The Management, Use and Commercialisation of Marula: Policy Issues

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Readers Guide to the Report

Five distinct and separate parts comprise this report, the result of work on a diverse range of policy issues. Each can be read as a separate unit, although Part I provides the overall context to all sections.

- Part I gives an introduction to the report and describes the methods used to glean the information upon which our analysis is based.
- Part II describes the governance of marula management, use, and commercialisation and is the result of our efforts to improve understanding as to the complex dynamics that operate between international governance regimes, national and in some cases provincial policy frameworks, customary laws, and the implementation and interpretation of these policies for the use and conservation of marula at the local level.
- Part III describes traditional knowledge and intellectual property rights issues that affect marula use and conservation, and includes a discussion on the development of policy tools to improve the marketing, commercialisation and fair sharing of benefits from marula.
- Part IV provides an analysis of key policy issues raised by the research undertaken.
- Part V gives overall conclusions and recommendations arising from the findings of the study.

PART I

INTRODUCTION AND METHODS

1. Introduction

Marula (*Sclerocarya birrea* subsp. *caffra)* forms an integral part of the diet, tradition and culture of rural communities in southern Africa. It also comprises the basis of various commercial enterprises which operate both endogenously - where trade of marula products takes place at a local level by households to supplement other livelihood activities - and exogenously – where a more formal and 'externally driven' commercialisation process occurs.

As is the case for all non-timber forest products (NTFPs), a range of laws and policies impact the management, use and commercialisation of marula. These include laws and policies that directly concern NTFPs, or marula, such as natural resource, agriculture, forestry, and environment laws; measures on land tenure and resource rights; and a range of economic and financial measures such as trade and taxation. Relevant laws and policies are manifested at the international, regional, national, provincial, and local level – the latter in southern Africa including customary laws and regulations.

Dewees and Scherr (1996) identify three broad categories of policy that influence the operation of NTFPs:

(1) Policies designed to bring about the *conservation* of the resource, for example by restricting use, encouraging sustainable use, or by developing alternatives or incentives to encourage shifts in production from natural areas to farm areas;
(2) Policies directed towards *improving economic welfare*, for example by increasing household income and employment, increasing household access to tree products, improving food security, increasing the productivity and economic contribution of marginal lands, protecting consumers from price fluctuations for widely-used NTFPs, recognising traditional knowledge systems, or promoting environmental stabilisation at the household level by incorporating trees into farming systems; and
(3) Policies aimed to *support economic growth at regional and national levels* by providing incentives to adopt NTFP production systems which supply markets, encouraging the development of new markets for NTFP producers, improving the efficiency of existing NTFP markets, supporting infant industries based on NTFPs, and introducing measures that add value to NTFPs.

While the above measures are intended to directly impact the management and trade of NTFPs, numerous laws and policies indirectly promote or discourage sustainability and adequate benefit-sharing for primary producers and other local groups. These include taxation at various steps in the harvesting and trading chain, regulations relating to quality control and – as we will describe in Part II – cultural practices and customary laws that determine local decision-making and management practices.

Although substantial research has been conducted on marula (see Shackleton *et al* 2002 and Wynberg *et al* 2002 for a review of this work), there has to date been little analysis with regard to policy and institutional factors which affect the resource, and those dependent on it. This is an important lacuna, given the often unpredictable, and sometimes negative impacts which policies may have on rural livelihoods. In the following sections we will address laws and policies at

international, national, provincial, and community or local levels that directly and/or indirectly influence the commercialisation and management of marula. We examine the cumulative effects of these measures, and make recommendations for policy tools to promote both the sound management of the resource, and the attainment of greater benefits by primary producers from marula commercialisation. This paper forms part of a DFID project entitled "Winners and Losers in Forest Product Commercialisation, which aims to investigate the social, ecological and economic impacts and opportunities associated with NTFP commercialisation.

2. Methods

Information on the policy aspects of marula use and commercialisation was obtained in a number of ways.

First, published and unpublished literature on marula relevant to its conservation and use was reviewed and synthesised (Shackleton *et al* 2002; Wynberg *et al* 2002). This included an assessment of international policy instruments that might affect marula commercialisation, and a review of international experiences with regard to policy frameworks for NTFP use and commercialisation. It also incorporated a scan of international patent databases for products or processes based on marula, including searches on the UPOV database to ascertain whether or not Plant Breeder's Rights for marula had been obtained in any country. Archival material on marula was obtained from the National Archives in Pretoria, with the intention to track government policy with regard to marula over the past century in South Africa (one of the countries identified for an in-depth study), and patterns of regulation.

Second, interviews were held with a wide range of government officials, researchers, NGOs, companies and community members (see Appendix 1 for a list of those interviewed), who depending on the context were asked to respond to a series of questions formulated around marula conservation and use.

Third, questions were identified for inclusion into both the household and commercial use surveys. These surveys were coordinated separately by different team members (see den Adel 2002; du Plessis *et al* 2002; Manders *et al* 2002; Shackleton and Shackleton 2002).

Fourth, a series of small meetings was held with marula producers in the Bushbuckridge villages of Rolle, Allandale and Hokwe in an attempt to identify key policy issues requiring further research and investigation.

Finally, a policy survey was drawn up by the authors and administered in each of the three study areas of the project –

(1) the Bushbuckridge district of the Limpopo Province, South Africa;
(2) Ophande Ward in the Makhatini Flats, Umombo district, northern KwaZulu-Natal, South Africa; and
(3) former Ovamboland, which is part of the Oshana, Oshikoto and Ohangwena districts of north-central Namibia.

In Makhatini, a total of fifteen interviews were held; in Bushbuckridge ten interviews took place; and in Ovamboland, eight interviews were administered. Although the nature of the questions did not vary from site to site, specific details were sometimes modified to suit local circumstances. The survey was administered through interviews with (a) traditional authorities; (b) local conservation officers; (c) provincial conservation and forestry officers; (d) agricultural extension officers; and (e) local committees and institutions (see Appendix 1 for a list of all those interviewed). A particular focus was placed upon the nexus between customary law and government regulation. Information obtained was supplemented and triangulated with that received from the household surveys administered in each area and, in the case of Bushbuckridge, with group interviews held in each of the four communities included in the research. The survey, which is reproduced is Appendix 2, represented the most comprehensive and focused effort of the project to deepen understanding of policy and regulatory issues affecting marula conservation and use in South Africa and Namibia, and provided the basis from which much of the analysis in this paper is based.

PART II

GOVERNANCE FOR MARULA MANAGEMENT, CONSERVATION, USE, AND COMMERCIALISATION

1. International Policy Framework for Marula Management, Use, Conservation and Commercialisation

The management, use, conservation and commercialisation of marula takes place within the context of several international agreements, all of which to varying extents play a role in determining the costs and benefits derived by households from this important resource. We describe below some of these key agreements, and their relevance for marula commercialisation.

1.1 The Convention on Biological Diversity

The UN Convention on Biological Diversity (CBD), signed at the Earth Summit in Rio de Janeiro in 1992, is one of the principle international instruments for conservation and sustainable use. One hundred and eighty six countries are party to this agreement, which embraces three key objectives: (1) the conservation of biological diversity; (2) the sustainable use of biological resources; and (3) the equitable sharing of benefits arising from the use of genetic resources. Under Article 15 of the Convention, countries providing genetic resources should benefit from commercialisation of their genetic resources, including a fair share of the profits generated, as well as non-monetary benefits such as technology and the opportunity to participate in research. In exchange, provider countries should facilitate access to their genetic resources and associated knowledge. The CBD aims to ensure that this access is granted on "mutually acceptable terms" and is subject to the prior informed consent of the provider country. In Article 8(j), the CBD recognises the rights of generators of traditional knowledge and technologies, and the importance of sharing the benefits derived from the use of this knowledge fairly. Articles 6, 7 and 8 address the sustainable use of species. Importantly, all countries in which marula naturally occurs are party to the CBD. This includes South Africa and Namibia, although efforts to develop national legislation to bring the CBD into full effect in these countries have generally been slow (Wynberg 2002). The CBD provides an international legal framework within which commercialisation of NTFPs like marula takes place. In recent years, commercialisation of NTFPs has featured explicitly on the CBD agenda, and will do so more in the future (see Box 1) (CBD Secretariat 2001).

Box 1. Non-Timber Forest Products and the Convention on Biological Diversity

NTFPs are becoming increasingly prominent within the Convention on Biological Diversity. For example:

- At the Fifth meeting of the Conference of Parties (Decision V/4) in 2000, a specific request was made to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to consider: "The impact of, and propose sustainable practices for, the harvesting of non-timber forest resources, including bush meat and living botanical resources (§14)".
- At the Sixth meeting of the Conference of Parties in 2002, a decision (VI/22) was taken to undertake an expanded programme of work on forest biodiversity which includes among its activities: (i) the development, support and promotion of programmes and initiatives that address the sustainable use of NTFPs; (ii) regional cooperation and work on NTFPs; (iii) the establishment of a liaison group to bring harvesting of NTFPs to sustainable levels; (iv) the development of necessary legislation for the sustainable management and harvest of NTFPs.

For further information see the CBD website: http://www.biodiv.org

1.2 Attem culture

ring other treaties in harmony with the CBD led to the revision of the FAO International Undertaking on Plant Genetic Resources and subsequent development of the Internatio l Law of the Seed"), inding treaty – whic ral system for pr , as well as for fair a g of the benefits obtained from their use. It also includes a provision

1.2 The International Treaty on Plant Genetic Resources for Food and Agriculture

Attempts to bring other treaties in harmony with the CBD led to the revision of the FAO International Undertaking on Plant Genetic Resources and subsequent development of the International Treaty on Plant Genetic Resources for Food and Agriculture ("The Law of the Seed"), adopted in November 2001 after seven years of negotiation. This legally-binding treaty – which will enter into force when ratified by at least 40 States - establishes a multilateral system for providing access to seeds and germplasm for much of the world's food supply, as well as for fair and equitable sharing of the benefits obtained from their use. It also includes a provision on farmers' rights to save, use, exchange and sell farm-saved seed.

The multilateral system that is established comprises a communal collection of 35 food and 29 feed crops, samples of which are to be provided by the national gene banks of ratifying countries. Importantly, farmers, researchers and others using the system are prohibited from claiming any intellectual property or other rights that limit the facilitated access to plant genetic resources for food or agriculture. Although marula is not included in the multilateral system, the treaty is nonetheless important in setting out a new policy framework for plant genetic resources, and has important implications for some of the CGIAR centres such as the World Agroforestry Centre (formerly ICRAF) involved in marula conservation and domestication initiatives. The CGIAR – or the Consultative Group on International Agricultural Research – is an informal association of public and private donors set up to secure food and eradicate poverty in developing countries. It supports a network of 16 international agricultural centres which together hold over 600 000 agricultural seed samples, or 40% of the world's germplasm. The Seed Treaty explicitly calls upon these centres to place their samples in the treasury. Implementation of the treaty at national level is likely to require national legislation and a supportive policy framework. In Namibia, the treaty has been signed but not yet ratified, whilst South Africa has neither signed nor ratified the agreement.

1.3 TRIPS

Another pertinent international agreement is the Trade-Related Intellectual Property Rights (TRIPS) Agreement of the World Trade Organisation (WTO). This controversial agreement creates a global regime for intellectual property rights over biological resources, and has significant implications for member states – among whom are South Africa, Namibia and other countries in which marula is found - who are now obliged to implement minimum IPR standards, and to allow patents and other forms of IPRs to enter the realm of agriculture, food production and healthcare. Two provisions are especially relevant to this report:

- Article 27 3(b), which requires member states to provide for the protection of plant varieties either by patents or by an effective *suit generis* ("of its own kind") system or by any combination thereof; and
- Articles 22-24, which set out a number of measures relating to indications of geographical origin.

Article 27 3(b), and its imposition of legal protection for plant varieties, has been one of the more contentious provisions of TRIPS, and constitutes a significant departure from previous practice in Africa and elsewhere, which typically emphasised the free sharing of knowledge and germplasm (Cullet 2001). Some leeway is provided in allowing member states to develop their own models of intellectual property protection, although there is little clarity, or indeed experience of alternative property rights systems that meet the needs of developing countries and communities, and do not entail monopoly rights. Instead, the most common response has been to adopt systems based on the International Convention for the Protection of New Varieties of Plants (UPOV).

1.4 UPOV

UPOV is an international agreement that offers common rules for the protection of the ownership of new plant varieties by commercial plant breeders at the national level. It was first adopted in 1961 by a group of Western European nations, following pressure from the private sector which argued that a lack of IPRs impeded their development (Cullet 2001). From its outset, UPOV has been commercially orientated, and has sought to provide incentives to the private sector to engage in commercial plant breeding through the provision of plant breeder's rights (PBRs). Rights granted to breeders under UPOV are powerful, and have become more powerful with each revision of the Convention, and more akin to patents. Under the 1978 version of the agreement, farmers are permitted to reuse propagating material from the previous year's harvest and to freely exchange seeds of protected varieties with other farmers. Plant breeders are also allowed to freely use protected varieties to develop and commercialise newer ones. However, the 1991 Convention – which is the only one open for accession to countries looking to join UPOV – removes these 'privileges' and further strengthens the rights of commercial plant breeders. This includes the obligation for member states to provide plant variety protection to *all* plant genera and species, including indigenous trees such as marula (see Part III, Section 2.2). Farmers growing protected material are prohibited from selling the seeds they harvest from the crop and are increasingly prevented from saving and exchanging seeds on a non-commercial basis. Farmers must also pay royalties on every purchase of the seed.

Although the TRIPS Agreement gives member states the possibility to devise their own plant variety protection system, over the years there has been significant pressure on developing countries to adopt UPOV as a preferred system. South Africa, which is one of the few African countries to have a plant variety protection regime in place, is a party to the 1978 UPOV Act and is considering ratification of the 1991 version. This is in keeping with the country's history of industrial agriculture, and the presence of a strong commercial breeding sector. However, little supportive legislation currently exists to broaden the system to include farmers and communities that have traditionally bred and developed crops and that have in some instances, provided knowledge and resources to commercial breeders. In Namibia, farmers' rights are also poorly defined, although legislation has been drafted to address this gap, based on model legislation developed by the (then) Organisation for African Unity. Namibia is not a party to either of the UPOV Conventions.

1.5 African Model Law

For most African countries, and indeed for many farming communities, the imposition of monopoly rights in agriculture, such as patents or PBRs, is not appropriate. Traditional farming is

practised by the majority of African farmers, and over 90% of food in sub-Saharan Africa is produced by customary farming practices based on multiple cropping, farm-saved seeds, low chemical inputs, rainfall, and on-farm crop selection (Wynberg 2000). Ownership of resources, seeds, knowledge and technologies is often held collectively, shared and given away as a great honour. Aside from this fundamental difference in world-views, there are also practical considerations that make it extremely difficult for systems such as UPOV to operate fairly and properly at the community level. For example, a variety tended by farmers stands virtually no chance of meeting the conditions laid down by UPOV to be 'new', 'distinct', 'uniform' and 'stable', and this prevents farmers from being recognised as 'breeders'. The administrative and financial hurdles entailed in registering a variety are also substantial, and are virtually prohibitive for farmers not having support.

Based on these considerations, and in recognition of the need for an alternative system to IPRs that protects the rights of local communities, farmers and breeders, a "Model Law" was developed by the Organisation for African Unity (now the African Union). The model law is intended to help African governments to develop their own legislation to protect biodiversity and livelihoods, and is premised on the rejection of patents on life or the exclusive appropriation of any life form. The rights of farmers include the protection of their traditional knowledge relevant to plant and animal genetic resources, the right to an equitable share of benefits arising from the use of genetic resources, the right to participate in decisions on matters related to conservation and use of genetic resources, and the right to save, use, exchange and sell farm-saved seed or propagating material. The breeders' rights that are defined generally follow that of UPOV 1991, although broad exemptions are granted, including the right to use a protected variety for non-commercial purposes, the right to sell plant material as food, the right to sell in the place where the variety is grown, and the right to use a commercial breeder's variety to develop other varieties.

2. Rules and Regulations Governing Marula Management, Use, and Commercialisation

2.1 Policy framework for marula management in southern Africa

Policies and laws governing the management and use of marula vary substantially, both across and within the different countries where the tree occurs. In South Africa, for example, the regulation of natural resources (excluding marine resources) is typically based on a concurrent system between national and provincial government. This means that both national and provincial spheres of government are empowered to pass and implement legislation relating to specific functional areas including agriculture, nature conservation, regional planning and development, soil conservation, urban and rural development, and tourism. Namibia by contrast has a far more centralised system, although a decentralisation policy sets out government functions to be shifted to thirteen Regional Councils. Regional Councils, however, lack legislative and executive capacity, and their powers are poorly defined (Barnard 1998). In both countries, tensions are evident between democracy and decentralisation on the one hand, and command and control on the other, through retention of centralised political control.

In both Namibia and South Africa, marula occurs on private, titled land, and on communal lands, which typically fall under customary regimes. While statutory laws apply to both, in communal areas another layer of law applies, and is frequently the system best understood and implemented by communities living in the area.

Customary law and communal tenure systems: the broader context

In South Africa, both the Makhatini and Bushbuckridge study areas fall within the so-called ex-homelands, which together comprise 13% of the country, and are home to some thirteen or so million inhabitants. Many residents of these areas are victims of the apartheid government's policy of separate development, which entailed the forced removals and relocation of people to pockets of land considered marginal for agriculture or mineral development. 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). 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.

A major problem in the former 'homeland' areas is the lack of adequate legal recognition of communal tenure systems and traditional resource management and rights. Attempts to redress this situation have recently been made in the long-awaited *Communal Land Rights Bill*, which sets out the government's approach to communal land tenure reform and traditional land rights (Republic of South Africa 2002). The *1996 Communal Property Associations Act* (CPA Act) also aims to provide for communally held tenure through enabling people to acquire and manage property as groups. Both proposals have met with little enthusiasm, mainly because of their inappropriate adoption of the titling model, based on Western notions of ownership, and in the case of the CPA Act, because of the limited support provided by government in the establishment of CPAs and community trusts (Cousins 2002).

In Namibia, similar tensions have emerged 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). However, in Namibia the centralised role of government results in a less confusing regulatory environment than in South Africa.

Customary laws form a central component of marula use and strong cultural taboos exist – and have long existed - to protect wild fruit trees on communal lands in South Africa and Namibia. Customary controls exist both for the cutting of wild fruit trees, and for the harvesting of their fruit produce. Specific customary laws exist also for marula use. For example, in Namibia, clear rules exist that are directly related to the marula season, including a prohibition on the carrying of knives or weapons during the time of Omaongo, a closure of the traditional court, and the giving of a part of the Omaongo to the traditional authorities. Rules for the harvesting and cutting of marula trees are also reportedly stronger than for those for other fruit trees.

Government laws and approaches

In contrast to customary systems, government laws do not specifically protect wild fruit trees, although such trees may be included as protected species at the national or provincial level. In South Africa, efforts to specifically protect marula were initiated as early as 1941, when timber shortages in the Second World War led to increased use of timber resources, among them marula. The resulting Forest Act 13 of 1941 afforded protection to certain trees found on private land, including *S. birrea*. However, a withdrawal of these emergency regulations in 1945 led to an increase in marula felling, and by 1948 a sawmill existed in the former Transvaal for the exclusive purpose of sawing marula timber, consuming some 1800 tonnes of timber annually (Shone 1979). In 1951 it was recognised that the continued existence of marula was threatened and Proclamation 257 of 1951 declared *S. caffra* a protected tree in the Transvaal. Appeals against this ruling by sawmillers and farmers selling marula resulted in a relaxation of these regulations, but by 1962 a complete prohibition was imposed, reinforced in 1976 by a further proclamation on protected trees (Shone 1979). One of the reasons for protecting marula in the proclamation was its significance as a fodder tree, and the presence of buffalo grass *Panicum maximum* under the tree, also an important fodder species.

Presently, Section 12 of 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 as protected, and setting out a number of restrictions for the use of protected trees, and for indigenous trees occurring in a "natural forest" (Sec. 7). A proposed list of tree species to be protected in terms of this legislation includes marula, although the specific ramifications of such an inclusion are still unclear. While the Act specifies that protected trees may not be cut, damaged or disturbed, it does not distinguish between the tree itself, and tree products, and is somewhat ambiguous with regard to the collection of wild fruits from protected trees. A strict interpretation of the Act could thus suggest wild fruit collection from protected trees to be prohibited, which would clearly be undesirable in the case of marula. A process is however currently underway to draft regulations under the Act, and consideration is being given to the exemption of certain products such as marula fruit, enabling harvesting to take place without a license (van der Merwe, pers. comm., 2002).

At the provincial level in South Africa, a host of confusing and sometimes conflicting legislation exists to protect marula. Although various Ordinances and Acts afford protection to the tree, these are generally inconsistent and outdated. For example, both the former Venda Nature Conservation and National Parks Act (20 of 1986) and Natal Nature Conservation Ordinance (15 of 1974) include marula as a protected species; but the Mpumalanga Nature Conservation Act (10 of 1998) does not. Within the Limpopo and KwaZulu-Natal Provinces (the provinces in which the South African study areas are located), no government laws specifically regulate cutting of wild fruit trees or harvesting of wild fruits, and indigenous plants (including wild fruit trees) are regulated generally in terms of the former provincial and nature conservation ordinances. For the Limpopo Province, these include the Gazankulu Nature Conservation Act of 1975, and Transvaal Provincial Administration Ordinance of 1983 – although both of these laws are soon to be replaced by a newly drafted Environmental Conservation Bill. In KwaZulu-Natal, the Nature Conservation Ordinance 15 of 1974 still applies, which classifies marula as a protected species and thus requires a permit from KZN Wildlife for its sale. None of these laws restrict the harvesting of wild fruits, although some restrict the "picking" of specially protected plants.

Namibia followed South Africa in legislating for the protection of marula, with its inclusion as one of 23 protected tree species in Namibia's first forest legislation *The Preservation of Trees and Forests Ordinance 37 of 1952*. Revision of the legislation in 1968 again led to the inclusion of marula as a protected tree, which could not be felled, destroyed or removed without prior permission, although collection of the fruits for domestic use was allowed. This confirmed the same general principle underlying traditional law. Both laws were repealed with promulgation of the Forest Act (12 of 2001), which currently is the primary policy instrument regulating wild fruit trees. However, no specific provision restricts the use of fruits and anyone is entitled to collect fruit so long as the tree is not damaged (Kayofa, pers. comm., 2002). 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. Such activities are however prohibited in classified forests without permit. Key differences between the new Forest Act and the so-called Colonial Act of 1968 include the increased emphasis given to community-based approaches to forest management, and the higher penalties for contravening the legislation (Hailwa, pers. comm., 2002). South Africa's new forest law is similarly heralded as differing from previous laws in its recognition of the role that communities and other stakeholders play in forest management, and the important contributions that forests can make to rural livelihoods.

2.2 Rules and Regulations for the Cutting of Marula Trees

Rules and regulations

Traditionally, the felling of marula trees, in particular female trees, was strictly taboo amongst most rural societies where this species occurs (Cunningham 1989). The Pedi and Phalaborwa of the Limpopo Province regarded the trees as sacred, and severe punishment was administered to anyone who did not respect this rule (Krige 1937). Among the Kwanyama in Namibia, Rodin (1985) noted that the tree was so highly prized for its fruit that it was never cut down. In other cases, marula trees could only be cut with the permission of the chief. Results from the surveys corroborate these reports and suggest that marula cutting is still strongly prohibited in all areas surveyed. More generally, responses indicate that the cutting of *any* fruit tree is prohibited, and that permission would be required from the headman or induna before cutting non-fruit trees that are deemed important by the community (*eg* monzo, umbandzo, umkonolo, bondzo, xikhavi and skukutz in Bushbuckridge). In Namibia, both government and traditional authorities shared the view that people themselves would generally not cut a fruit tree, even if allowed.

- In Bushbuckridge, all except one of those interviewed confirmed that customary law prohibits the felling of marula trees, male or female. Government laws were interpreted to support this ban, although marula's exclusion from the currently proclaimed list of protected trees lends some ambiguity to this understanding. Pruning is similarly prohibited.

- In Makhatini, the cutting of either male or female trees is similarly prohibited, although exceptions are made for the erection of housing (with the permission of the induna) and in some instances for the clearing of agricultural land. Government law is likewise interpreted to ban cutting, although this is not stipulated in any provincial ordinances.

Pruning of trees appears to be generally accepted by both customary and government systems.

- Similarly, in Namibia both customary and government laws are understood to prohibit the cutting of both male and female marula trees, although traditionally people appear to be more flexible in their rules for male trees. Pruning is however allowed, with permission from the headman.

Practical application of rules and regulations

While knowledge about prohibitions on marula cutting is widespread, the practical application and enforcement of this ban varies considerably across communities.

- In Bushbuckridge, the cutting of marula trees is reportedly widespread. Branches are cut for firewood, for making spoons and maize stamps, and to obtain caterpillars which are found on the tree. Although some believe electrification to have reduced cutting, others consider cutting to have increased over the past twenty years. In particular, the lack of accessible, alternative fuelwood has meant increased cutting of marula trees closer to villages. Although pruning is in theory prohibited, in practice trees are pruned on the homestead or to make way for telephone or electricity lines.

  Reasons reported for increased cutting at Bushbuckridge include:
  - increases in the local population and the influx of refugees;
  - a breakdown of respect for traditional authorities and confusion as to the different roles of leadership structures;
  - reduced control by nature conservation;
  - the difficulties in paying for electricity, and therefore the use of wood as firewood; and
  - changes in governance since 1994, a general lack of respect for the law since democracy, and a belief that trees don't belong to anyone and are a free resource from the government.

- A less obvious pattern is evident in Makhatini. In general, tribal authorities here consider cutting to have remained unchanged, while conservation and government authorities report an increase in marula cutting due to a growing population, the building of more kraals and the clearing of agricultural lands. No respondents in Makhatini reported a specific change in cutting since democracy in 1994.

- In contrast to the South African sites, responses from Namibia unanimously reported a *decrease* in tree cutting over the past few years, following widespread felling at Independence in 1990, especially of mopane trees. Reasons given for the subsequent decrease in cutting include:

  - a reduction in the number and thus availability of trees;
  - increased awareness among people as to the importance of trees (following their removal and subsequent efforts to introduce forestry education);

- enhanced understanding as to the central role played by trees in stimulating rain; and
- increased cooperation between government and traditional authorities which has led to improved control and enforcement, and the introduction of more severe fines.

Although these trends are applicable broadly to all trees found in the former Ovamboland, they apply to a lesser extent for marula, which was not considered badly affected by the increased cutting at Independence.

2.3 Rules and Regulations for the Harvesting of Marula Fruit

Communal lands

Marula fruits are widely collected and consumed, either fresh or as part of juice, wine, beer or jam. In principle, fruit may be harvested by anyone, although it is typically women who are involved in this task, and fruits are generally harvested at the ripe, fallen stage. A general rule that applies across all study areas and for all wild fruit trees requires fruit to fall first to the ground before harvesting is permitted: "The tree must harvest itself" (Induna Marule, pers. comm., 2002). Strong traditional laws and customs govern marula fruit harvesting, and responses to the survey indicate a gradient of rules from different study sites with regard to access rights to marula fruit, and their application.

- In Bushbuckridge, for example, visitors are required to seek permission to harvest fruit in the yards or farms of individual households. However, the communal areas ("the bush") are typically regarded as open access areas from which both villages and outsiders may collect: "The trees are for nature and everybody so my permission is not needed" (Induna, Hokwe, pers. comm., 2002). In some cases, however, community members objected to outsiders harvesting marula on communal lands, in part because of previous incidents that were threatening. Most felt, however, that they had no power to enforce community control in communal lands, and that the increased population had led to difficulties in identifying community members.

- In Makhatini, similar rules apply with regard to the harvesting of fruit in people's yards and farms, which are seen to be the property of members of that kraal or family. However, increased control over communal lands is exerted, and a greater distinction is made between outsiders – who require permission from the induna to harvest fruit in these areas - and community members – who do not. It could be surmised that the strongly traditional nature of the community at Makhatini might provide for greater control and power to enforce traditional resource rights than in areas such as Bushbuckridge, where such controls have largely broken down.

- Comparable rules exist in Namibia for harvesting marula fruit in people's fields, but again a stricter regimen applies in communal areas, although it should be noted that the majority of marula fruit is harvested on people's fields rather that in communal areas. Here, *villagers* require permission from the village headman prior to harvesting the fruit in communal areas,

a condition that applies exclusively to marula and eembe (*Berchemia discolor)*, and not to other fruit trees. In Ndonga law, goats and other animals are also prohibited from eating marula fruits from communal lands, the transgression of which may carry a fine as high as N$600 or a cow (Tatekulu Moongo, pers.comm., 2002). Typically, all the women of the village will be invited by the headman to harvest and process the fruit. Rules for the drinking of omaongo have reportedly changed over the years. Tatekulu Moongo, the senior headman for 48 villages in the Ondangwa area, recounts that in the past all marula trees belonged to the King and the headmen, and the only places where omaongo could be drunk were at the houses of the King, the senior headman, and the village headman. Nowadays, however, there is increased private ownership of marula trees and people can drink omaongo anywhere, although some should still be given to the headman.

Private, state, conservation and municipal lands

Rules that govern access to marula fruits within conservation areas, private, state and municipal lands are somewhat less clear than those in communal areas and villages, and this is reflected in the inconsistent and uncertain responses obtained from community members, traditional authorities, and government officials.

- In Bushbuckridge, the harvesting of marula fruit in conservation areas is generally not permitted, although certain nature reserves such as Andover allow collection by staff. Harvesting rules on state lands are extremely unclear, with virtually all respondents in doubt as to whether fruit collection was allowed. Municipal lands were however often regarded as disputed areas that had become open access areas in which anyone could harvest fruit. All respondents concurred that harvesting on private land would only be possible with the permission of the landowner.

- In Makhatini, there appeared to be greater clarity about the rules governing access on conservation, state and municipal lands, although the understanding among traditional authorities of these rules differed somewhat from that of government officials. While traditional authorities indicated that marula fruit harvesting is not permitted in conservation or state lands, officials stated that they would be open to such requests by people from the area, although none had been forthcoming. Harvesting on municipal lands, as for Bushbuckridge, was considered more flexibly, and there was general agreement on the need to obtain permission to harvest on private farmlands.

- In Namibia, both traditional authorities and government officials were unaware of any rules governing marula harvesting in state and conservation land, partly arising from the absence of such areas in the study site, and the discrete rules and management plans that exist for different conservation areas. Trees on municipal lands were, however, widely considered to be freely available for all to harvest.

2.4 Rules and Regulations for the Harvesting of Marula Bark

Customary law

The bark of marula is used widely - for its medicinal properties, as an insecticide, a food supplement, dye, as well as symbolically (see Shackleton *et al* 2002). Responses received to the survey indicated that in general, bark harvesting is permitted on a limited basis by both customary and government laws, although the interpretation of these laws varies considerably from village to village, as does opinion as to their application for male and female trees.

- In Bushbuckridge, for example, traditional authorities from Rolle and Thulamahashe permit bark harvesting from male trees only, whereas traditional authorities in Allandale do not differentiate between the sexes of the tree.
- In Makhatini, no preferences were indicated for bark harvesting of either gender.
- In Ovamboland, marula bark appears to be seldom used by people, and if at all for firewood only, typically from dried pieces found on the ground.

In general, respondents report that the customary laws that apply to the harvesting of bark are the same as for harvesting of fruit. However, customary law applies a number of restrictions on the amounts of bark harvested. A common measure reported from the South African sites is no more than half to three-quarters the size of an outstretched hand, or a piece approximately 20 X 20 cm. Ringbarking is not permitted, and the tree may not be killed. Some mention was made of rotational harvesting, where bark may be harvested from different sides of the tree each year. In general, customary law dictates that only enough bark for immediate use may be harvested. Despite these restrictions, reports from both Bushbuckridge and Makhatini indicate an increase in debarking over the past few years and an escalation in bark theft by people from outside of the community. In most cases this escalation can be attributed directly to an increased commercial trade in marula bark, rather than increased subsistence use.

Government regulations

While no specific government laws address the harvesting of marula products, bark removal from any species is generally prohibited in conservation areas unless prior permission has been obtained. In KwaZulu-Natal, the 1974 Nature Conservation Ordinance specifically prohibits trade in bark without a permit from the District Conservation Officer, and without written permission from the landowner. Permits for harvesting larger quantities of bark can also be obtained in this province if harvesting is for educational or research purposes.

2.5 Monitoring and Enforcement

Despite widespread awareness of rules governing marula use, practical implementation and enforcement remain difficult. Just how significant an issue this is depends to a large degree on the extent to which rules are being infringed, the levels of cooperation between traditional authorities and government, acceptance of the rules by user groups, and the levels of capacity that exist within authorities. This is borne out by the different experiences reported from each study site.

- At Bushbuckridge, where levels of marula cutting and the violation of rules appear highest, only one arrest for infringing marula regulations had taken place over the past five years. At this site there was also the greatest lack of clarity from respondents as to who was responsible for monitoring and enforcing rules about marula. Respondents variously considered the

induna, the chief, the community, 'everyone', traditional authority rangers, the Department of Environment, and Nature Conservation to have responsibility for this function, and were unanimous in their opinion that not enough monitoring takes place. The situation was widely considered to have deteriorated over the past ten years, and it was here – an area plagued by jurisdictional and provincial boundary conflict since 1994 - where the feeling that democracy allowed free taking of all wild resources was strongest. A variety of responses was received regarding the fines imposed for cutting trees, varying from R100 for a non-fruit bearing tree to R1000 for a fruit-bearing tree. There was little knowledge as to how such monies were used, although the virtual absence of arrests suggests this to be a largely irrelevant issue. Despite concerns expressed about the lack of control, most traditional authorities felt the overall system to be working well. In contrast, virtually all government officials expressed the need for improved legislation and management, and the need for additional capacity and resources.

- Responses from Makhatini were far more consistent with regards to monitoring and enforcement, and most respondents were clear that this responsibility fell squarely within the domain of the Inkosi and/or KwaZulu Natal Conservation Services. Active enforcement of the rules is however not applied, and no arrests had been made for infringing marula rules over the past five years. Low levels of awareness exist that the cutting of marula and selling of its bark are prosecutable offences, and marula conservation was considered a relatively low priority by those interviewed, perhaps because of other pressing conservation and development priorities in the region, and the belief that marula still represents an abundant resource for communities. Extra resources were seen as a necessary prerequisite to ensure improved enforcement by relevant government agencies.

- Monitoring and enforcement of marula infractions would appear to be most effective in Namibia, where a coordinated approach is implemented between traditional authorities and the government. However, rules are not actively enforced, and because of limited government resources, an emphasis is placed on self-monitoring, both by the community and by the village headmen. This is an approach that is considered to work well, although concerns were expressed regarding the limited powers of traditional authorities, and the need for incentives to be introduced for traditional authorities (*eg* through the payment of salaries) to improve enforcement. One case had been recorded in the traditional court over the past five years for the infringement of marula rules, with a man being required to pay a cow and a calf for the felling of a small tree. These were given to the king and subsequently slaughtered for all villagers to share.

While the degree of enforcement varied across the sites, overall monitoring and enforcement of customary and government regulations for marula were weak, due to a range of similar reasons across the region:

- lack of concern regarding the availability of marula supply and status of wild populations;
- lack of resources and capacity within traditional and government authorities to enforce laws;
- the low conservation priority assigned to marula, relative to other species and more pressing environmental concerns (*eg* water scarcity, overharvesting of

medicinal and ornamental plants which are threatened, deforestation, overgrazing, soil erosion and degradation);
- low development priority, in the face of extreme poverty and hardship.

2.6 Land Tenure and Resource Rights

Clear differences emerged across the sites with regard to land tenure, resource rights and the harvesting of marula products. In South Africa, the main source of fruit and other marula products is from communal lands, rather than from yards and fields, whereas in Namibia most fruit is harvested from people's fields, with communal lands comprising a less significant resource. In both countries, trees that occur in people's yards and fields are perceived to be the property of the owner.

In all cases, the interpretation of 'ownership' is highly debatable and in most cases is a user right that carries no legal status. This is especially pertinent in South Africa, where tenure security remains a key unresolved policy issue. Most communal land in the country is registered in the name of the state, reflecting 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 in terms of 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 – not only in South Africa, but also in Namibia where, until independence in 1990, a similar suite of discriminatory land policies applied.

While tenure insecurity is a major issue that could impact marula users, the results presented above suggest that the influence and indeed legitimacy of traditional authorities and other governance structures is equally important. Strong traditional structures at Makhatini, for example, ensure that increased control over communal lands is exerted, whereas the more tenuous arrangement at Bushbuckridge has led to reduced control over these areas. Across all study sites, traditional authorities play a central role in the allocation of land, which is accompanied by the payment of a fee. In South Africa this role is increasingly under question, most recently by proposals encapsulated in the Communal Lands Right Bill, and ongoing confusion as to who has the power and authority for land administration. In Namibia too, there has been a steady erosion of the role of traditional authorities, and responses to the survey indicate a distinct change 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, pers. comm., 2002).

2.7 Legal Systems and Institutions

Cooperation between government and traditional authorities emerged repeatedly throughout the survey as an issue affecting marula conservation and use. Respondents at all study sites reported consistency in the rules of both government and traditional authorities with regard to marula, but differences in the implementation, enforcement and coordination of these approaches.

Respondents at Bushbuckridge, for example, referred to the more severe implications of being caught for infringing a government law, and of the resistance by government to allowing people to utilise marula and other natural resources, in contrast to customary approaches which support sustainable use. At Makhatini, respondents pointed out the specificity of customary law in determining tree ownership, and entitlements to use the resource, as opposed to the more generalised government laws that did not refer in particular to marula. At neither of the South African sites were there reports of marula having been considered by any government committees or decision-making structures. Traditional authorities at these sites similarly reported the lack of any specific structures to discuss marula use, and the absence of any discussion on marula use, other than that on *xikhuwa*. These observations suggest that the management of marula is not considered a priority by either government or traditional authorities in South Africa.

Far stronger coordination between government and traditional authorities was reported in Namibia, but again there were considered to be negligible differences between the rules of each with regard to marula. As for the South African sites, government was considered to have a more stringent approach to law enforcement, and to lack the specificity of customary laws with regard to marula usage. While no specific committee met to consider marula, regular meetings were held by the King and senior headmen, at which decisions about marula were made. These decisions would then be conveyed to the community through a public meeting. Within government, marula was discussed among other matters at forest committee meetings, set up to facilitate dialogue between government and communities throughout the country, and marula also featured prominently on the national research agenda. Most decision-making about marula, however, was deferred to the community level.

2.8 Impacts of Commercialisation

Marula is commercialised to varying extents across the project sites and impacts of commercialisation are thus likely to be different. At Bushbuckridge, communities supply marula products to two enterprises – Distell, one of South Africa's leading producers of alcoholic beverages; and the Marula Project of the National Mineworkers Development Agency, which is a donor-sponsored job creation and rural development initiative. Local-level trade of marula beer also occurs, and has increased significantly over the past few years (Shackleton 2002). In Namibia, marula beer/wine and marula oil and kernels are also traded locally, and some communities are involved in the selling of kernels to a processing cooperative for the production of oil to be exported for the cosmetic industry (du Plessis *et al* 2002). In contrast to these two sites, virtually no commercialisation of marula products occurs on the Makhatini Plains, although bark is harvested for sale in the Durban 'muti' market.

Despite the cultural taboos against the selling of marula beer, virtually all respondents to the survey reacted positively to the notion of commercialising marula, and regarded it as a good opportunity to improve livelihoods and to bring with it much-needed income and jobs. This included Makhatini, an area in which marula has never been commercialised. Of the few negative responses, these included the induna of a village in Bushbuckridge that has rejected the commercial production of beer, and two government officials from KwaZulu-Natal who had concerns as to the sustainability of both the resource and the industry. While responses to commercialisation were generally positive, many also articulated concerns as to the negative

impacts already experienced, and those which could be encountered with continued and more intensive commercialisation.

A pertinent observation is that virtually all criticisms against marula commercialisation emerged from men (typically in positions of power). Women are undoubtedly the greatest beneficiaries of marula commercialisation, and through the income generated are able to pay school fees, the timing of which opportunely coincides with marula season. In Bushbuckridge, negative responses to commercialisation from women were almost always confined to the low fees received for marula produce, rather than being related to the reduced amounts of beer that would be produced for local consumption and the loss of traditions (Shackleton and Shackleton 2002). By contrast, in Namibia, women expressed concern primarily about the loss of tradition and reduced sharing that could result from commercialisation and there were few complaints about prices received for marula products (den Adel 2002).

- At Bushbuckridge, traditional authorities expressed concern as to the reduced time that women had available to participate in beer ceremonies, and the subsequent decline of important customs and ceremonies. Moreover, social niceties and favours that had previously taken place in exchange for the free provision of marula beer (*eg* the digging of graves) no longer occurred. Since commercialisation, higher quantities were harvested, involving not only women, but also young children and the induna himself. During fruiting season, it was noted that women awoke far earlier than they used to, in order to lay claim to the trees they planned to harvest that day. This suggests some element of competition and resource scarcity, particularly for trees close to the villages.

  Government officials at Bushbuckridge expressed a quite different suite of opinions regarding marula commercialisation. On the positive side, they viewed commercialisation not only as an opportunity to create jobs and generate income, but also as a tool to improve protection for marula, through creating an economic incentive for its conservation. Ecological sustainability featured prominently on their list of concerns, combined with the effects of commercial harvesting on future recruitment, on animal users of the fruit, and on other trees if large-scale cultivation efforts are to be initiated. There was also concern that commercialisation may increase the harvesting of green fruit, an occurrence that had already been experienced. Fears were also expressed by officials that commercialisation would cause conflict in the community once beer was no longer freely available, as would increased pressures for fruit in communal areas, because of ambiguous ownership regimes.

- Similar concerns were articulated by respondents at Makhatini, an area that has not experienced marula commercialisation. But here anxieties revolved also around the short fruiting season of marula and resulting short-lived benefits, and unreliable harvests because of high rainfall variation. Like Bushbuckridge, government officials expressed concern about the potential denuding of the resource through over-utilisation, and about community conflicts that could arise through lack of clarity as to ownership regimes in communal areas. However, they also recognised the potential of commercialisation to create an incentive for conservation. The highest social cost was widely considered to be the impact that commercialisation would have on the availability of free beer, and on get-togethers within the community to drink beer. The customary ban on trade in marula beer appears to still be in

evidence in the area, and members of each individual kraal adhere strongly to the traditional practice of brewing batches of beer to share with neighbours.

- A rich set of opinions emerged from traditional authorities and government officials in Namibia, reflecting the difficult trade-offs that marula commercialisation brings to a strongly traditional society, and the likelihood of the greatest impacts in such communities. A separation was made between the selling of kernels (omahuku), which was viewed positively, and that of marula beer/wine (omaongo), which forms such an integral part of peoples cultures and ways of life and may thus lead to a breakdown in the social fabric of the community if commercialised. Traditional authorities and government officials alike expressed concerns that the commercialisation of omaongo would lead to traditions being lost, reduced availability of beer for the King and headmen, a deterioration in the quality of omaongo (already experienced through use of green fruits and poor-tasting fruits), and increased levels of selfishness among those selling the beer, who would be reluctant to continue to invite others to share in the processing of omaongo. Concerns were also expressed about the decreased reciprocity that could result from commercialisation, including reduced equity in access to marula fruit and products by households that currently rely on the goodwill of their friends and neighbours to share the resource. Yet with greater integration into monetary economies, people were increasingly perceived to be choosing the opportunity to earn income over and above that of preserving traditions. Others expressed more trust in people and believed they would sell only what they could culturally and socially 'afford'. Adding economic value to marula could also, it was thought, have a positive effect on the propagation of marula trees.

"The way of harvesting is very social or communistic, a tree can be in your field, but it's not really yours, it's for everybody. And while they are busy making omaongo under the tree the women socialise a lot, and at the same time also teach the girls how to be women in a way. There is no formal arrangement to be trained as men and women in the Owambo society, but through the process of making omaongo it's still being done somehow. And if you see it in this way it shows a richness of our society, a richness which cannot be translated into dollars"

(Mr Joseph Hailwa, Director of Forestry, Department of Forestry, Namibia).

It [marula commercialisation] could affect our traditional culture and social structures. People need money but we are destroying the culture by putting everything in selling. And some people will sell all that they have, which means they won't use all these products at home anymore, which is not good"

(Tate Tatekulu Job Sheehama, Senior headman and village headman, Onawa village).

PART III

INTELLECTUAL PROPERTY RIGHTS, TRADITIONAL KNOWLEDGE, AND POLICY TOOLS TO IMPROVE THE MARKETING, COMMERCIALISATION AND FAIR SHARING OF BENEFITS FROM MARULA

1. Intellectual property rights and traditional knowledge

In addition to those topics described above, a suite of other policy issues impact on and have implications for marula commercialisation. One of the most controversial concerns the recognition and protection of traditional knowledge about biodiversity, and the granting of intellectual property rights (IPRs) for living organisms.

IPRs have often worked against effective and equitable benefit-sharing with local communities for their traditional knowledge, and provided poor protection of their resource rights. For example, the US Patent and Trademark Office granted a patent to a US researcher on ayahuasca, *Banisteriopsis caapi*, which is used widely in traditional religious and healing ceremonies in South America. The Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA) and the Centre for International Environmental Law (CIEL) have worked for many years to annul the patent (Wiser 2002). Numerous other examples also exist of the illegitimate use of traditional knowledge in the granting of patents, without the consent of holders of such knowledge, or their involvement in any benefits derived from the patent (see, for example, GRAIN 2000). IPRs are also incompatible with traditional knowledge systems because they are privately held and monopolistic by nature, and are based on 'innovations' or 'discoveries', while traditional knowledge is typically collective and based on prior use (Dutfield 2000; GRAIN 2000; Crucible II Group 2000; Posey and Dutfield 1996).

However, the potential for intellectual property rights to help – rather than hinder – protection of traditional knowledge is receiving increased attention. For example, the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore is considering intellectual property issues that arise in the context of access to genetic resources and benefit-sharing; the protection of traditional knowledge; innovations and creativity; and the protection of expressions of folklore (http://www.wipo.org/globalissues/igc/index.html). Proposals examining ways to use patents to protect traditional knowledge for its holders include definitions of 'prior art', the scope of patents and the test of 'inventive step', procedural requirements such as disclosure of country of origin and proof of prior informed consent in patent applications (ten Kate and Laird, in press). Whether or not holders of traditional knowledge will receive these proposals favourably is however questionable: the high cost of patent applications and their enforcement, and their intrinsic incompatibility with traditional knowledge systems suggests a fundamental mismatch between two world views.

But IPRs are more than patents and also include: PBRs, which are rights granted for plant variety protection; geographical indications, which are used to identify products with a particular territory; or trademarks, used to identify a product with a company or brand (Moran 1993). Each of these is examined below, within the context of its relevance for marula.

2. Intellectual property rights, benefit-sharing and marula

IPRs are relevant to marula in four central ways.

(1) The extent to which traditional knowledge about marula is known and commercially used and marketed;

(2) The degree to which local knowledge has been used in the development of commercial cultivars of marula and options for equitably compensating original holders of such knowledge;
(3) The impact that PBRs might have on communities that use and depend on marula, and the related issue of how domestication and commercialisation of marula might impact upon communities currently harvesting or using the resource; and
(4) The potential of tools such as geographical indications and trademarks to improve the marketing and commercialisation of marula.

2.1 Traditional knowledge about marula

A rich traditional knowledge exists of marula, summarised in recent reviews by Shackleton *et al* (2002) and Wynberg *et al* (2002). This ranges from knowledge about the medicinal and insecticidal properties of the bark, roots and leaves, through to that of the special properties of marula oil for preserving meat (Palmer and Pitman 1972) and moisturising skin (Coates Palgrave 1956). Knowledge about certain uses is by no means widely spread, and appears to be confined to particular regions and communities (Shackleton *et al* 2002). Having said this, the household surveys undertaken as part of this project yielded no specialised, local knowledge that only certain community members knew of (Shackleton and Shackleton 2002).

To date, no patents have been granted for any marula products or processes, although a patent application was made in 1917 by two South Africans for the use of marula as a dye material (GB 126742). This patent would have long expired, but nonetheless is open to scrutiny given the well-documented traditional use of marula bark for the preparation of dye materials (Shone 1979; von Teichman 1983). The possibility of patent protection or some other form of IPR for the commercial properties of marula oil has also been investigated, including linkages between the patent and holders of indigenous knowledge about the oil. Much of this research, however, has pointed to the difficulties of using patents as a mechanism to protect traditional knowledge, and the complexities and costs of obtaining and enforcing a patent.

2.2 Plant breeder's rights and the development of commercial cultivars

Traditional knowledge about marula extends also to the domestication of the tree, and early steps towards domestication of marula by local people, and the selection of desirable traits, are well documented (see Wynberg *et al* 2002). Local knowledge has been applied in developing marula domestication strategies, both at the international and national level. In the 1980s, an investigation of potential new desert crops by Israeli scientists used knowledge of local people in Botswana to glean information about the different qualities, yields and locations of marula trees, notably in the absence of any formal benefit-sharing agreements (Cherfas 1989), and reportedly in exchange for dates and pomegranates from Israel (Hadassah 2001). Information gleaned about marula was in turn used to choose seeds from fruits having desirable characteristics for potential new crops, forming the basis for a long-term research and development programme on marula in Israel (Mizrahi and Nerd 1996). Kibbutz Ketura in Israel's Arava region reportedly has up to 25 acres of marula growing[6], and significant fruit production (Ben Gurion University 2000). Fruit is

[6] Other estimates suggest that no more than 3 hectares of *S. birrea* are planted in Israel (Mizrahi, personal communication, 2001).

sold to the regional council which produces and sells a kosher liqueur named "Marula", based upon a "secret recipe". Marula has also been identified by the Israelis as one of six species that warrants consideration for further research and development (Mizrahi and Nerd 1996). It is reported that trees introduced in the Negev Desert produce abundant fruits from early ages, mainly when grown in hot areas with saline water (Nerd and Mizrahi 1993).

Local horticulturalists in southern Africa have also over the past 15 years produced 'improved' varieties of marula (in terms of commercial fruit pulp ratio, not kernel mass) to improve the quality, size and flavour of the fruit. However, it would appear these varieties were simply selected from superior wild trees, rather than through a process of breeding and domestication. Although there are currently no PBRs for marula in any country in the world (de Bruyn, pers. comm., 2001*)*, there are pending applications in South Africa by a private breeder who, through selection of wild trees for superior production, fruit size, and fruit quality, has identified a number of cultivars for possible registration (Holtzhausen *et al* 1990). These include:

- Pharulani, originating from Phalaborwa;
- Marula, originating from a community close to the Kruger gate of the Kruger National Park;
- Swarula, found by the then South West African Policie near Ondangwa (and initially named "Koevoet" after the South African-sponsored counter-terrorism unit, infamous for its brutality);
- Toularula, originating on the farm Toul near Trichardsdal;
- Mpandlarula; and
- Chopperula, found at the gate of the helicopter hangar at Skukuza airport.

In response to the pending application for PBRs, the Department of Agriculture has recently placed marula on the list of species required by UPOV 1978[7]. The Department is currently developing UPOV Guidelines for marula and will use the existing UPOV Pear Guidelines (International Union for the Protection of New Varieties of Plants 2000) as its template (Buitendag, pers. comm., 2001).

In terms of UPOV 1978, the rights obtained will prevent anyone from producing, offering for sale and marketing the reproductive material of the variety. UPOV 1991, which is likely to be ratified by South Africa in the near future, will extend these rights to prevent anyone from producing, conditioning for multiplication, offering for sale, marketing, exporting, importing and stocking for any of those purposes the reproductive material. These rights can extend to the direct product of the harvest if that harvest was produced from material that circumvented any of these rights (R. Vellve, pers. comm., 2001).

These conditions have important implications. While community use of wild and semi-domesticated relatives will not be affected, the granting of PBRs will prevent communities from exchanging or commercialising reproductive material without a license. As there is generally no fixed license fee, the holder of the PBR will likely charge prices that are out of the range of small-scale farmers. Neither version of UPOV provides a basis for benefit-sharing and there is currently no legislation in South Africa that requires income to be shared with farmers or

[7] South Africa is a signatory to both the 1978 and 1991 UPOV Agreements, but has not yet ratified UPOV 1991. Thus the 1978 Act applies which requires the listing of species for plant variety protection.

communities that have participated in the development of improved varieties. Some developing countries are starting to discuss PBR schemes to impose benefit-sharing, including the African Model Law (Ekpere 2001) but practical implementation of these approaches remains untested. Marula thus provides an important opportunity through which locally-developed models could be piloted and working mechanisms for the sharing of benefits elucidated.

A central issue that requires consideration is the protection of community-based cultivars from unfair exploitation and expropriation. In both Namibia and South Africa, for example, evidence exists that local people have selected marula trees for particular characteristics (Leakey *et al* 2002). Leakey *et al* (2002) identify one tree, the 'Namibian Wonder', which has the biggest fruits ever recorded for marula. While opportunities exist to identify individual trees with fruit and kernel characteristics well above the average of the species, it is essential that associated commercial benefits accrue to the communities involved in selection and development of cultivars. Equally important is the need to ensure that systems that are developed do not involve monopoly rights, and promote poverty alleviation, food security and sustainable agriculture. Unfortunately, alternative plant variety protection systems based on these criteria are still in their infancy, although some countries such as Thailand are introducing innovative approaches to protect farmers' rights, and the OAU Model Law also points towards an alternative way. The strategic use of defensive 'non-patents', also known as Statutory Invention Registration (SIR), is a further option to protect communities and individuals against monopoly control of their resources and knowledge (DiMauro 2001). By establishing 'prior art', SIR could be applied as a mechanism to prevent others from patenting local knowledge, and allows the initial 'inventor' to protect their position in ways in which publication does not. The drawback is the confinement of the system to patent applications in the United States, and also the legal complexities of engaging in the procedure. Nonetheless, it could be a significant mechanism to protect communities with highly desirable marula varieties. While legal options for protection are unquestionably important, so too is the building of awareness at the community level with regard to their rights, and the public pronouncement of these rights. As an immediate course of action, this awareness-raising route cannot be over-emphasised.

At the international level, the World Agroforestry Centre (ICRAF) has conducted a wide range of germplasm collections of marula within the SADC region, in collaboration with the SADC Tree Seed Centre Network, SADC Regional Genebank and national partners (Kindt and Were, 2000). Collections have been targeted from 25 farmer-selected trees of 40 provenances from farmers' fields, and germplasm exchange has occurred between countries for the establishment of multi-locational trials (Kindt and Were 2000). These initiatives comprise a first step in a formal domestication strategy for the species. ICRAF's approaches to the domestication of marula and other southern African fruit trees contrasts with the other UPOV-led domestication efforts described above. ICRAF and its partners specifically work with local small-scale farmers to identify, propagate and test superior phenotypes as potential cultivars (Maghembe *et al.* 1998).

Regardless of whether or not PBRs or alternative IPRs are granted, domestication of marula is likely to have broad impacts on communities that traditionally gather or use the tree. Leakey and Tomich (1999) for example comment that domestication of commercially important fruit trees may induce shifts in benefits from poorer groups of farmers to richer ones, or to multi-national companies. People gathering the wild product may not be those that are best suited to undertake production of the domesticated version, leading to questions as to the ultimate beneficiaries of

domestication and the impact of such strategies on incentives for community-based management and conservation of natural resources (Leakey and Tomach 1999).

2.3 Geographical Indications

While PBRs can have negative effects on small farmers, other IPR tools could provide more positive outcomes. Two promising tools for the protection of indigenous peoples' knowledge and products include geographical indications and trademarks. Geographical indications are words, phrases, symbols and iconic emblems that point to the geographic origin of a good (Rangneker 2002).[8] In a 2001 review of geographical indications the World Trade Organisation (WTO) employed the umbrella term "indications of geographical origin", or IGOs, which incorporates a wide range of terms and approaches used in different countries including appellations of origin, designations of origin, and agricultural food product labels and certificates (WTO 2001). Examples of products protected by geographical indications include "Champagne", "Sherry", "Porto" and "Chianti" wine, and "Roquefort", "Danablu", "Olive de Kalamata" and "Coquille Saint-Jacques des Cotes-d"Armor" food products in Europe. "Tequila" and "Mezcal" are protected in Mexico[9] and a range of hand-made carpet names in Turkey (WTO 2001).

The UN Conference on Trade and Development (UNCTAD) and the International Centre for Trade and Sustainable Development have developed a project to improve understanding of TRIPS-related issues in developing countries, and to assist in building capacity in negotiations related to IPR. One element of this project includes a recent paper and review of geographical indications (Rangnekar 2002). This study is currently being expanded to incorporate a cost-benefit analysis for producers, processors, and marketers from existing geographical indications, particularly in Europe. Dutfield (2001) has also explored in great detail the potential for various IPR tools to protect traditional knowledge and resources.

Geographical indications are particularly interesting as a form of protection for species like marula with long histories of traditional use and management because unlike other forms of IPR they protect communal, shared knowledge and practices. The positive elements of geographical indications that make them worth investigating for species like marula include:

- they are based on collective traditions and a collective decision-making process;
- they are held by a group of people in a particular location and not individuals;
- they protect and reward traditions while allowing evolution;
- knowledge remains in the public domain;
- they emphasise the relationship between culture, land, resources, and environment;
- they are not freely transferable from one owner to another, and are not subject to unconditional control by a private owner;
- they do not make it impossible for others to produce a good, but they may not use the "indication"; and

[8] Article 22.1 of the TRIPS Agreement defines geographical indications as indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.

[9] On-going work on the protection of local producer's claims to 'tequila', and the potential for geographical indications to assist in this process, is underway. A number of valuable lessons from this experience would prove useful in the case of marula and other products from southern Africa for which geographical indications might apply (Dutfield, pers. comm., 2002). Contact: Jorge Larson jlarson@xolo.conabio.gob.mx

- rights can be maintained in perpetuity, as long as the collective tradition they protect is maintained (Downes and Laird 1998; Dutfield 2000; Moran 1993; Rangneker 2002).

Amarula liqueur is the marula product that might most immediately benefit from the application of geographical indications or trademarks. *Amarula* is currently exported from South Africa by Distell in only moderate amounts, but is second in world demand for cream liqueurs, a demand that is reportedly increasing, especially in North America where in 2002, 50 000 cases of *Amarula* were sold (Morris 2002). A key component of the company's marketing strategy is the 'African' identity of the marula fruit. As stated by one of the primary shareholders involved in the manufacture of Amarula: "… we have something unique – we have heritage, an 'African' product…" (Slabbert, pers. comm., 2002). This is promoted through the imagery on the bottle – of an African elephant – and by labelling on the bottle referring to the indigenous African nature of the tree, emphasising its 'wildness' and lack of cultivation.

As the product becomes more successful, competitors will enter the market and compete with Distell and others selling products containing marula from southern Africa. Already, a near-identical product - *African Cream* - has been produced by a French company and released in Latin America, claiming to be based upon marula and using the same elephant branding as that of *Amarula.* Geographical indications might protect southern African producers and companies from competitors selling 'marula' products which contain no marula, and those containing marula from areas like Israel and West Africa, where it does not naturally occur. Companies such as Distell question the value of geographical indications, however, and are sceptical of the benefits it would produce without significant amounts of money being spent on marketing. Indeed, it is not clear that a given quality, reputation or other characteristic of *Amarula* can sufficiently be attributed to its geographic origin. This notwithstanding, the company is arguing through the WTO that the French product contravenes Sections 22(a) and (b) of TRIPS, which enables member states of the WTO to provide the means for affected parties to prevent:

(a) the use of any means in the designation or presentation of a good that indicates or suggests that the good in question originates in a geographical area other than the true place of origin in a manner which misleads the public as to the geographical origin of the good; and
(b) any use which constitutes an act of unfair competition within the meaning of Article 10*bis* of the Paris Convention (1967).

The case is still pending, and an outstanding question revolves around the extent to which geographical indications can be granted for a product such as *Amarula*, which is based upon a tree that is widely distributed throughout the African continent rather than being confined to a more limited geographical area such as a country, locality, or wine-growing region (de Wet, pers. comm., 2002).

In addition to the liqueur, other marula products distinguish themselves as 'African'. Marula oil used in cosmetic products by The Body Shop are marketed with "Marula Stories" about its cultural, medicinal, and beer/wine making value, and marula chocolate is linked to the natural source. Objections were voiced at Distell over Nestle's 'marula' chocolate bar, which contained artificial flavouring and no fruit: "We need to make a stand against these alien products as they are not the real thing and are not benefiting anyone. We must not allow the word marula to be

used for these products – but it is difficult to stop it from being used." In addition to geographical indications, trademarks and certification can help to identify 'true' marula products, and those from southern Africa sources which benefit primary producers.

2.4 Trademarks and Certification

Trademarks can highlight a producer's claim to authentic or distinctive products or services, and protect a group's or company's reputation for good quality. In some areas, indigenous groups have used trademarks to distinguish their products, such as agricultural varieties and produce, carvings and other arts and crafts (Dutfield 2000). Distell use trademarks to protect the name *Amarula* and, in South Africa, the elephant 'logo'. But trademarks can also be used to identify products that contain marula from southern Africa in contrast to those containing flavourings or raw material from elsewhere, or for products containing a minimum marula content. In this way, trademarks might help producers claim a greater share of the benefits from commercialisation, and could be held by producer's associations like SANPROTA.

A label issued by producer groups could reflect a minimum threshold of performance in terms of sustainability and fair sharing of benefits. Marula certified to standards of sustainability, fair trade, organic, and quality control might prove successful in international markets for the liqueur, chocolate, and personal care products. Certification of NTFPs is a growing field, with a large and expanding pool of standards and certifiers, and there is a great deal of potential for products such as marula to find expanded markets as well as premium prices as a result (Pierce *et al* 2002; Shanley *et al* 2002)[10]. However, assessments and certification are expensive, and larger international and domestic markets may be necessary to ensure the benefits of this approach outweigh the costs.

[10] See Pierce *et al* 2002 document of compiled standards at www.rainforest-alliance.org/news/archives/news/news44.html;

PART IV

KEY POLICY ISSUES ARISING FROM THE COMMERCIALISATION OF MARULA

The above discussions point to a web of policy issues, some distinct and others intrinsically linked to one another and the consequences of taking different actions. We attempt below to identify some of the key policy issues that have emerged in this paper, and from the various papers contributed by other members of the project team.

1.1 Trading away Tradition?

The commercialisation of NTFPs often results in trade-offs between subsistence use and the preservation of traditions, cultures and social norms, and the benefits derived from increased income. In the case of marula, annual income from commercialisation averages R500 per household. Although not a large amount, the timing of marula harvest at the beginning of the school year makes this extra income extremely important for the payment of school fees, clothing, and the purchase of food and household goods, particularly in areas with high levels of poverty. Moreover, women are the primary producers of marula products, so commercialisation provides benefits to members of the community badly in need of cash income, for themselves and their children. Yet benefits from commercialisation also come with costs. In this case, these include potential reduced reciprocity within the community in the form of decreased social interactions and good neighbourliness associated with the free exchange of marula products, and a decline in respect for traditional systems. There is also the risk that commercialisation will lead to the increased 'privatisation' of marula, and the exclusion of certain groups from benefits, or that commercialisation will draw resources into trade and away from important subsistence uses. In the north-central regions of Namibia, for example, one quarter of households do not have direct access to marula fruits and related products, and rely on the goodwill of their friends and neighbours to share the resource. By contrast, in South Africa the resource is more freely available. In all cases, the lesson is to watch carefully for the potential negative impacts of commercialisation on subsistence use, social structures, and cultural traditions.

1.2 Does Scaling Up Mean More or Less Benefits?

The increased commercialisation of NTFPs inevitably entails a shift from small-scale to large-scale activities. If not carefully planned and managed, this shift can produce undesirable results, especially at the community level and for more marginalised households. Small-scale enterprises will typically maintain activities in the household, involve local labour, be based on simple technologies, have low capital requirements and be accessible to the most socially disadvantaged groups. Growing the industry could involve a different and more entrepreneurial group of people and marginalise long-established producers, introduce new technologies with potentially negative impacts on women and the poor, and remove benefits and control from the community level. Where can the balance be struck? Because of the seasonal nature of marula, scaling up is unlikely to increase monetary benefits at the household level, but will increase the spread of benefits amongst the community, with the involvement of more households. However, increased commercialisation could also result in the possible monopolisation of the resource and trade by particular households or elites within the community, particularly if technological innovation makes processing faster, more efficient and more profitable. Scaling up could also increase the domestication of marula, which if not done carefully, could induce shifts in benefits to richer farmers or to large companies.

1.3 Clarifying Ownership and User Rights in Communal Areas

Tenure security is a critical component of any strategy that aims to deliver fair and equitable benefits to communities from the commercialisation of NTFPs. In study sites in South Africa, this issue is especially pertinent given that the main source of marula fruit and other products is from communal lands. These areas formed part of the former 'homelands' to which people were removed during apartheid, and remain sites registered in the name of the state, and in which communities have user rights only, and not secure tenure. In the north-central regions of Namibia, communal land ownership is similarly vested in the state, but here most marula fruit is harvested from people's fields or homesteads, and virtually all marula trees are tenured to individual households. Nonetheless, in both countries, insecure land tenure and resource rights could have significant impacts if commercialisation of resources such as marula expands significantly in the future, including:

- increased conflict in areas such as Bushbuckridge, already caught up in administrative wrangles with regard to land and resource allocation;
- 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
- an *ad hoc* and potentially conflict-ridden approach to controlling and managing natural resources.

1.4 Providing for Strong Local Governance

Customary law plays an extremely important role in NTFP management, and is often the only system that is recognised in practice by communities. Customary law governing marula use and management has greater influence than provincial or national law, both in terms of local knowledge of rules and regulations, and enforcement. In the north-central regions of Namibia, these traditional laws are maintained and upheld strongly, but in the study sites in South Africa, democracy and the changing political and social context have exacerbated resource management problems and have led to an erosion of the role of traditional authorities. Customary laws governing marula use have thus become less rather than more effective in recent years in much of South Africa, although they remain more effective than provincial or national laws. In areas such as northern KwaZulu-Natal, where traditions are strong, customary laws are also more operative than in less traditional areas such as Bushbuckridge. The tenurial systems that apply for marula are significantly different between South Africa and Namibia, and individual and community-policing of resources is likely easier for trees strongly tenured to households, as in north-central Namibia, than for trees in communal areas, common in South Africa.

The findings argue for greater integration of customary, provincial and national laws in places where traditional systems have eroded to a great extent, as in parts of South Africa, where tenure is insecure, and where concerns exist about natural resource management, particularly in the face of dwindling resources and capacity for these functions from central and provincial government. Where tenure is secure, customary laws are strong, and local capacity exists to manage the resource and deal with the pressures of commercialisation, as in north-central Namibia,

decentralisation and reliance on customary law is both desirable and essential. However, as commercial pressures rise, national oversight and a supportive institutional environment are necessary, as is the streamlining of fragmented and conflicting legislation for marula management, particularly in South Africa. Improved information flow and coordination could also enhance the performance of both government and traditional authorities.

1.5 Securing Political Support for NTFP-based Industries

Although there is growing international, regional and local interest in the diversification of farming systems, NTFPs – particularly when they have not yet developed into large-scale agriculture – tend to be invisible to policy-makers. As a consequence, their management and influence on local livelihoods often go ignored by policy-makers and can suffer unintended side effects from regulatory policies. For example, despite the value to local economies, women trading marula beer in South Africa encounter legal difficulties associated with selling alcohol. NTFPs can also be over-regulated, and licensing requirements established to restrict the harvesting of marula fruit products could lead to a decline in rural livelihoods. At the level of rhetoric, there is considerable political backing in the region for marula, stemming from growing support for the African Renaissance and pride in African products. Yet in reality, and in South Africa in particular, this sentiment is not always matched by practice. Steps thus need to be taken to translate rhetoric into reality, through concrete research, marketing and legal initiatives that promote, and do not hinder, the commercialisation and sustainable use of marula.

1.6 Ecological Sustainability and Commercialisation: Providing Incentives for Protection or Promoting Degradation of the Marula Resource Base?

NTFPs can produce income for local groups, while providing economic incentives for the sustainable use of species and habitats. By providing an incentive for the cultivation and protection of marula trees, for example, the commercialisation of marula fruits and kernels could positively impact the marula resource base. Furthermore, the integration of cultivars within agroforestry practices could result in landscapes that are biologically more diverse than is currently found. The abundance of marula fruits makes the threat of over-harvesting less than for other commercially valuable NTFPs in the region. However, natural recruitment is low, largely due to lower densities of male trees through deforestation and selective removal, fruit harvesting, use of male trees for fuelwood, and a possible decline in pollinator populations. Although the current density of adult female trees is sufficient to meet existing fruit demand for household use and moderate commercialisation, poor years could well lead to demand outstripping supply, exacerbated by deforestation, which has already impacted marula populations in some areas. With increased commercialisation, it might prove necessary to maintain and enhance the marula resource base through planting with selected cultivars, improved management and domestication.

1.7 Industrial-Scale Cultivation or Farmer-Led Domestication?

Many NTFPs reach a threshold of commercial value, where efforts to cultivate the species become widespread and generally switch into the hands of larger-scale producers. Examples from the region include rooibos tea, and increasingly Devil's Claw. Marula could fall into this pattern, although its wide distribution and abundance, and primary consumption at a community level, make this less likely than for scarce species with a restricted distribution, and large national and

international markets. However, if domestication is pursued as a strategy for commercialisation, the nature and scale of these efforts require careful consideration. The granting of Plant Breeders Rights (PBRs), combined with large-scale industrial demand, could lead to a scenario whereby the benefits of commercialisation shift from poorer groups of farmers to richer ones, or to multi-national companies. Without assistance and support to protect their rights, those gathering wild marula may not be best suited to undertake large-scale domestication. Participatory domestication programmes in marula-producing villages should thus be established to keep communities involved in production and to ensure they are the beneficiaries of future commercialisation initiatives.

1.8 Intellectual Property Rights: Useful Tool or Potential Threat?

Intellectual property rights (IPRs) can both positively and negatively impact the interests of primary producers. In order to realise benefits from the use of IPRs, however, communities need substantial financial and technical support. Two types of IPRs - trademarks and geographical indications - might help protect southern African marula producers, processors, and marketers from competitors selling products that do not contain any marula, or which are derived from sources outside the natural range of marula. But through Plant Breeders Rights, IPRs can play a negative role by preventing rural communities from using material that has been 'improved' by commercial breeders, and facilitating the unfair use by commercial breeders of material that was originally 'improved' and domesticated by communities.

There are several international laws regulating IPRs, including the TRIPS agreement of the World Trade Organisation which requires member states to protect plant varieties, and the UPOV Convention, which protects new varieties of plants. However, the UPOV system is geared towards industrial application and is poorly suited to protect the interests of rural producers. The monopoly nature of UPOV and Plant Breeders Rights makes their application to marula particularly inappropriate given the strong social traditions and culture of marula, which are community rather than individually based. The 'African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders' provides an alternative way to protect the rights of holders of knowledge, and to ensure they receive a fair share of benefits arising from commercialisation of protected varieties. This is significant because local people have already selected marula trees for particular characteristics, and local domestication and 'improvement' of marula trees holds considerable potential for the selection and development of cultivars against fruit and kernel 'ideotypes'. Urgent efforts thus need to be made to develop systems to protect community-based cultivars that do not involve monopoly rights, and which promote poverty alleviation, food security and sustainable agriculture.

1.9 Pursuing Models of Commercialisation that Meet the Needs of the Rural Poor

A wide variety of results can emerge from different NTFP commercialisation models that are adopted by the state, non-governmental organisations, producer communities, and the private sector. Four main models of marula commercialisation currently operate in southern Africa: the 'Local Entrepreneur', the 'Altruist', the 'Honest Broker', and the 'Corporate Buyer'. The benefits and risks involved in each are summarised in Table 1, and illustrate the importance of developing models based on partnerships between producer communities, NGOs, and the private sector. All

of these models also point towards 'winning' conditions that must be in place to ensure that local people capture a larger portion of benefits and commercialisation efforts find success, including:

Management and Institutional

- the quality of information that the producer and/or agent has about markets, and the efforts placed on creating and promoting markets;
- the extent to which individuals are organised as a group;
- coordinated production within and between communities;
- skills in bargaining;
- the extent to which a producer and/or agent is 'networked' and linked into partnerships;

Logistical

- access to transport by the producer;

Financial and Market

- the quality and consistency of products received;
- the existence of a diversity of products, markets, players, and industries; and
- awareness among consumers as to the product or brand.

Table 1. Marula commercialisation models

Commercialisation model	Description of key players and activities	Financial and other benefits	Positive elements of the model	Limitations and risks of the model
The Local Entrepreneur	Women trading beer/wine/kernels in local markets	-Annual income of R500 to some 200 households (BBR); - 0-87% of women sell wine and earn R50-4000 annually (Namibia); - 40% of women sell kernels earning R30-400 each per season (Namibia)	- Women retain ownership and control of the enterprise; - Low barriers to entry; -Easy to initiate trade without outside actors; -Value adding occurs; -Entrepreneurial skills are built.	-Greater income than fruit sellers, but on an effort basis only 1.3 times more than average farmworker; -Seasonality of income; - Market saturation as more women engage in the trade; -Wastage due to poor shelf-life of beer.
The Altruist	Mineworker's Development Agency, donor-sponsored job creation project producing marula pulp and oil.	- Annual income of R127 to 197 households involved in selling fruit; - Annual income of R1440 to 27 households involved in	- Possibility exists for community-based ownership of the enterprise; - Some linkages exist with foreign export	- Reliance on external funding (although this is limited to the development phase until a viable business is developed); - Generates the

		processing 236 tons fruit	markets; - Strengthening of organisational capacity occurs at village level through setting up of committees; - Low barriers to entry; - Cost recovery gradually being established.	least income per effort for suppliers, between 0.3 and 1.2 times that of the average farmworker; - Producers are price takers; - Difficulties in meeting quality and quantity required by corporate buyers based on low-technology, community-based processing.
The Honest Broker	Partnership between Eudafano Women's Cooperative Ltd., Katutura Artisans' Project, and the NGO CRIAA SA-DC, centred on the production of cold-pressed marula oil for the cosmetic market	- Average annual income of R450 to 750 producers (2000); - Average annual income of R200 to 1483 producers (2001).	unity-based ownership of the enterprise; - Linkages with foreign export markets; - High levels of organisation within Cooperative; vement of organisations with processing, management and marketing skills and capacity; ıises intrusion into traditional use of marula for beer/wine and leaves marula fruit in households for consumption and local trade; l production and trade fits well with agricultural and other obligations; ecovery gradually being established; rketing done under Eudafano.	- Reliance on public monies (although this is limited to the development phase for institutional capacity building, research and development, and marketing); - Difficulties in meeting quality and quantity required by corporate buyers based on low-technology, community-based processing.

The Corporate Buyer	Production of Amarula liqueur by Distell	- Average annual income of R1340 to 419 households - R100 000 for development projects in the area	- Greatest profit for marula fruit traders who earn 1.3-2.1 more than farmworker; - Company has the ability to invest in marketing, image-building and product development.	- Model based on 'trickle down' benefits rather than community-based ownership of the enterprise; - Producers are price takers; - Larger profits hinge on traders transporting fruit at their own cost; - Skewed power relations between producers and company; - High levels of secrecy on the part of the company, which disenfranchises producers from business; - Availability of synthetic replacements may displace need for raw material.

1.10 Technology and its Impacts on Women

The introduction of new mechanised technologies arising from increased commercialisation of NTFPs can attract men to the enterprise and further marginalise women in the process. This could have profound impacts in the case of marula, where women currently have a dominant role in supplying and processing the fruits and kernels. These women also tend to be the most marginalised and poverty-stricken in the community, so adoption of new technologies by men might further reduce their economic status. Already, men control marula-processing technologies such as fruit and oil presses in many cases. It is far more advantageous for the community if women maintain control over marula production given that their income-spending priorities lie in maintaining the good health and welfare of the household, and in supporting their children.

1.11 The Importance of Diversity

Diversification – in species used, products produced, markets traded, and players involved - is an extremely important strategy to minimise the risks of NTFP commercialisation for rural communities. This is especially true for marula, given its highly seasonal nature and relatively low income-earning potential. On its own, marula is unlikely to provide a sustainable livelihood, but taken together with other NTFP use and livelihood activities it can generate much-needed income at a crucial time of the year. Diversity in end products and industries into which marula feeds also minimises risk to producers, and can extend earnings throughout the year. This could

include targeting local, national and international markets; developing a variety of products to meet the needs of different consumers, from cosmetics to liqueurs to jams; and encouraging different sized enterprises to engage in the trade at different levels.

1.12 Placing Marula within a Broader Context

NTFPs are harvested and used within the context of broader development and land-use pressures. Interventions for the effective management of these resources thus need to take place at a number of different levels. In the case of marula, tree felling must be viewed within circumstances of escalating poverty and unemployment which make electricity unaffordable and result in increased use and trade of firewood, post-democracy changes in governance, and in some areas increased populations and broader deforestation. Similarly, unsustainable levels of bark harvesting are often driven by demands for herbal medicines from growing populations in metropolitan areas. The underpinning reasons for marula mismanagement thus fall outside the purview of a single authority and are often symptomatic of a far more complex set of problems. Ways to redress these problems include the integration into local and regional-level development planning initiatives of strategies to manage marula, as well as efforts to improve communication and cooperation amongst relevant authorities, and enhance awareness amongst user groups.

PART V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions and Recommendations

A wide range of laws and policies impact marula management and use, and these are implemented within a complex social, political, economic and environmental web. As we have seen, at the local level, customary laws for marula management and use operate most effectively, although in some areas conflicts exist 'on the books' between various levels of government, as well as within customary law. Since marula is a widespread and common species, used extensively throughout the community, and benefiting women and children in particular (in the form of school fees), we conclude that its conservation and equity profile has been largely a positive one. As populations grow and pressures on communities mount, and if commercial opportunities for selling marula increase, it may be necessary to take steps to rationalise the legal and policy environment for NTFP fruit trees. However, customary laws and accepted practice appear to be appropriate in most areas, and we would caution against tampering with laws until and if a specific crisis emerges. One exception may be the pending regulations for protected trees in South Africa, which need to *exclude* marula fruit harvesting from the list of prohibited activities if further commercialisation and subsistence use is to be promoted.

More generally, we make the following recommendations that have relevance in many cases not only for marula, but also for NTFP commercialisation in general:

- Those embarking on the commercial development of NTFPs must balance carefully the benefits derived from commercialisation against those derived from subsistence and traditional use, in order to minimise negative impacts on livelihoods and cultures.

- Efforts to increase the commercialisation of marula need to balance the benefits that will be derived by producer communities through increased income, with the potential negative impacts of scaling up, including shifts in benefits away from the most marginalised producers.

- Governments should make every effort to clarify land and usufruct rights to facilitate the successful and effective commercial development of marula, and NTFPs in general. In South Africa, the draft Communal Land Rights Bill should recognise that Western approaches to titling may not be appropriate for indigenous resource tenure systems.

- Governments should integrate and streamline customary, provincial and national laws concerning marula in places where traditional systems have eroded to a great extent, but minimise intervention in areas where customary law is adequate to deal with the pressures of commercialisation.

- Policy-makers should translate their rhetorical support for marula commercialisation and sustainable use into practice through research, marketing, legal and promotion assistance. Should marula prove an important commercial product, it will also be necessary to discourage government intervention in the form of increased taxation and steps that in other countries (eg the US and Cameroon) have proven overly burdensome to NTFP harvesters and discouraged sound management.

- Government officials, extension workers, service organisations and communities should take steps to maintain and enhance the marula resource base through improved management and appropriate domestication, including the retention of male trees in the landscape.

- Governments, NGOs and other relevant service organisations should establish participatory domestication programmes among marula-producing communities to select superior trees, develop cultivars from them, and then grow them locally. This should be done through a process that leaves the germplasm and knowledge with the community, and empowers them to determine their own commercial opportunities and glean appropriate benefits.

- Urgent efforts should be made by relevant government ministries in Namibia and South Africa to develop and implement systems to protect community-based cultivars that do not involve monopoly rights, and which promote poverty alleviation, food security and sustainable agriculture. This should be based upon the 'African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders', and done as part of the legislative reforms currently underway in these countries for biodiversity management, indigenous knowledge protection, and plant genetic resource conservation and use.

- To ensure that local people capture a greater share of benefits from NTFP commercialisation, basic management, financial, and institutional capacities must be in place. Models of commercialisation should build upon these attributes and emphasise meeting the needs of the rural poor.

- Those introducing new processing technologies for marula need to balance carefully the efficiency benefits this will bring against potential impacts on the most marginalised groups, and women in particular.

- Through effective natural resource management, governments, traditional authorities and communities should ensure the continued use of a wide range of NTFPs, including marula, to support rural livelihoods. Commercial enterprises of all sizes should promote the development of a wide range of marula-based products and markets.

- Management strategies for marula should be integrated into local and regional-level planning initiatives. Efforts should be made to communicate these strategies to relevant authorities, to enhance cooperation amongst them, and to increase awareness about the value of marula to all user groups.

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APPENDICES

Appendix 1

List of those consulted and/or interviewed

Graham Baartman, Previous Section Ranger, Mkuze Game Reserve, KwaZulu-Natal
Joseph Banda, Ministry of Environment and Tourism, Directorate of Forestry, Ongediwa Regional Office, Namibia
Phoebe Barnard, Directorate of Environmental Affairs, Namibia
Susan Barton, Mineworkers Development Agency, South Africa
Elise Buitendag, National Department of Agriculture, South Africa
E. de Bruyn, National Department of Agriculture, South Africa
H. de Bruyn, Lebombo Mountain Reserve, KwaZulu-Natal
Felicia Chiloane, Mineworkers Development Agency, South Africa
Inspector Dlamini, Ubombo Police Station, KwaZulu-Natal
Marius du Toit, Department of Water Affairs and Forestry, South Africa
Graham Dutfield, University of London, England
Steve Goetze, Makhatini Experimental Station, KwaZulu-Natal
Vusi Gumbi, District Conservation Officer, Mkuze Game Reserve, KwaZulu Natal Conservation Services
Joseph Hailwa, Director of Forestry, Namibia
Joel Hancock, Law enforcement, Environment Affairs, Limpopo Province
Hokwe Induna, Hokwe, Bushbuckridge
Professor L. Holtzhausen, private plant breeder
Theodor Kaambu, Ministry of Environment and Tourism, Directorate of Forestry, Ongediwa Regional Office, Namibia
Philemon Kayofa, Outapi District Forestry Office, Namibia
Nosizi Khoza, Rolle, Bushbuckridge
Patience Khoza , Rolle, Bushbuckridge
Mr Khoza, Tribal secretary, Thulamahashe, Bushbuckridge
Induna Mabaso: Ophande 1/ Makhonjeni Ward, Maputaland
S. Magali, Mkuze Game Reserve, KwaZulu Natal Conservation Services
Nkateko Mazkaka, Department Agriculture and Land Affairs, Limpopo Province
Laina Manyike, Rolle, Bushbuckridge
Simon Manyike, Manyeleti, Andover reserves, Bushbuckridge
Craig Marquini, Mkuze Game Reserve, KwaZulu-Natal
Induna Marule, Rolle, Bushbuckridge
Shollence Mathebula, Allandale, Bushbuckridge
Induna Mazibuko: Nonhi / Makhatini Ward, Maputaland
Loika Mbowane Allandale, Bushbuckridge
Steve McKean, KwaZulu Natal Conservation Services
Elita Mhlanga, Allandale, Bushbuckridge
Induna Parkson Mhlanga, Allandale A and B, Bushbuckridge
Professor Yosek Mizrahi, Ben Gurion University of the Negev, Israel
Mr Mkhwanazi, Ubombo Magistrate, KwaZulu-Natal
Lovey Mnisi, Allandale, Bushbuckridge
Sibongile Mnisi Allandale, Bushbuckridge

Pat Mooney, ETC Group, Canada
Tatekulu Thomas Amutenya Moongo, Senior Headman, Onambembe village, Ondangwa , Namibia
Ben Mothusi, Agricultural Resources Board, Botswana
Captain Mtembu, Ubombo Police Station, KwaZulu-Natal
Charlie Mwaetako, Ministry of Agriculture, Ongwediwa Regional Office, Namibia
T. Myeni, Chief Induna, Ubombo Tribal Authority, Maputaland
Induna Myeni: Nkangala Ward, Maputaland
Induna Nhlanga: Jozini / Machibili Ward, Maputaland
Girlie Njoni, Mineworkers Development Agency, South Africa
Sani Nxumalo, Allandale, Bushbuckridge
Simon Nxumalo, Mkuze Game Reserve, KwaZulu Natal Conservation Services
Sophie Nxumalo, Rolle, Bushbuckridge
Hope Shand, ETC Group, USA
Tatekulu Ileni Shangadi, Village headman, Omalyatta, Ohangwena, Namibia
Tatekulu Gideon Shaningwa, Village headman, Omakuku, Ombalantu, Namibia
Ian Sharp, Environment Affairs, Limpopo Province
Tatekulu Job Sheehama, Senior headman and village headman, Kwanyama and Kwambi area, Namibia
Thys Slabbert, Distell Phlalaborwa
Frank Taylor, Veld Products Research and Development, Gaborone, Botswana
Sibusiso Thusi, Mkuze Game Reserve, KwaZulu-Natal
Patricia Sihlangu, Rolle, Bushbuckridge
Lina Silaule, Allandale, Bushbuckridge
Mr Victor Tlhalerwa, Agricultural Resources Board, Botswana
Isak van der Merwe, Department of Water Affairs and Forestry, South Africa
Tom Vorster, Department of Water Affairs and Forestry, South Africa
Renee Vellve, Genetic Resources Action International (GRAIN), Philippines
Wilhelm Willemse, Mjindi Farming, KwaZulu-Natal
J. Zwane, Provincial Department of Agriculture and Environmental Affairs, Jozini, KwaZulu-Natal

Appendix 2

MARULA POLICY SURVEY: CUSTOMARY LAW /TRIBAL AUTHORITIES

1. Rules and regulations for wild fruit trees

Do you have any rules and regulations guiding the harvesting or felling of wild fruit trees? If yes, what are they, please describe:

(a) Harvesting wild fruits:

(b) Cutting wild fruit trees:

2. Rules and regulations for marula

Are there any specific rules or regulations for marula?

Have they changed over time? What were they twenty years ago? Before the new government? After the new government?

(a) Harvesting of marula fruits:

Can anyone harvest marula fruits? Can people from outside a village harvest marula? Do they need to ask permission of the village headman or others to do so?

Can fruit be harvested at any stage – can green fruit be harvested?

What are the different rules that apply for harvesting on:

- People's yards
- Farms in villages
- Communal village land
- Conservation or protected areas (give local examples eg Malelane or KNP for BBR; Mkuze for KZN)
- State land
- Private farm land
- Municipal land

(b) Cutting of marula trees:

Is it allowed under customary law? Is it different for male or female trees?

Is it allowed under government law? Is it different for male or female trees?

Is the pruning of trees permitted under government and/or customary law?

Are marula branches used at all for fuelwood or other purposes? If so, are they collected from the tree or from the ground?

Are people cutting trees more today than they were 20 years ago? If yes, why and who?

Is there a difference in the extent of cutting before and after the new government? If yes, why and who?

What are the different rules that apply for cutting on:
- People's yards
- Farms in villages
- Communal village land
- Conservation areas
- State land
- Private farm land
- Municipal land

c. Harvesting of marula bark

Is it allowed under customary law? Is the law different for male or female trees? Are male or female trees preferred?

Is it allowed under government law? Is the law different for male or female trees?

Are there any restrictions on the amounts of bark that are harvested?

What are the different rules that apply for harvesting in:
- People's yards
- Farms in villages
- Communal village land
- Conservation areas
- State land
- Private farm land
- Municipal land

3. Land Tenure and Resource Rights

Who owns marula trees:
- in people's yards
- on people's farms
- on communal lands

How is ownership over land allocated in the villages?

Who regulates and controls the use of wild fruits on communal lands?

4. Monitoring and Enforcement

Who monitors and enforces the rules and regulations for wild fruit trees and marula?

Are these rules and regulations actively enforced?

How many people have been arrested or fined for marula infractions in the last year? In the last five years?

How has this changed over time? How does this compare with the time before the new government?

What are the penalties, and procedures? How much is the fine?

What does the money collected from the fine get used for?

5. Tribal and Government Legal Systems and Institutions

What is the relationship between the tribal and customary legal system for regulating marula harvesting and cutting, and the governmental system?

Do the rules and regulations differ? If yes, how?

Do you work with other institutions – eg conservation authorities – to monitor and enforce the rules and regulations?

Is marula jointly regulated by chiefs and indunas? Who has ultimate authority? What are the main issues discussed?

How are decisions about marula made in your village/ward/… (If appropriate ask what committees/structures deal with marula or related issues, and their functions).

6. Commercialisation

Do you think marula commercialisation offers a good opportunity to improve livelihoods in the region?

What are some of the potential positive, and negative, sides of marula commercialisation?

Have harvesting and selling practices changed as a result of any commercialization of marula?

7. Effectiveness of Regulation

What is working or not with the current system of marula harvesting and cutting rules and regulation?

Are there any changes you would like to see?

8. **Sustainability and Recruitment**

Are there as many marula trees today as there were in the past?

Are there enough young marula trees to replace old or dead trees? If not why not?

Are there any initiatives to encourage the planting or more marula trees – please provide more information on these initiatives. What are the main needs (if any) with regard to domestication?

If relevant - Who supplies the community with new trees for planting?

** PLEASE COLLECT COPIES OF ALL RULES, REGULATIONS, LAWS AND RELEVANT DOCUMENTS.

** IF POSSIBLE TRY TO OBTAIN RECORDS FROM THE TRIBAL AUTHORITIES ON TRANSGRESSIONS WITH REGARD TO MARULA.

GOVERNMENT POLICY:
CONSERVATION / FORESTRY / AGRIC EXTENSION OFFICERS

1. Rules and regulations for wild fruit trees

Do you have any rules and regulations guiding the harvesting or felling of wild fruit trees? If yes, what are they, please describe: (give names and numbers of laws, rules, regulations if possible)

(a) Harvesting wild fruits:

(b) Cutting wild fruit trees:

2. Rules and regulations for marula

Are there any specific rules or regulations for marula?

Have they changed over time? What were they twenty years ago? Before the new government? After the new government?

(a) Harvesting of marula fruits:

Can anyone harvest marula fruits? Can people from outside a village harvest marula? Do they need to ask permission of the village headman or others to do so?

Can fruit be harvested at any stage – can green fruit be harvested?

What are the different rules that apply for harvesting on:
- People's yards
- Farms in villages
- Communal village land
- Conservation or protected areas (give local examples eg Malelane or KNP for BBR; Mkuze for KZN)
- State land
- Private farm land
- Municipal land

(b) Cutting of marula trees:

Is it allowed under customary law? Is it different for male or female trees?

Is it allowed under government law? Is it different for male or female trees?

Is the pruning of trees permitted under government and/or customary law?

Are marula branches used at all for fuelwood or other purposes? If so, are they collected from the tree or from the ground?

Are people cutting trees more today than they were 20 years ago? If yes, why and who?

Is there a difference in the extent of cutting before and after the new government? If yes, why and who?

What are the different rules that apply for cutting on:
- People's yards
- Farms in villages
- Communal village land
- Conservation areas
- State land
- Private farm land
- Municipal land

c. Harvesting of marula bark

Is it allowed under customary law? Is the law different for male or female trees? Are male or female trees preferred?

Is it allowed under government law? Is the law different for male or female trees?

Are there any restrictions on the amounts of bark that are harvested?

What are the different rules that apply for harvesting in:
- People's yards
- Farms in villages
- Communal village land
- Conservation areas
- State land
- Private farm land
- Municipal land

3. Land Tenure and Resource Rights

Who owns marula trees:
- in people's yards
- on people's farms
- on communal lands

How is ownership over land allocated in the villages?

Who regulates and controls the use of wild fruits on communal lands?

4. Monitoring and Enforcement

Who monitors and enforces the rules and regulations for wild fruit trees and marula?

Are these rules and regulations actively enforced?

How many people have been arrested or fined for marula infractions in the last year? In the last five years?

How has this changed over time? How does this compare with the time before the new government?

What are the penalties, and procedures? How much is the fine?

What does the money collected from the fine get used for?

5. Tribal and Government Legal Systems and Institutions

What is the relationship between the tribal and customary legal system for regulating marula harvesting and cutting, and the governmental system?

Do the rules and regulations differ? If yes, how?

Do you work with other institutions – eg tribal authorities, other government departments – to monitor and enforce the rules and regulations? Which ones?

Is marula jointly regulated by chiefs and indunas? Who has ultimate authority? What are the main issues discussed?

How are decisions about marula made in your department/office. Do any committees consider marula in their work? Which ones? What are their functions? Who sits on them?

6. Commercialisation

Do you think marula commercialisation offers a good opportunity to improve livelihoods in the region?

What are some of the potential positive, and negative, sides of marula commercialisation?

Have harvesting and selling practices changed as a result of any commercialisation of marula?

7. **Effectiveness of Regulations**

What is working or not with the current system of marula harvesting and cutting rules and regulation?

Are there any changes you would like to see?

8. Sustainability and Recruitment

Are there as many marula trees today as there were in the past?

Are there enough young marula trees to replace old or dead trees? If not why not?

Are there any initiatives to encourage the planting or more marula trees – please provide more information on these initiatives. What are the main needs (if any) with regard to domestication?

If relevant - Who supplies the community with new trees for planting?

** PLEASE COLLECT COPIES OF ALL RULES, REGULATIONS, LAWS AND RELEVANT DOCUMENTS.

** IF POSSIBLE TRY TO OBTAIN RECORDS FROM THE TRIBAL AUTHORITIES ON TRANSGRESSIONS WITH REGARD TO MARULA.

Governments should integrate and streamline customary, provincial and national laws concerning marula in places where traditional systems have eroded to a great extent, but minimise intervention in areas where customary law is adequate to deal with the pressures of commercialisation.