana, although there has been little change to *Hoodia* regulation in that country because it contains only small populations of the commercially desirable species.

### *Traditional knowledge recognition and access and benefit sharing as drivers of formalisation*

The commercial development of *Hoodia* and associated controversies also led to greater policy engagement on issues relating to the protection of traditional knowledge and the fair sharing of benefits resulting from its use. The initial acquisition of traditional knowledge about the appetite-suppressing properties of *Hoodia*, without the consent of the San, and the CSIR's subsequent licensing agreement with Phytopharm to commercially develop a product elicited little, if any, policy response from any southern African government at the time. Only after considerable media attention in 2001 did the CSIR consent to negotiations with the San to develop a benefit-sharing agreement, but this was largely done in a legal vacuum. It was partly the unfolding of these experiences and the high-profile nature of the case that gave impetus to the development of binding laws in South Africa and elsewhere.

In South Africa, this was encapsulated by the National Environmental Management: Biodiversity Act (10 of 2004) (Biodiversity Act) and the 2008 promulgation of access and benefit-sharing regulations to give effect to the Act. This regulatory framework for the first time addresses the need for bioprospectors to obtain prior informed consent from custodians of biodiversity and holders of

traditional knowledge before initiating any project. It also requires a benefit-sharing agreement to be developed between different stakeholders to ensure that holders of traditional knowledge or custodians of biodiversity are fairly compensated. Two benefit-sharing agreements currently exist between the San and the CSIR and the San and SAHGA respectively, but both have required re-negotiation and validation by the State prior to the issuing of a bioprospecting permit. This has been a protracted process, although the urgency has lifted to some extent due to the fact that the *Hoodia* market is currently stagnant, brought upon by unfavourable clinical trials and the subsequent withdrawal of commercial partners from the agreement.

### **3.3.3. Effectiveness of formalisation**

#### *Absence of a comprehensive and integrated regulatory framework*

A number of important lessons emerge from this case regarding the effectiveness of formalisation. One of the biggest problems has been the absence of a comprehensive and integrated regulatory framework for *Hoodia* to address laws and policies acting at different scales, from local through to regional. This is especially pertinent in countries such as South Africa, which has a federal system of government in which there is considerable confusion between national and provincial levels of government over responsibility for managing *Hoodia* species and regulating the associated industry. In part, this is because the South African Constitution (Act 108 of 1996) designates most biodiversity functions as areas of concurrent legislative competence, meaning both national and provincial government can take responsibility for species management. This gives provinces some leeway in the way in which they develop and implement policies and laws, provided these are in keeping with national norms and standards. In practice, however, national standards have lagged behind existing provincial laws, with the result that provinces have taken responsibility for CITES implementation and *Hoodia* management, despite a pronouncement that the species is to be managed nationally (Wynberg and Newton, 2009). This incessant ‘yo-yoing’ of responsibility reflects to a large extent ongoing tensions between those managing the species on the ground, who hold in-depth knowledge of the plant’s use and trade patterns, and those attempting to develop and implement a national, coherent policy approach towards *Hoodia*. In Namibia, which has a more centralised government system, *Hoodia* regulation is much simplified by the fact that permits are administered by a single authority, the Ministry of Environment and Tourism, which also provides oversight on all *Hoodia* use and trade, rather than multiple provincial bodies as in South Africa.

#### *Multiple permitting*

The transnational regulation of the resource also yields important lessons for other species that cross national boundaries. Across South Africa, Namibia and Botswana, the situation is complicated by the range of different national government departments involved in regulating discrete aspects of *Hoodia* use and trade. In practice this means that anyone wishing to use or trade *Hoodia* needs multiple permits. Not only are permits required to harvest, grow, manufacture and export *Hoodia*, but also for phytosanitary purposes, and for the ploughing, transformation or rezoning of land. Different authorities administer each of these permits, requiring the applicant to make separate applications to environmental, trade, health and agricultural departments. Individual permits are also required for each trade transaction, and this is considered to be onerous and as acting against the entry of small growers into the system. One way to streamline this could be to introduce a single permit that allows cultivation, harvesting of cultivated material, processing and trade with inspection and renewal on an annual basis.

### *Ineffective monitoring, enforcement and compliance*

Such a system would also improve monitoring, enforcement and compliance, which in all three countries are key constraints preventing the effective implementation of the *Hoodia* permitting system. Law enforcement capacity is low, the legal processes are cumbersome and seemingly full of loopholes, and the low penalties do not constitute a sufficient deterrent to transgressors, given the high value of the resource. This is exacerbated by the fact that illegal harvesting typically occurs in remote rural areas, with material quickly transported across borders, especially from Namibia to South Africa. Increasingly, governments are collaborating to design joint policies for management of transnational species, with steps put in place to collaborate more strongly on poaching, trade and the transport of illegally harvested material. This bodes well for future cooperation and suggests a positive environment within which policy resolutions can be found.

### *Confusing and complex access and benefit-sharing policies*

What is clear is that although ABS policy frameworks have been under development in southern Africa since the mid-1990s, their adoption has been erratic and their implementation weak. This embryonic state of ABS policy and law in the region, the general confusion that has resulted from the overlapping mandates of different government bodies and research institutions, and the multiplicity of only partially relevant laws have led to an extremely incoherent policy climate for *Hoodia* regulation. In fact, most policy interventions in southern African countries to regulate access to *Hoodia* genetic resources, protect traditional knowledge associated with the plant and ensure the fair sharing of benefits from its use have emerged 'after the fact' or, in some cases, not at all.

The inclusion of prior informed consent and benefit sharing in South African legislation represents a major step forward in redressing past imbalances in the way in which biodiversity and traditional knowledge have been exploited. Yet the implementation of these laws presents major challenges (Crouch *et al.*, 2008; Taylor and Wynberg, 2008). Aside from the fact that the Act fails to vest ownership of genetic resources in the state (due to a concern that to do so may infringe constitutionally protected property rights), and thus limits the extent to which wider community benefits can be secured (see Taylor and Wynberg, 2008), its permitting requirements are unduly onerous and complex (Lowman, 2012). As described below, even companies simply wanting to trade biological material such as sliced and dried *Hoodia* now face a labyrinth of permitting procedures that are poorly aligned between multiple layers of government bureaucracy. The confusion that results has direct impacts on the ability of communities to obtain concrete benefits from biodiversity.

### *Formalising benefit-sharing requirements*

Although significant benefits have yet to flow, one of the key challenges concerns the way in which decisions will be made about the sharing of existing and, hopefully, future benefits. The CSIR–San agreement will pay 6% of royalties into a trust, which has begun preparing the policies and structures necessary to distribute anticipated flows of money. The fair and equitable distribution of large sums of money to beneficiaries in three different countries would be an enormous challenge for any organization. The fact that these beneficiaries are impoverished indigenous peoples, wrestling with problems of organizational cohesion and underdevelopment makes this challenge even more complex. The possible compensation of other groups that use *Hoodia* and have traditional knowledge of the plant, such as the Nama, Damara and Topnaar, also represents a major challenge that will have to be resolved, especially once *Hoodia* markets mature and significant profits begin to flow.

In the case of the San, intracommunity issues are especially complex. The organizations set up to represent the San politically are relatively new, and the introduction of Western values and economies into supposedly traditional communities, already fractured and 'hybridized', presents a set of diverse social and economic problems. Robins (2002) describes the social complexities of contemporary San identity, knowledge and practice, and charts the intracommunity divisions and conflict that emerged between self-designated 'traditionalists' and 'Western bushmen' when San land claims were lodged in the Northern Cape province of South Africa. While these claims resulted in significant benefits for the San, they also had unintended consequences in the form of conflict. Robins (2002) points out the contradictions between San 'cultural survival' and the promotion of the values of 'civil society' and 'liberal individualism', a conclusion that holds particular resonance for the *Hoodia* case, contextualised as it is within the international discourse of indigenous peoples, a vigilant NGO community alert to biopiracy cases and a new policy framework that requires fair and equitable benefit sharing for the use of traditional knowledge.

#### *Regional differences in benefit-sharing policies*

One of the more interesting aspects of the case lies in its regional implications. *Hoodia* is a biological resource that is shared across national political boundaries, and knowledge of the plant is similarly shared by communities straddling these boundaries. Thus far, however, South Africa has played a leading role: in lodging the patent, developing commercial partnerships with multinational companies, negotiating benefit-sharing arrangements with the San and facilitating legal trade in the plant. Botswana and Namibia, by comparison, although involved in harvesting and cultivating *Hoodia*, have not yet legalised trade in the plant nor developed commercial partnerships.

Moreover, South Africa has adopted access and benefit-sharing (ABS) legislation and supports recognition that the San community has clear rights to benefit from *Hoodia*, but Namibian and Botswanan policies have been more ambivalent. Neither Namibia nor Botswana has ABS legislation and in both countries benefits from *Hoodia* are considered to belong to the state, rather than the San or other traditional knowledge holders. Unsurprisingly, these divergent policy approaches have led to concerns.

A central concern relates to the difficulties of controlling trade. There have been many reports of illegal material entering South Africa from Namibia and being exported from South Africa under permit. The areas in which the plant occurs are typically very remote and illegal harvesting is difficult to monitor and combat. Steps could be taken to address these concerns, but their efficacy would be questionable without a regionally coherent position on *Hoodia* use. Strategic approaches to value-adding and the use of marketing tools such as geographical indications would also be undermined in the absence of strong regional collaboration – needed at government, industry, farmer and community levels.

Although the San Trust, which was set up to disburse benefits, already implements benefit sharing across regional boundaries, based on an acknowledgment of the shared nature of *Hoodia* knowledge, there is clearly a need for benefit-sharing strategies to be developed at regional and national levels in cases where genetic resources are shared across boundaries.

#### **3.3.4. Conclusion: cycles of formalisation**

The formalisation interventions that have been made at different stages of the commercialisation of *Hoodia* yield broad lessons about the way in which the state and other institutions engage in and respond to the development of a natural product, and changes in its supply and demand.

In the case of *Hoodia* the role of the state was largely reactive and interventionist in the early stages of commercialisation, responding initially to peaked commercial interest and declines in the availability of the resource through policy measures to regulate or restrict use and trade. Thus *Hoodia*'s entry into the weight control market in 2001 led to a surge in demand for the raw material that required southern African governments to respond rapidly by introducing a stringent permit system and, in some cases, prohibiting wild harvesting. The international community similarly reacted by including *Hoodia* species in Appendix II of CITES. However, as the resource became better managed and the availability of cultivated material reduced pressure on wild populations, governments responded with a less severe permitting system and the role of the state tapered off. Now that cultivation has been initiated and markets have declined, the function of the state is diminishing to one of monitoring resource use, setting quality and export standards, providing policy support to bolster market opportunities and, in some instances, giving support to cooperatives. In turn, market requirements for a consistent, high and reliable quality and quantity of cultivated material are leading to the industry adopting a greater self-regulatory role.

The reactive and iterative policymaking that has been described for *Hoodia* has clear drawbacks in its lack of coherence, comprehension and foresight, but it also has its advantages. Many species enter markets that are highly volatile and erratic. Seldom are makers abreast of these developments and able to plan quickly enough or appropriately. In this case the significant changes in *Hoodia* markets, availability and demand clearly necessitated an iterative and flexible approach by government towards permitting and regulation. Reactive policymaking may thus be a vital mechanism to cope with rapidly changing conditions, in this case market and trade fluctuations.

This case study has described the complexities of regulating a species undergoing rapid commercialisation, where information about both the biology of the species and its trade is incomplete and scarce, where several nation states are involved, and where multiple laws apply to regulate harvesting, trade and commercialisation. The intractability of traditional knowledge use and benefit sharing adds yet another layer of murkiness to the picture. It is to be expected that the policy outcomes resulting from this situation will be messy.

An important question to ask is: how can policy move forward under such circumstances? Reactive and 'experimental' policymaking provides a partial answer in the short term and for crises, but one that may not ultimately be conducive to ecologically sound or equitable NTFP policies. Deeper consultation with harvesters, processors and traders, drawing on their experiences and insights, provides another important guide for policymakers. Also vital is that policymakers have greater knowledge of and exposure to policies and approaches outside of their traditional sectors. Combined, these imperatives suggest the need for a new approach to NTFP policymaking that takes into account and acknowledges the increasingly complex systems within which NTFPs are regulated, that moves away from positions that are pigeonholed to specific government departments and sectors, that recognises the expertise and experience of stakeholders involved in the trade and that is visionary and bold in achieving integration.

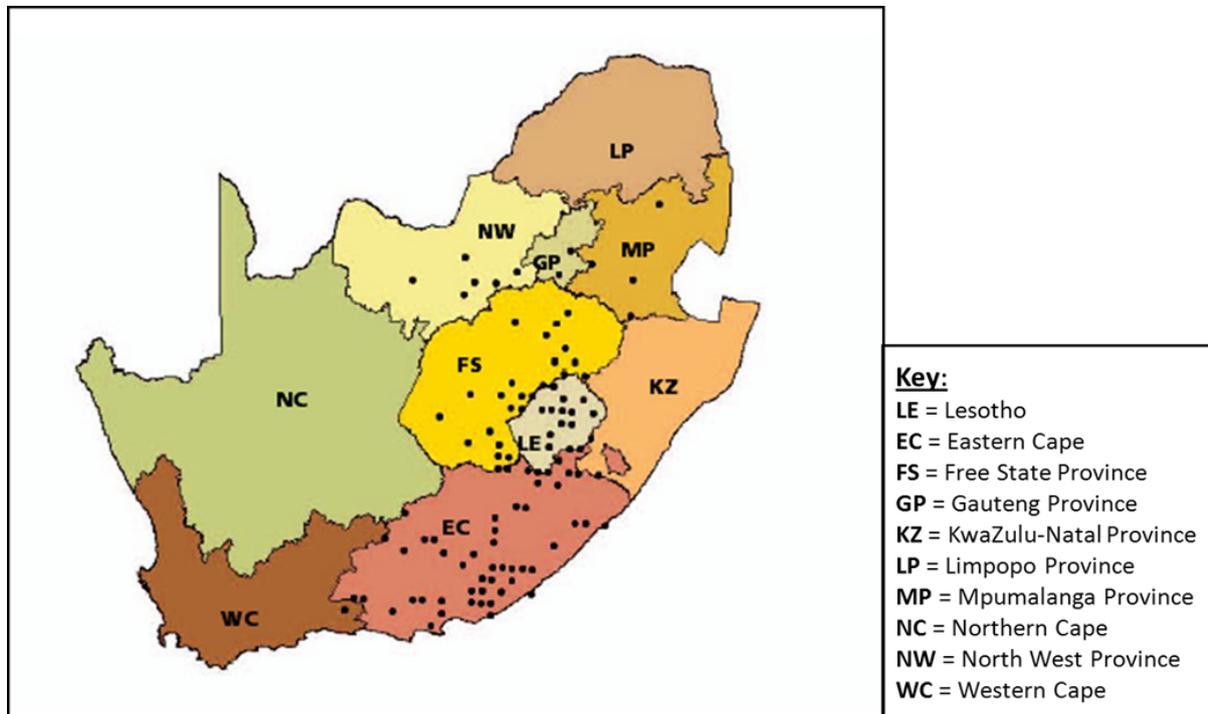
### **3.4. Case study 4: *Pelargonium sidoides***

By Jaci van Niekerk

#### **3.4.1. Introduction**

A medicinal plant endemic to South Africa and Lesotho (Figure 10), *Pelargonium sidoides* is widely used as a traditional cure mostly for gastro-intestinal ailments, and is also incorporated into a

popular cold-care remedy sold worldwide. Most of the raw material has been sourced from the wild, harvested by rural communities on communal lands in the Eastern Cape Province of South Africa and across Lesotho. As demand for the material has risen, particularly since the late 1990s, regulation of the industry has increased; and with the introduction of regulatory frameworks for ABS, the resource has become one of the first in the region to be subjected to conditions such as the conclusion of benefit-sharing and material transfer agreements prior to permit approval.



**Figure 10. Distribution map for *Pelargonium sidoides***

Source: Newton *et al.*, 2009.

### *Historical perspective*

The commercialisation of the plant has a long history dating back to the beginning of the twentieth century when an Englishman suffering from tuberculosis was cured by a traditional healer in Lesotho with an extract based on the tuberous roots of *P. sidoides*. The Englishman returned home and set about manufacturing a cure for tuberculosis based on the plant which he called 'Umckaloabo'. The remedy was used successfully by physicians in Europe, but the ingredients remained a closely guarded secret until 1974 when a study commissioned by a German pharmaceutical company revealed that *P. sidoides* was the main component. Ensuing clinical trials proved the efficacy of the herbal remedy for treating upper respiratory ailments; Umckaloabo consequently soared in popularity, particularly in Germany where the value of the local market for the product increased from €8 million in 2001 to €80 million in 2006 (Brendler and van Wyk, 2008).

### *Key actors involved*

Since the 1980s when German pharmaceutical Schwabe acquired the rights to sell Umckaloabo, the value chain has been largely monopolistic in nature, with the company constituting the main user of unprocessed material from southern Africa via a small number of intermediary buyers (see Figure 11). Schwabe also consolidated its position in the value chain by registering a number of patents over extractions based on the plant. However, several patents were withdrawn in 2010 after

the successful challenge of the Umckaloabo process patent at the European Patent Office. Schwabe still holds a small number of patents related to the resource, but the patent challenge combined with the recent approval of two bioprospecting permits for companies not formerly part of the Schwabe supply chain has opened up the market for other actors.

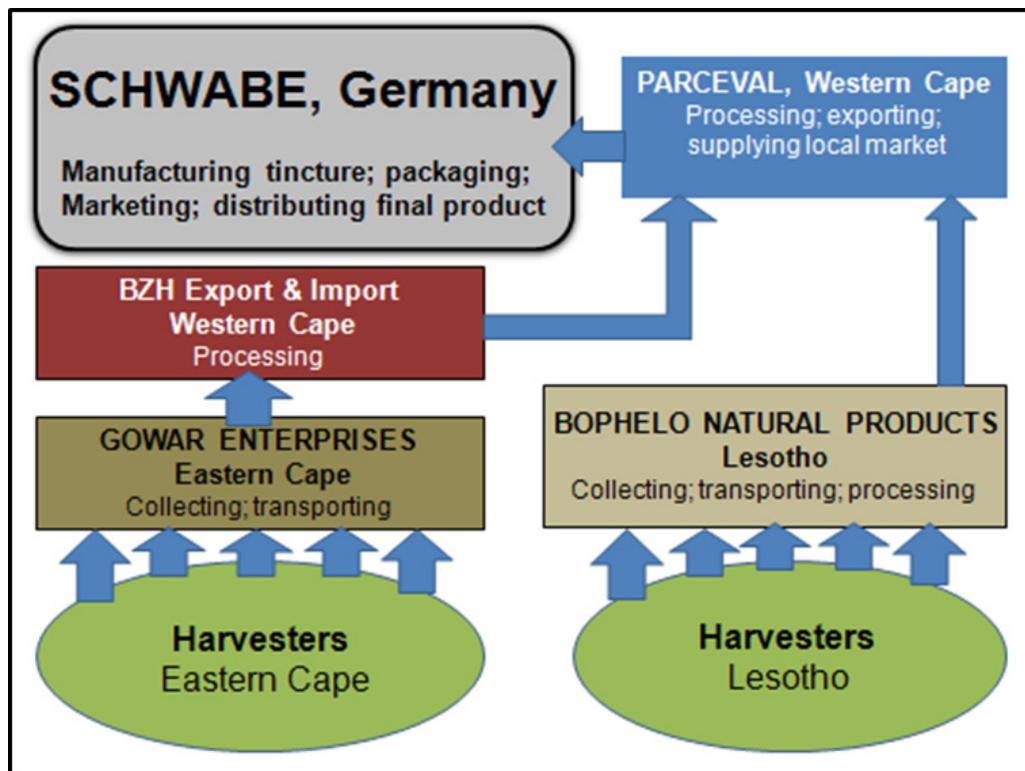


Figure 11. The international *Pelargonium sidoides* supply chain circa 2010

#### Cultivation

Cultivation of the resource in southern Africa has been limited in scope. The main underlying reason for this is economic: thus far it has been more cost-effective for industry to source material from the wild. Other factors are the long growth cycle of the tubers, estimated at 8–9 years before a commercially viable biomass is reached under cultivation (Motjotji, 2011); and concerns around the potency of active compounds in cultivated plants. A small number of cultivation projects have been established on commercial farms in the Free State and Eastern Cape Provinces, but none as extensive as the large-scale plantations Schwabe initiated in countries outside of the region, such as Kenya and Mexico, ostensibly in order to secure a regular supply of the resource in times when permitting arrangements in southern Africa were becoming stricter (U. Feiter, Director of Parceval Pharmaceuticals, pers. comm.).

#### Conservation status

Reports of overexploitation of the *P. sidoides* resource and related concerns over the sustainability of the trade led the National Department of Environment Affairs (DEA) and the South African National Biodiversity Institute (SANBI) to develop a Biodiversity Management Plan for *P. sidoides* in terms of the National Environmental Management Biodiversity Act (10 of 2004) (NEMBA). The resource assessment that formed part of the Management Plan was concluded in October 2010 and stated that the resource was not threatened; however, localised over-harvesting had been observed which could impact livelihood opportunities for the rural poor (De Castro *et al.*, 2010).

### *Political landscape*

Most of the *P. sidoides* harvesters in the Eastern Cape Province reside in the former Bantustans or homeland areas of Ciskei and Transkei. These communal areas are governed by traditional authorities consisting of kings, chiefs and chieftainesses, and headmen. Established by the former apartheid regime, these authorities were granted uncontested powers in rural areas, but often executed their roles in an unaccountable and undemocratic manner (Ntsebeza, 2002). The post-apartheid government has, on the one hand, tried to dilute the powers of traditional authorities by introducing democratic decentralisation in rural areas, but, on the other hand, it has implemented legislation that strengthens the powers of traditional leaders at local and provincial levels (Ntsebeza, 2002). This has resulted in tension between the institutions of traditional authorities and democratically elected local authorities which are likely to remain until the government defines the roles, powers, and functions of traditional authorities more clearly (Mbatha, 2011).

According to Logan (2009) traditional authorities are both anti-democratic and non-democratic as individual's interests are frequently placed before community interests. Criticisms raised by rural residents of the former Ciskei and Transkei themselves include the lack of tenure security and the wish that the vast powers of the traditional authorities and their hand-picked advisors be curbed (Bank and Mabhena, 2010).

In Lesotho, the vast majority of land – up to 95% – is subject to customary law and is believed to be held in trust for the nation by the king (UNECA, 2003). Chiefs are accountable to Local Community Councils which were granted control over natural resources and communally owned land in 1997. Despite having several tiers of traditional leadership in place, however, natural resources in Lesotho have suffered damage due to inadequate control of communally held property rights (Letsela *et al.*, 2003).

### **3.4.2. Formalisation processes in South Africa and Lesotho**

The following discussion focuses on the formalisation process in South Africa, rather than Lesotho; however, since the resource is shared between the two nations, actions taken in one country often have direct effects on the other, as can be seen below. A short summary of the formalisation process in Lesotho follows.

#### **South Africa**

##### *Drivers of formalisation*

Prior to the introduction of ABS legislation, harvest and export of *P. sidoides* material was regulated through permits issued at provincial level. As demand for the tuberous roots increased, particularly towards the end of the 1990s, fears of over-exploitation drove conservation authorities to impose stricter limitations on harvesting permits. For example, harvesting permits were granted with conditions attached, such as requiring a certain percentage of harvested material to be replanted. However, these conditions were not adhered to, meaning that the majority of material was illegally harvested. Stricter measures had the effect of relocating the industry across the border to Lesotho where escalating harvesting – mostly illegal – led to the listing of the species as protected in 2004 (Newton *et al.*, 2009).

Concerns about continued illegal harvesting and alarm expressed by an NGO regarding inequality in the supply chain led to a temporary ban on wild harvesting in the Eastern Cape Province from 2007

to 2009. As with the earlier tightening of regulation through permit conditions, this had the effect of shifting the industry to Lesotho.

The South African government introduced ABS in the hope of alleviating rural poverty, balancing inequalities in the supply chain and stimulating technology transfer (C. Malherbe, DEA, pers. comm.).

With the introduction of regulations for implementing ABS in 2008, those already active in the industry were given time to align their activities to the regulations and submit their applications to the DEA. The ban on wild harvesting was partially lifted to give stakeholders with applications awaiting approval the opportunity to ply their trade. This resulted in strengthening the near-monopoly of the Schwabe value chain by effectively excluding any other companies from the trade.

### *Key legislation*

A signatory to the CBD since 1995, South Africa is committed to utilising its biodiversity in a manner that both fosters conservation and contributes to poverty alleviation. Chapter 6 of NEMBA Act (10 of 2004) sets out the framework for the regulation of bioprospecting, access and benefit sharing of indigenous biological resources. The *P. sidoides* trade, commonly regarded as 'biotrade' or bulk trade in plant material, has been included in the Act's rather broad definition for 'bioprospecting' (van Niekerk and Wynberg, 2012). In April 2008, the Bioprospecting, Access and Benefit Sharing (BABS) Regulations came into force. These set out the format, contents and requirements for bioprospecting permits.

### *Approach to formalisation*

While provincial departments are responsible for issuing harvesting permits, the DEA acts as national focal point for ABS in the country and also administers the legal framework for ABS. Bioprospecting permits will only be issued if there has been material disclosure to stakeholders, if their prior informed consent has been obtained and if arrangements such as benefit-sharing and/or material transfer agreements have been concluded to the satisfaction of the Minister.

By early 2012 two bioprospecting permits had been issued to companies which had concluded benefit-sharing agreements with various communities and traditional leaders. One of the companies, Gowar Enterprises, formerly part of the Schwabe supply chain, has agreed to share benefits with the King Sandile Development Trust in the Eastern Cape. Another Eastern Cape-based company, Essential Amathole, has concluded agreements with the Amathole Community Trust.

Figure 12 illustrates the progression of the *P. sidoides* industry from loosely regulated to increasingly formalised through the introduction of ABS.

### **Lesotho**

Even though the legislative framework for implementing ABS has not yet been enacted, the government of Lesotho has, since 2009, set in place requirements such as benefit-sharing agreements before harvesting can take place. In contrast to the situation in South Africa, benefit-sharing agreements are first negotiated between members of the industry and the National Environmental Secretariat (NES) before being presented to Local Community Councils for their approval.

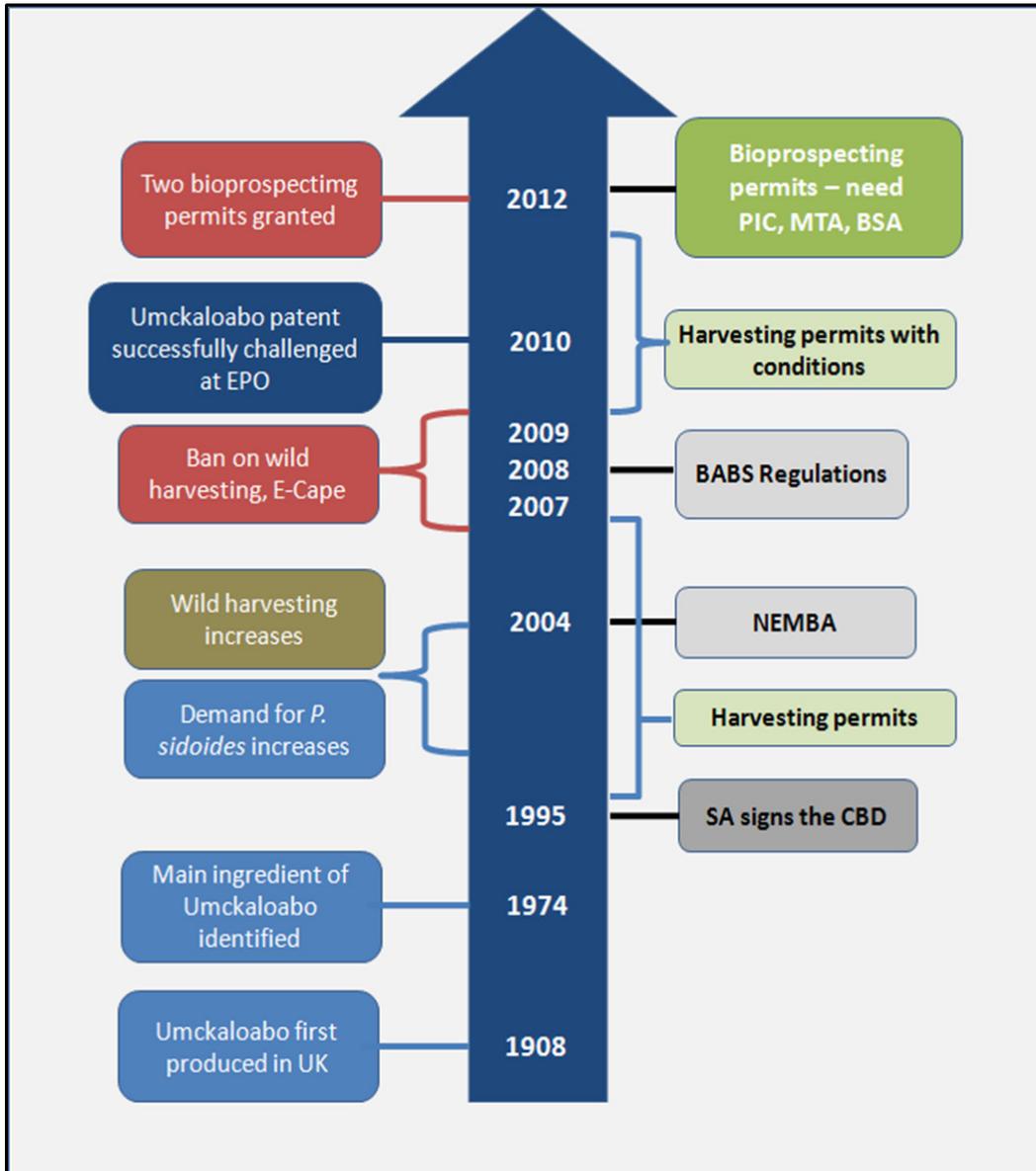


Figure 12. Formalisation in the *Pelargonium sidoides* industry in South Africa

Attempts at conserving the resource and ensuring equitable benefit sharing have been impeded by the inconsistent and unconsolidated legislation in Lesotho (Newton *et al.*, 2009). For example, a company wanting to harvest *P. sidoides* requires an Environmental Impact Assessment clearance letter from the NES and is expected to apply for a permit from the Protection Preservation Commission – this entity is, however, non-functional. If the company wants to export, it has to apply for a trader's licence from a different ministry.

### 3.4.3. Effectiveness of formalisation

As the *P. sidoides* trade moved towards increasing formalisation, resource providers and members of industry were subject to a variety of impacts. Along with the intended consequences of greater regulation, unintended social, ecological and economic effects also transpired. This discussion focuses on the costs and benefits realised along the *P. sidoides* supply chain from South Africa to Germany.

### **Social costs and benefits**

One of the most significant costs related to formalisation has been the interest shown by traditional leaders in becoming involved in the trade and their subsequent capture of benefits that were previously secured by harvesters themselves. Formerly, harvesters delivered material directly to local buyers who had obtained harvesting permits. With the advent of ABS requirements such as benefit-sharing agreements, certain traditional leaders have declared that all harvesting permits should be routed through them in future, and indeed the bioprospecting permits granted to date have been concluded with representatives of traditional authorities. The DEA and provincial officials are in favour of dealing with traditional leaders or bodies, since it is easier to work with an overarching structure rather than individual communities and it is believed that ‘chiefs will take care of their communities’.

Arguably the DEA are not equipped to make decisions about intricate issues of social and cultural identity, as this does not belong in their mandate. But since ABS is included in national biodiversity laws, such decisions have to be taken by the department, and by choosing to work with traditional authority structures, those communities aligned with the ruling elite stand to benefit, whilst those rural communities who do not recognise a particular leader or any traditional leader, stand to be excluded from participating in the trade. Such arrangements have already instigated conflict amongst different communities.

An aspect of the *P. sidoides* industry which has received much attention in the press after a local NGO accused Schwabe of biopiracy (ACB, 2008), is the issue of traditional knowledge (TK). Whilst none of the bioprospecting permits recently granted acknowledge the TK associated with use of the plant, some community members who have been involved with the trade for much longer than their traditional leaders, resent the fact that they are no longer directly in touch with the resource users. ‘Chiefs are taking what is ours – this is what we know, this is our knowledge’, remarked one user. Further, the fact that traditional knowledge associated with the plant is widely spread, is not taken into account when benefit-sharing agreements are concluded with a limited number of communities in a certain area – making these sorts of agreements inherently unfair.

### **Ecological costs and benefits**

Many regulatory measures became increasingly stringent as authorities sought to conserve wild stocks; nonetheless, illegal harvesting continued. Large-scale cultivation has the potential to alleviate pressure on wild populations, but since it is more economical for industry to source from the wild, it has not been widely adopted in South Africa. Moreover, in response to stricter regulation, Schwabe initiated cultivation in other developing countries, which means that the southern African region has lost out – not only on the potential benefits promised by ABS, but also on the possible conservation safeguards of cultivation. Where cultivation has been initiated locally, stakeholders with access to financial and technological capital tend to be favoured, thereby excluding those who have relied on wild harvesting to supplement their livelihoods, likely the poorest members of rural society.

The bioprospecting permits granted in the Eastern Cape stipulate that wild harvesting should happen in a 10-year cycle between villages, to give wild plants a chance to regenerate. This is unlikely to happen, according to a local botanist (Tony Dold, Curator of the Selmar Schonland Herbarium, pers. comm.) as there is very little regulation on the ground. On the other hand, holding chiefs responsible for harvesting permits, may protect the resource since ‘the chief will know what goes in or out [of his or her area of jurisdiction]’ (Roy Gowar, Gowar Enterprises, pers. comm.).

One of the positive effects of formalisation has been an increase in scientific information about the species. A legislative requirement of ABS is to enhance technical capacity of organs of state. The resource assessment funded by Schwabe contributes to the scientific knowledge and understanding of the *P. sidoides* resource, which is of significant value to SANBI and the provincial conservation agencies responsible for its management (De Castro *et al.*, 2010).

### **Economic costs and benefits**

The most significant economic loss South Africa has been dealt in the *P. sidoides* trade is the lack of revenue and benefits accruing to the state and impoverished rural harvesters due to cultivation of *P. sidoides* outside the region. Additionally, stricter regulations that compelled the industry to move their operation to neighbouring Lesotho, meant that the South African government lost tax income and harvesters were denied the opportunity to participate.

From the industry's perspective, the financial costs associated with complying with ABS legislation, such as travel expenses incurred when negotiating benefit-sharing agreements, has deterred small and medium sized companies from entering the trade. Larger companies such as the multinational Schwabe have been able to comply with ABS more easily, for example by funding the resource assessment, which until 2012 had helped secure its position as the top international buyer in the value chain. Lengthy delays in approving bioprospecting agreements – up to 3.5 years in some cases – have had negative financial consequences for companies, big and small alike. The stop–start nature of the industry, and uncertainties around permitting, due in part to the difficulties experienced by the authorities in implementing the legislation, has had the effect of putting off potential international buyers, thus forfeiting investment in the indigenous resource industry.

In their efforts to implement the complicated ABS regulatory framework, the DEA has also incurred costs. The Department has had to commission guidelines to help stakeholders interpret the complex legislation, and is currently conducting an extensive public participation process as part of amending the BABS regulations because their implementation has proved to be problematic.

A positive aspect that largely contributed to the successful patent challenge which led Schwabe to withdraw a number of patents related to the resource, has been the decline in the monopolistic nature of the industry, giving other members the opportunity to participate in this potentially lucrative, however not yet equitable, trade.

### **3.4.4. Conclusions**

The *P. sidoides* industry has evolved over the past 20 years from largely unregulated to strictly controlled, with ABS requirements playing a prominent role. Tighter restrictions were driven by fears of over-exploitation of the resource and perceptions of inequality in the value chain. One reason for implementing ABS was the hope that technology transfer would take place and thus benefit South Africa as a whole. However, very little technological expertise has been transferred and there has instead been an array of unintended negative effects of these tighter controls. These have included the forfeiture of income for rural harvesters as a result of the harvesting ban in the Eastern Cape; confusion and frustration for industry members and communities alike due to complex new permitting arrangements; conflict among communities; and loss of wild stocks as a result of continued illegal harvesting.

A number of lessons in terms of formalisation can be learnt from the *P. sidoides* industry. First, authorities should guard against over-regulation. As seen in South Africa, tighter regulation resulted

in the resource being collected from neighbouring Lesotho, and the stop–start nature of the industry as a result of harvest bans and tighter controls not only deterred potential investors, but had the effect of shifting cultivation outside the region.

Second, the formalisation of benefit sharing may well act against the interests of marginalised harvesters, by favouring communities that are already organised – or which are astute enough legally to constitute themselves as negotiating partners. Finally, since natural resource extraction commonly relies on the labour and knowledge of rural community members with minimal education and bargaining power, authorities should demand a higher level of transparency from industry in order to facilitate more fair and equal distribution of benefits.

## 4. What do these case studies tell us about formalisation?

These four case studies are extremely different in many ways, but also have in common a set of experiences from the formalisation process that is remarkably similar. Combined, they thus present a coherent and persuasive argument about the likely impacts of formalisation on informal, or loosely regulated sectors such as NTFP.

Table 3 summarises the key drivers of formalisation for each case, the approaches adopted, their location within a wider political and social context, their overall effectiveness, and the way in which formalisation has influenced the spread of benefits between different actors.

### 4.1. Drivers of formalisation

The key formalisation driver for all four species has been a growth in trade and consumer demand for certain products, leading to an increase in harvesting and, in some instances, informal or illegal trade. Social and economic pressures have often accompanied this growth in trade – the economic crisis in Zimbabwe, for example, forced more people into the baobab industry, and increased migration of political or economic refugees to natural resource-rich areas such as Bushbuckridge led to an increase in marula harvesting. Increased demand in turn led to increased interventions by the state to regulate over-exploitation. The CBD and CITES have been key influences in this regard. The CBD has also played a catalytic role in stimulating regulatory measures to formalise equity by rewarding traditional knowledge holders and resource owners for contributions they may make towards the commercial development of biodiversity products. While conservation, sustainable use and equity constitute the primary motivations for formalisation, there is also evidence that revenue generation for the state has been an important driver in some cases. The severe economic challenges in Zimbabwe, for example, have been a major stimulus to secure local and central government revenues through taxing the informal baobab trade, while trade in potentially lucrative species such as *Hoodia* and *Pelargonium* have undoubtedly played a role in formalising their control and catalysing stronger government involvement in their regulation.

Formalisation approaches adopted to control resource use and benefit sharing have included complex suites of levies and by-laws (in the case of baobab); a confusing array of permits (for all species); requirements for benefit-sharing agreements between providers and users (in the case of *Hoodia* and *Pelargonium*); and a variety of new institutional arrangements to purportedly monitor and enforce adherence to new regulations.

**Table 3. Summary of formalisation in case studies**

Species	Driver		Approach		Dimensions of formalisation			Effectiveness
			Ecological	Social	Economic	Political	Institutional	
<b>Baobab</b>	Black soot disease	Strict permitting	Fines and permits worsened overharvesting	Marginalisation of women in cross-border trade due to corruption and red tape at the border	Cross-border trade is a lucrative business for some	Non-cooperation with a state whose policies are unpopular with the local baobab users	Government is incapacitated – not motorised to effectively implement its policies	Both statutory and customary systems suffer from ineffective monitoring which compromises their effectiveness  Government intervention has been reactive rather than proactive  Effort has been directed at Nyanyadzi/Gudyanga (epicentre of the problem) –allowing for leakage  Collection of fines and levies is weak due to long distances between policing state agents and Nyanyadzi/Gudyanga
	Over-harvesting of bark and fruits	Fines Levies	Pressure on other complementary tree resources e.g. <i>Berchemia discolor</i> for dye provision		Long production chain offers employment opportunities to many people	Political expedience drives the local natural resource agenda	Local monitoring is ineffective due to lack of incentives	
	Economic challenges and need to boost coffers of local and central government	Local by-laws	Unintended consequences of levies include more indiscriminate harvesting of products by people who misconstrue payment of levy as a 'licence' to harvest as one wishes – disregarding customary practices		Government loses potential revenue due to corruption along the baobab chain – especially at the border post	e.g. land reform and Indigenisation Act	Traditional leaders' roles compromised by political interference	
	Global conservation and development agenda							
	Weakening customary systems							
	Unprecedented economic meltdown from 2000 to 2009 forced more people into the baobab industry putting more pressure on the resource base					Local leaders benefit through corruption		

Species	Driver	Approach		Dimensions of formalisation			Effectiveness	
		Ecological	Social	Economic	Political	Institutional		
<b>Marula</b>	Increased populations	Restriction on felling	Statutory law seen as supportive of customary	Social networks strengthened through 'work parties' to collect marula and neighbourhood gatherings where marula wine/beer is drunk	Harvesters derive an income from delivering marula for manufacture of Amarula Cream	Bushbuckridge – fractured history and weak community institutions	In SA, provincial legislation governing marula use is confusing and inconsistent	Less is more – less formalisation necessary where tenure is secure, customary governance strong and local capacity to manage exists  No serious resource management issues – thus less need to regulate for conservation  If tenure is privatised or resource domesticated – may need to intervene to ensure benefits are captured locally
	Economic need	Felling prohibited	prohibitions on felling (especially female trees)		Amarula Cream sold in 28 countries	Makathini – strongly traditional governance, but severe social and environmental disruptions	No provincial departments in Namibia, thus policy framework is less bureaucratic and more enabling	
	Over-exploitation post-WWII	Listed as protected – commercial fruit harvesting needs a permit (SA)	Increase in over-harvesting by 'outsiders' in Bushbuckridge for commercial trade	Women central to collecting fruit				
	New markets – renewed concerns about over-exploitation					Namibia – strong system of traditional governance	Good adherence to customary law in Namibia, less so in SA, especially Bushbuckridge – conflicting jurisdiction of traditional authorities and state	

Species	Driver	Approach			Dimensions of formalisation			Effectiveness
		Ecological	Social	Economic	Political	Institutional		
<b>Hoodia</b>	Illegal harvesting  Benefit sharing, recognition of TK	Varied, from moratoria through to strict permitting conditions	Moratoria did not eliminate illegal harvesting  Requirement for cultivation reduced wild harvesting	Potential marginalisation of non-San groups  Potential for increased conflict over benefit distribution Elite capture of benefits? Onerous permitting acts against small growers	Bureaucratic tangle potentially stifles trade  BSA have led to some monetary benefits for the San	Challenges of implementing cooperative governance and dealing with overlapping mandates  Regional complexity of aligning laws and policies for shared resources	Low law enforcement capacity  Monitoring is difficult due to remote rural areas  Uncoordinated permitting systems  Absence of ABS laws in Namibia facilitated a greater focus on development?	Reactive and iterative interventions from government may suit volatile species and provide a partial answer but are not conducive to long-term sustainability. Deeper consultations are needed

PIC = prior informed consent, BSA = benefit-sharing agreement, MTA = material transfer agreement

## 4.2. Costs and benefits of formalisation

The costs, benefits and effectiveness of these measures show striking similarity across case studies, and have had a range of unintended social, economic and ecological consequences. In Zimbabwe, for example, the imposition of an annual marketing levy on baobab crafters has not only discriminated against many of the more marginalised producers, and women in particular, but together with foreign currency regulations, has driven small businesses ‘under the state radar’. In South Africa, requirements for complex benefit-sharing agreements could similarly be viewed as a step backwards for ensuring greater equity. Without sufficient assessment, the imposition of ABS regulations could well be yet another inappropriate intervention that has negative impacts on livelihoods, species and ecosystems, rather than addressing the equity aims it set out to achieve. Requirements for benefit-sharing agreements to be negotiated with established legal entities, for example, have motivated companies trading *Pelargonium* to negotiate with communities already organised and capacitated, further marginalizing those who are more informally constituted. Concerns about elite capture aggravate this discrimination, especially in a context where the role and powers of traditional authorities are highly contested.

Requirements for benefit-sharing agreements with resource and knowledge holders have also led to conflict as exclusive rights have been negotiated with just a few communities, despite the resource and knowledge being held more widely. The bewildering complexity of laws that have emerged to regulate *Hoodia*, a succulent plant sold as an appetite suppressant, based on traditional knowledge of the indigenous San peoples, is also indicative of what lies ahead as NTFP and genetic resource use become increasingly entangled. These cases have also highlighted the difficulties (and negative social and environmental impacts) of simultaneously governing resources which are both wild gathered for commodity trade, and used in research-intensive industries.

The positive consequences of formalisation for resource sustainability are not strongly evident. Baobab harvesters, for example, apparently misconstrued the marketing levy as a license to freely harvest baobab products. A moratorium imposed on the *Hoodia* trade in Namibia and the Northern Cape province (South Africa) simply channelled illegal trade through the Western Cape province (South Africa), which had not prohibited trade, and led to a spike in prices and a concomitant rise in illegal harvesting. Similarly, a moratorium on *Pelargonium* harvesting in South Africa resulted in a shift in harvesting activities to Lesotho and other countries, relocating environmental damage (and economic benefits) but not resolving sustainability concerns. Improved resource sustainability has been achieved by stimulating cultivation for *Hoodia* and *Pelargonium*, but this has favoured stakeholders with access to land, capital and technical capacity, thereby excluding poorer producers who have relied on wild harvesting. Some of the greatest ecological benefits have arisen from the increased ability to monitor trade in particular species and the increased scientific knowledge that this has generated.

## 4.3. Overall effectiveness of formalisation

The overall governance and political context is crucial in determining effectiveness. The baobab case illustrates how formalisation has been intermingled with political agendas and the undermining and weakening of traditional governance systems. The interface between statutory and customary rules and regulations governing both marula and baobab conservation and use suggest that ‘less’ is often ‘more’ when it comes to government regulation, a result that resonates with other NTFP studies from around the world that indicate the need for state-led interventions to be purposely crafted to reflect local circumstances and needs. Such interventions are also most effective when government and traditional authorities cooperate, authorities have legitimacy and sufficient capacity, and there

is acceptance of the rules by user groups. Moreover, where land tenure and resource rights are secure, customary laws are still strong, and local capacity exists to manage the resource base and deal with commercial pressures, customary laws often provide a more nuanced approach to regulation, integrating unique local cultural, ecological and economic conditions in ways that better suit this category of products.

The case studies also emphasise that because NTFP use, management and trade depend upon a myriad of complex and locally specific ecological, economic, social, political and cultural factors, a patchwork of local measures may work best for formalisation. In crisis situations, such as the boom in trade witnessed for *Hoodia* and *Pelargonium*, reactive, experimental and flexible formalisation may be necessary, but should not substitute for deeper consultation with harvesters, traders and processors. Moreover, rather than intervening unnecessarily, governments in southern Africa should seize the opportunities that exist within communities for local management and control of natural resources. These oft-complementary local mechanisms should be used to bolster implementation of national policies and laws, with the extent of state intervention being gauged against the robustness of customary systems of governance. This would provide a more streamlined and coherent framework for NTFP use, management and trade than currently exists, suggesting that with the exception of areas and cases in which customary law and traditional authority falls short and commercial pressures are significant, governments might do best by leaving well enough alone.

Important lessons to improve effectiveness emerge from the remarkably common set of frustrations with the multitude of permitting requirements that accompany formalisation efforts. This is especially acute in countries such as South Africa which have concurrent provincial and central government functions, overlapping and sometimes contradictory laws, and a confusing array of permitting authorities. As the *Hoodia* and *Pelargonium* case studies reveal, this gets all the more messy with species and traditional knowledge that are shared across national borders. Regional policies can help to bring some coherence to such scenarios but can never cater for nuances at a local level.

Lastly, it is apparent that even with the best of intentions, formalisation efforts cannot deal with some of the root causes of resource degradation and social injustice: lack of resource tenure and security, population increases due to the migration of political and economic refugees, unequal trade and power relations between actors along the value chain, structural poverty and inequality, political instability and consumer demand. Tailored interventions may however be appropriate and with this in mind the following recommendations are made.

## 5. Recommendations

1. A comprehensive needs assessment and environmental and social impact analysis should be undertaken prior to the introduction of interventions that seek to formalise informal or loosely regulated NTFP trade. This should take into account regional implications and should focus only on those species under threat or intensively traded.
2. If deemed desirable, formalisation interventions to protect resources or harvester communities should be designed in a way that is consistent with local needs, based on local input and extensive consultations with the full range of affected stakeholders, including NTFP producers or harvesters, traders, companies, NGOs and government departments.
3. The extent and nature of formalisation should be guided by the nature of commercialisation. This should recognise the different types of resource use, including subsistence, local trade, discovery research, commercial bioprospecting, and global trade. Subsistence use should not be formalised, except in clear cases where there are obvious risks of overharvesting and customary controls do not prove adequate.
4. Reactive, flexible and iterative policymaking may be an important mechanism to cope with rapidly changing conditions such as market and trade fluctuations but should not substitute for deeper consultation with harvesters, traders and processors
5. Governments should use opportunities that exist within communities for local management and control of natural resources to bolster implementation of national policies and laws, with the extent of state intervention being gauged against the robustness of customary systems of governance.
6. The capacity of local and indigenous people should be increased, so that communities can navigate permitting procedures, assert their rights against more powerful players and engage with government on the development of effective laws and policies.
7. Formalisation interventions should avoid criminalising harvesting activities and further marginalising producers. Governments should eliminate permits and procedures that are inappropriate and burdensome for small-scale producers and that bring no clear benefits to management or livelihoods.
8. Government should approach formalisation with a light hand, and in ways that reflect the financial, ecological and social costs and benefits of such actions, the government's implementation capacity and the likelihood of compliance.

## 6. Bibliography

- Addy, R. 2009. Baobab fruit approved as food ingredient in US. <http://www.nutraingredients-usa.com/Industry/Baobab-fruit-approved-as-food-ingredient-in-US>.
- ACB. 2008. *Knowledge not for sale – Umckaloabo and the Pelargonium sidoides challenges*. African Centre for Biosafety, Johannesburg.
- Alden Wily, L. 2002. Democratising the commonage. The changing legal framework for natural resource management in eastern and southern Africa with particular reference to forests. <http://www.cbnrm.uwc.ac.za>.
- Antypas, A., R.J. McLain, J. Gildea and G. Dyson. 2002. Federal non-timber forest products policy and management. In: Jones, E.T., R.J. McLain and J. Weigand (eds.). *Nontimber forest products in the United States*, 347–74. University of Kansas Press, Lawrence, Kansas.
- Arnold, J.E.M. and M. Ruiz-Peréz. 2001. Can non-timber forest products match tropical forest conservation and development objectives? *Ecological Economics* 39: 437–447.
- Bank, L. and C. Mabheba. 2010. After the Communal Land Rights Act: Land management, power and arrested development in Rural Eastern Cape. [www.afesis.org.za/Sustainable-Settlements-Articles/](http://www.afesis.org.za/Sustainable-Settlements-Articles/) (7 April 2011).
- Belcher, B. and K. Schreckenber. 2007. Commercialisation of non-timber forest products – a reality check. *Development Policy Review* 25(3):355-377.
- Bembridge, T.J. 1991. Farmer characteristics, innovativeness and cotton production at Makhathini Irrigation Scheme, KwaZulu. *Development Southern Africa*, 8(1).
- Bennett, B. 2006. Natural products: The new engine for African trade growth. Consultancy to further develop the trade component of the Natural Resources Enterprise Programme (NATPRO) NRI. Regional Trade Facilitation Programme, IUCN, Natural Resources Institute.
- Botelle, A. 2001. A history of marula use in north-central Namibia. A report submitted to CRIAA SA-DC by Mamokobo Video and Research. Windhoek, Namibia.
- Brendler, T. and B.E. van Wyk. 2008. A historical, scientific and commercial perspective on the medicinal use of *Pelargonium sidoides* (Geraniaceae). *Journal of Ethnopharmacology* 119: 420–33.
- Calvert, G.M. 1989. Dying baobabs. Zim. Letter to the editor. *Science News* 23 (1/3): 21.
- Carnie, T. 2005. Dukuduku dismay. *African Wildlife*, 59(3): Winter 2005. <http://www.wildlifesociety.org.za/publicationsAWLdukuduku.htm> (29 June 2006).
- Chigumira, E. 2010. My Land, my resource: assessment of the impact of the fast track land reform program on the natural environment, Kadoma District, Zimbabwe. Livelihoods after Land Reform in Zimbabwe, Working Paper 14.
- CITES. 2004. Amendments to Appendices I and II of CITES. Proposal to the 13th meeting of the Conference of the Parties, Bangkok, Thailand, 2–14 October.
- Clay, J. 1992. Some general principles and strategies for developing markets in North America and Europe for non-timber forest products. In: Plotkin, M and L. Famolare (eds.) *Sustainable harvest and marketing of rain forest products*. Island Press, Washington, DC.
- CRDC. 2012. Draft Chimanimani Rural District Council Strategic Plan for 2012 to 2016. Chimanimani District Council, Chimanimani.
- Cronkleton, P., P.L. Taylor, D. Barry, S. Stone-Jovicich and M. Schmink. 2008. Environmental Governance and the Emergence of Forest-Based Social Movements. Center for International Forestry Research (CIFOR), Bogor, Indonesia.
- Crouch, N.R., E. Douwes, M.M. Wolfson, G.F. Smith and T.J. Edwards. 2008. South Africa's bioprospecting, access and benefit-sharing legislation: current realities, future complications, and a proposed alternative. *South African Journal of Science* 104(9–10), 355–366.
- Cunningham, A.B. 1989. Indigenous plant use: balancing human needs and resources. In: Huntley, B.J., (Ed.) *Biotic diversity in southern Africa: concepts and conservation*, 93–106. Oxford University Press, Cape Town.

- De Castro, A., J. Vlok, W. McLellan 2010. Field survey of the distribution of *Pelargonium sidoides* and size of selected sub-populations. Resource Assessment study conducted for the South African National Biodiversity Institute.
- Den Adel, S. 2002. Use of marula products for domestic and commercial purposes by households in north central Namibia. Unpublished report, CRIAA-SA DC, Windhoek.
- Fabricius, C., E. Koch, H. Magome and S. Turner (eds). 2004. Rights, resources and rural development. Community-based natural resource management in southern Africa. Earthscan, London.
- Gosling, M. 2006. *Hoodia* 'diet plan' under threat from illegal exports, *Cape Times* 24 November.
- Hecht, S.B., A.B. Anderson, and P. May. 1988. The subsidy from nature: shifting cultivation, successional palm forests, and rural development. *Human Organisation* 47: 25–35.
- Kepe, T.V. 2002. Grassland vegetation and rural livelihoods: a case study of resource value and social dynamics on the Wild Coast, South Africa. PhD thesis, University of the Western Cape, South Africa.
- Kozanayi, W., R. Wynberg and F. Matose. 2013. Use of customary systems in the governance of baobab trees and products. In Sowman, M. and R.P. Wynberg (eds) *Governance for Justice and Environmental Sustainability - Lessons across Natural Resource Sectors in Sub-Saharan Africa*. Earthscan, London (forthcoming)
- Kwaramba, P.K. 1995. *Potential commercialisation of common property resources: the case of baobab (Adansonia digitata) bark around Hot Springs area*. Unpublished Report. Institute of Environmental Studies, University of Zimbabwe, Harare.
- Laird, S., R. McLain, and R. Wynberg (eds). 2010. Wild product governance: finding policies that work for non-timber forest products. Earthscan, London, 384 pp.
- Laird, S. and R. Wynberg, 2008. Access and benefit sharing in practice: trends in partnerships across sectors, Volumes I, II and III. CBD Technical Series 38, Secretariat of the Convention on Biological Diversity, Montreal.
- Laird, S., R. Wynberg, and R. McLain. 2011. Regulating complexity: the governance of non-timber forest products. In: Shackleton, S., C. Shackleton and T. Shanley (eds), *Non-timber Forest Products in the Global Context*, Chapter 11. Springer, London.
- Letsela, E., T.F. Witkowski and K. Balkwill. 2003. Plant resources used for subsistence in Tsehlanye and Bokong in Lesotho. *Economic Botany* 57(4): 629–639.
- Logan, C. 2009. Selected chiefs, elected councillors and hybrid democrats: popular perspectives on the co-existence of democracy and traditional authority. *Journal of Modern African Studies* 47(1): 101–128.
- Lowman, M. 2012. The effectiveness of ABS legislation in SA: practical considerations for national regimes. MPhil Thesis, University of Cape Town.
- Luckert, K.M., N. Nemarundwe, L. Gibbs, I. Grundy, D. Hauer, D. Maruzane, S. Shackleton and J. Sithole. 2001. *Contribution of baobab production activities to household livelihoods*. Hot Springs Working Group. IES Working Paper No. 18.
- Lynch, O.J. and J.B. Alcorn. 1994. Tenurial rights and community-based conservation. In: Western, D. and R.M. Wright (eds.) *Natural connections: perspectives in community-based conservation*, 373–392. Island Press, Washington DC.
- Makopi, S. 1999. Awards to provide security of tenure and comparable redress, In: Cousins, B. (ed.) *At the crossroads. Land and agrarian reform in South Africa into the 21st century*, 143–159. PLAAS, University of the Western Cape.
- Mander, M., J. Cribbins, and F. Lewis. 2002. The commercial marula industry in South Africa: a sub-sector analysis. Institute of Natural Resources, Pietermaritzburg. <http://www.nwl.ac.uk/research/winners/index.html> (4 April 2006).
- Marshall, E., K. Schreckenber, and A.C. Newton (eds). 2006. Commercialization of non-timber forest products. Factors influencing success. Lessons learned from Mexico and Bolivia and policy implications for decision-makers. UNEP World Conservation Monitoring Centre, Cambridge, UK.
- Mbatha, N.P. 2011. Institutions and the sharing of benefits from coastal resources in South Africa. Master's thesis, University of Cape Town, South Africa.
- McLain, R.J. and E.T. Jones. 2001. Expanding non-timber forest product harvester/buyer participation in Pacific Northwest Forest Policy. *Journal of Sustainable Forestry* 13: 147-161.

- Motjotji, L. 2011. *Towards sustainability of harvesting the medicinal plant Pelargonium sidoides DC (GERANIACEAE)*. MSc Thesis, University of the Witwatersrand.
- Mudavanhu, H.T. 1998. Demography and population dynamics of baobabs (*Adansonia digitata*) harvested for bark in south-eastern Zimbabwe. Unpublished MSc thesis, University of Zimbabwe.
- Mukamuri, B.B. and W. Kozanayi. 1999. *Institutions surrounding the use of marketed bark products. The case of Berchemia discolor, Adansonia digitata, and Warburgia salutaris*. IES Working Paper Number 17.
- Mutasa, B.K. 2008. Exploitation of the baobab tree (*Adansonia digitata*) in Zimbabwe. Products, markets, income and impact on household livelihoods in Nyanyadzi Communal Area. Unpublished MBA thesis. Africa University, Zimbabwe.
- Neumann, R.P. and E. Hirsch. 2000. *Commercialisation of non-timber forest products: review and analysis of research*. Centre for International Forestry Research, Bogor, Indonesia.
- Newton, D., T. Letsela, T. Lijane, N. Mafatle, P. Manyama, S. Naha, B. Ntloko, R. Ntoshi, B. Paetzold, A. Pires, M. Polaki, D. Raimondo, M. Rouget, T. T'sele, N. Wistebaar and C. Zimudzi. 2009. *A non-detriment finding for Pelargonium sidoides (DC) in the Kingdom of Lesotho*. Draft document prepared as a contribution to a Regional BMP (Biodiversity Management Plan) for *Pelargonium sidoides*, Lesotho.
- Ntsebeza, L. 2002. *Decentralisation and natural resource management in rural South Africa: problems and prospects*. Paper presented to the 9th Conference of the International Association for the Study of Common Property, 17–21 June, Victoria Falls, Zimbabwe.
- Ntsebeza, L. 1999. Land tenure reform in South Africa: an example from the Eastern Cape Province. Issue paper no. 82, IIED, London.
- ODI, 2006. Forest Briefing. No. 10, March. Overseas Development Institute, London.
- OJEU, 2008. Commission Decision of 27 June 2008 authorising the placing on the market of Baobab dried fruit pulp as a novel food ingredient under Regulation (EC) No 258/97 of the European Parliament and of the Council. Official Journal of the European Union.
- Palmer, R., H. Timmermans, and D. Fay (eds). 2002. *Nature-based development on the South African Wild Coast*. Human Sciences Research Council, Pretoria. <http://www.hsrbpress.ac.za/index.asp?id=1974> (29 June, 2006).
- Pappe, L. 1862. *Silva capensis*. A description of South African forest trees and arborescent shrubs used for technical and economical purposes (2nd edn). Ward & Co, London (1862), pp. 54–55.
- Plotkin, M. and L. Famolare (eds). 1992. *Sustainable harvest and marketing of rainforest products*. Washington, DC: Island Press.
- Powell, E. 2005. *The medicinal plant Hoodia gordonii: a review*. Internal Report No 7, prepared by the Directorate of Conservation Scientific Services, Northern Cape Department of Tourism, Environment and Conservation, South Africa.
- Republic of South Africa, Department of Water Affairs and Forestry. 2004. Government Gazette Notice 1012, 27 August, 2004.
- Republic of South Africa, Department of Water Affairs and Forestry. 2006. Exemptions in terms of sections 7(1) and 15(1) of the National Forests Act No. 84 of 1998, as amended.
- Robins, S. 2002. NGOs, 'bushmen', and double vision: the Khomani San land claim and the cultural politics of 'community' and 'development' in the Kalahari. In: T.A. Benjaminsen, B. Cousins and L. Thompson (eds), *Contested resources: challenges to the governance of Natural Resources in South Africa*. PLAAS, University of the Western Cape, Western Cape, South Africa.
- Romeo, C., D. Dovie, J. Gambiza, E. Luoga, S. Schitt and I. Grundy. 2001. *Effects of commercial bark harvesting on Adansonia digitata (Baobab) in the Save-Odzi Valley, Zimbabwe, with considerations for its management*. Hot Springs Working Group. IES Working Paper No. 18.
- Ros-Tonen, M., E.M. Lammerts van Bueren, and W. Dijkman. 1995. *Commercial and sustainable extraction of non-timber forest products: towards a policy and management oriented research strategy*. The Tropenbos Foundation. Wageningen, The Netherlands.
- RTFP. 2007. Regional Trade Facilitation Programme News Brief No. 2, [www.rtfp.org](http://www.rtfp.org).

- Ruiz- Pérez, M., B. Belcher, A. Achdiawan, M. Alexiades, C. Aubertin, J. Caballero, B. Campbell, T. Cunningham, A. Fantini, H. De Foresta, C.G. Fernández, K.M. Gautam, P.H. Martinez, W. De Jong, K. Kusters, M.G. Kutty, C. López, M. Fu, M.A.M. Alfaro, T.K.R. Nair, O. Ndoye, N. Rai, M. Ricker, K. Schreckenberg, S. Shackleton, P. Shanley, T. Sunderland and Y.C. Youn. 2005. Markets drive the specialization strategies of forest peoples. *Ecology and Society* 9(2), 4, <http://www.ecologyandsociety.org/vol9/iss2/art4> (15 March 2006).
- Sanchez, C.A., S. De Smedt, N. Haq and R. Samson. 2010. Comparative study on baobab fruit morphological variation between western and south-eastern Africa: opportunities for domestication. *Genetic Resource Crop Evolution*, 1-14.
- Sawer, S. and E. Stillwagon. 2010. Understanding the Southern African 'anomaly': poverty, endemic disease and HIV. *Development and Change* 41(2): 195–224.
- Schreckenberg, K. 2003. *Appropriate ownership models for natural product-based small and medium enterprises in Namibia*. Prepared for the Trade and Investment Development Programme of the Ministry of Trade and Industry, Namibia.
- Shackleton, S. 2004. Livelihood benefits from the local level commercialisation of savannah resources: a case study of the new and expanding trade in marula (*Sclerocarya birrea*) beer in Bushbuckridge, South Africa. *South African Journal of Science*, 100: 651–657.
- Shackleton, C. and S. Shackleton. 2004. The importance of non-timber forest products in rural livelihood security and as safety nets: a review of evidence from South Africa. *South African Journal of Science*, 100: 658–664.
- Shackleton, S., C.M. Shackleton, A.B. Cunningham, C. Lombard, C.A. Sullivan and T.R. Netshiluvhi. 2002a. Knowledge on *Sclerocarya birrea* subsp. *caffra* with emphasis on its importance as a non-timber forest product in South and Southern Africa. Part 1: Taxonomy, ecology, and role in rural livelihoods. *Southern African Forestry Journal* 194, 27–41.
- Shackleton S., S. den Adel, T. McHardy and C.M. Shackleton. 2002b. *Use of marula products for domestic and commercial purposes: synthesis of key findings from three sites in Southern Africa*. Unpublished report, Rhodes University, Grahamstown. <http://www.nwl.ac.uk/research/winners/index.html> (4 April 2006).
- Shackleton, C.M., J. Botha and P.L. Emanuel. 2003. Productivity and abundance of *Sclerocarya birrea* subsp. *caffra* in and around rural settlements and protected areas of the Bushbuckridge low veld, South Africa. *Forests, Trees & Livelihoods* 13, 217–232.
- Shackleton, S., C. Shackleton, R. Wynberg, C. Sullivan, R. Leakey, M. Mander, T. McHardy, S. den Adel, A. Botelle, P. Du Plessis, C. Lombard, S.A. Laird, T. Cunningham and D. O'Regan. 2006. Livelihood trade-offs in the commercialisation of multiple-use NTFPs: lessons from marula (*Sclerocarya birrea* subsp. *caffra*) in Southern Africa. In: Shaanker, R.U., A.J. Hiremath, G. Joseph and N.D. Rai (eds) *Non-timber forest products: integrating ecology, management and policy*. ATREE Press, India.
- Shackleton, S., C. Shackleton and P. Shanley (eds). 2011. *Non-timber forest products in the global context*. Springer, London.
- Shanley, P., A.R. Pierce, S.A. Laird and A. Guillen. 2002. Tapping the green market: certification and management of non-timber forest products. Earthscan, London.
- Sidibe, M. and J.T. Williams. 2002. Baobab. *Adansonia digitata*. International Centre for Underutilised Crops, Southampton, UK.
- Shone, A.K. 1979. Notes on the marula. *Department of Water Affairs and Forestry Bulletin*, 58: 1–89.
- Statistics SA. 2002. Measuring rural development. Baseline statistics for the integrated, sustainable rural development strategy. Statistics South Africa, Pretoria.
- Taylor, M. and R. Wynberg, 2008. Regulating access to South Africa's biodiversity and ensuring the fair sharing of benefits from its use. *South African Journal of Environmental Science and Policy* 15(2): 217–243.
- Thornton, R. 2002. Environment and land in Bushbuckridge, South Africa. Department of Anthropology, University of the Witwatersrand, Johannesburg.
- Tibaijuka, A. 2005. Report of the UN Special Envoy on human settlement issues in Zimbabwe, Report of the fact-finding missions to assess the scope and impact of Operation Murambatsvina, 22 July. United Nations, Geneva.

- Tomich, T.P. 1996. Market, policies and institutions in NTFP trade: nothing is perfect. In: Leakey, R.R.B, AB. Temu, M. Melnyk, and P. Vantomme (eds), *Domestication and commercialisation of non-timber forest products in agroforestry systems*. Non-Wood Forest Products 9. Food and Agriculture Organization, Rome.
- UN. 2008. United Nations Declaration on the Rights of Indigenous Peoples. United Nations, Geneva.
- UNECA. 2003. *Land tenure systems and sustainable development in southern Africa*. United Nations Economic Commission for Africa, ECA/SA/EGM. Land/2003/2.
- van Niekerk, J. and R. Wynberg. 2012. The trade in *Pelargonium sidoides*: rural livelihood relief, or bounty for the 'bio-buccaneers'? *Development Southern Africa* 29(4): 530-547.
- Watt, J.M. and M.G. Breyer-Brandwijk. 1962. *The medicinal and poisonous plants of southern and eastern Africa* (2nd edn). E&S Livingstone, Edinburgh.
- White, A. and B.L. Sloane. 1937. *The Stapelieae III* (2nd edn). Abbey San Encino Press, Pasadena CA.
- Wickens, E.G. and P. Lowe. 2008. *The Baobabs: Pachycauls of Africa, Madagascar and Australia*. Springer, London.
- Wynberg, R. 2004a. Achieving a fair and sustainable trade in Devil's Claw (*Harpagophytum* spp.) In: Sunderland, T. and O. Ndoye, (eds). *Forest products, livelihoods and conservation: case studies of non-timber forest product systems*. Volume 2: Africa. CIFOR, Bogor, Indonesia. pp. 53–72.
- Wynberg, R. 2004b. Rhetoric, realism and benefit-sharing—use of traditional knowledge of *Hoodia* species in the development of an appetite suppressant, *World Journal of Intellectual Property* 6(7): 851-876.
- Wynberg, R.P. 2006. Identifying pro-poor, best practice models of commercialisation of southern African non-timber forest products. PhD thesis, University of Strathclyde, Glasgow, Scotland.
- Wynberg, R. and R. Chennells. 2009. Green diamonds of the south: an overview of the San-*Hoodia* Case. In Wynberg, R., D. Schroeder and R. Chennells (eds), *Indigenous peoples, consent and benefit sharing: lessons from the San–Hoodia case*. Springer, London.
- Wynberg, R.P. and S.L. Laird, 2007. Bioprospecting: Tracking the Policy Debate. *Environment* 49 (10): 20-32.
- Wynberg, R.P. and Laird, S.L. 2007. Less is often more: governance of a non-timber forest product, marula (*Sclerocarya birrea* subsp. *caffra*) in southern Africa. *International Forestry Review*, 9(1): 475-490.
- Wynberg, R. and D. Newton, 2009. A policy and trade assessment for *Hoodia* spp. in Namibia, Botswana and South Africa. Unpublished report, Environmental Evaluation Unit, University of Cape Town and TRAFFIC.
- Wynberg, R., J. Cribbins, R. Leakey, C. Lombard, M. Mander, S. Shackleton, and C. Sullivan. 2002. Knowledge on marula (*Sclerocarya birrea* subsp. *caffra*) with emphasis on its importance as a non-timber forest product in South and southern Africa. Part 2: commercial use, tenure and policy, domestication, intellectual property rights and benefit-sharing. *Southern African Forestry Journal*, 196: 67–77.
- Wynberg, R., Schroeder, D., Williams, S. and Vermeylen, S. 2009. Sharing benefits fairly: decision-making and governance. In: Wynberg, R., D. Schroeder and R. Chennells (eds), *Indigenous peoples, consent and benefit sharing: lessons from the San–Hoodia case*. Springer, London.



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