Desk Study on the Development of Honey and Marula Products for local and export Markets

DRAFT

1. Introduction

This preliminary report based on desk study seeks to identify the key issues for the following:

- Assess relevant policy and technical documentations related to honey and marula development in Botswana
- Identify local structures/bodies that provide support production of honey and marula products
- Benchmark good practices in 3 countries of SADC, namely: Namibia, South Africa, and Zimbabwe
- Identify key players in the European market for consideration as distributors of honey and marula products
- Determine minimum required quality standards set in the European market for imported goods, with special emphasis on honey and marula products
- Locate champion producers of honey and marula products in Botswana

Whilst the study is focused on Marula, it is noted that much of this study is relevant to other cosmetic ingredients derived from indigenous plants in Botswana (such as Ximenia, Kigelia and Baobab) and that a diversified ingredient processing strategy could reduce the seasonality of production.

With regard to honey, the study will make the assumption that there is no objection to considering the commercial potential of beeswax in particular and to a lesser extent other by-products of honey production.

2. The Policy and Institutional Context in Botswana as it relates to the production and marketing of honey and marula

2.1 Overview

With regard to policy context, the key questions that this study will need to address are related to whether or not there is an **enabling policy environment** for:

- SME development in general
- Diversification of livelihoods in rural areas
- Inclusive business development i.e. market-oriented economic development designed to create opportunities for people as consumers, producers and owners/managers
- Sustainable management of natural resources
- Competitiveness in regional and international trade

In addition to the policy framework, the study will explore the institutional support structures that are in place that can assist in the development of the honey and marula value chain.

2.2 Policy Context

2.2.1 National Policies

The starting point in any review of the policy context in Botswana is the **National Development Plan (NDP)**[1]. The current Plan is NDP10 (2009-2016) and like its predecessors it provides the framework and direction for all areas of policy. It is also fully aligned with **Vision 2016**. With a view to the current study and the questions posed above, we note a selection of positive references and priorities:

- The NDP places considerable emphasis on rural development and the need to stimulate rural employment, diversify the rural economy, and reduce poverty
- There is a consistent stress on the central role to be played by the private sector, especially in diversifying the economy (eg section 5.3, p54)
- The Private Sector Development Strategy (5.79) gives priority to creating an 'enabling and supporting policy environment' for the private sector, stimulating investment, and enhancing competitiveness
- There is stress on the importance of SMMEs particularly in local economic development and poverty reduction, and similarly particular emphasis on the important role of the Local Economic Authority (LEA)
- To foster SMME development and support household economic activity the NDP gives priority to improving access to finance at all levels (9.63)
- There is also recognition of the need to address complexities in the business environment, both in terms of the tax regime and also trade especially with neighbouring countries: *every effort will be made to reduce the regulatory and protectionist barriers to trade with neighbouring countries* (5.14, p.56)
- The Plan recognizes the importance of Product Quality and Standards, and commits to further development of the work of Botswana's Bureau of Standards
- There is also a clear commitment to the sustainable management of natural resources, including giving priority to engagement of local people in Community Based Natural Resource Management (CBNRM)

These highlights suggest that there should be an enabling environment for the expansion of natural product value chains. To assess progress in implementing the NDP we reviewed the **Mid-Term Review of NDP10[2].**

The Review reiterates the core themes of the NDP, but for the purposes of the current study we draw attention to the following important points of emphasis:

- Greater stress on economic diversification *to place the economy in a better position to absorb unforeseeable global economic shocks* – while this is really focused on the macro economy, it applies equally to households in rural areas diversifying their livelihoods
- In the remaining years of the NDP period priority will be given to the Biodiversity Strategy and CBNRM programme – for CBNRM to function well there needs to be livelihood

[1] National Development Plan, final Dec 2009, ed. Jan 2010
[2] Ministry of Finance and Development Planning, June 2013

gains alongside conservation elements, again something that natural product value chains can offer

- There is greater emphasis on Citizen Economic Empowerment, especially in rural areas: *Emphasis will continue to be placed on rural development to ensure that Botswana's objective of social justice is achieved* (para 64, p16)
- Another way in which the Review shifts the emphasis more to the individual/household is its stress on the informal sector and its re-emphasising of the need to increase access to finance in that sector

Another important policy document is the **National Export Strategy (NES)**[3]which builds from the NDP and on the Private Sector Development Strategy and Trade Policy. The NES sets out several priority sectors and, while honey is not one of them, the strategy notes that *It is worth pointing out that the action plans derived in this strategy may apply to all other sectors of the Botswana economy* (NES, p3) including indigenous products such as honey. The NES strategy is based on four perspectives: development focus (impact on the economy, jobs, poverty reduction etc), competitiveness focus (requirements for companies to be globally competitive), client perspective (quality issues, trade information etc) and institutional perspective (the support services needed by companies entering export markets). Although honey was not selected as a priority sector, the criteria used to select those sectors are still a very useful guide as we consider the potential of the honey and beeswax value chains:

- Export growth potential;
- Potential to create jobs;
- Potential to contribute to poverty reduction;
- Potential to exploit locally available raw materials;
- Availability of markets;
- Decentralization of industry;
- Potential to reduce rural to urban migration;
- Potential to contribute to the empowerment of youth and women and to promote gender equality and equity;
- Other factors included the sector"s expected rate of return**.**

These criteria will provide part of the framework for presentation of findings from the field work.

2.2.2 Sector Policies

At the level below these national framework policies are sector specific policies and strategies and, while the National Agriculture Development Policy is under review there are departmental strategies such as the **Botswana Agricultural Marketing Strategy 2011-2016**.[4] This strategy sets as its core objective to *improve competitiveness and diversification of Botswana's agricultural sector by means of increases in farmers' incomes, irrespective of scale of operation.* (p.15). The strategy stresses the importance of the value chain approach and, when focusing on farmers, of extending the 'cluster' approach – working with associations and co-operatives. While the focus of this strategy is primarily commercial agriculture, its themes and approach is relevant to marula and honey production.

[3] Botswana National Export Strategy, 2010-2016
[4] Department of Agribusiness Promotions Ministry of Agriculture, Government of Botswana, 2010

The **Community Based Natural Resource Management Policy** was passed in 2007 by the Botswana Government. The policy recognises that people who live close to natural resources generally absorb most of the costs associated with their conservation, and that if communities are given the correct awareness and incentives then they are most likely to successfully benefit and conserve such natural resources within their area. For communities to actively engage in natural resource conservation, the benefits from such resources must exceed the costs of conservation. The CBNRM policy aims to achieve this by offering eligible communities the opportunity to earn tangible benefits from sustainable natural resource management, thereby achieving the dual goals of rural development and biodiversity conservation by increasing the value of natural resources to communities.

The CBNRM Policy is supported by wildlife conservation and tourism policies. The **Wildlife Conservation Policy** of 1986, and the **Draft Wildlife Management Area Regulations** of 2002, provide for the establishment of Wildlife Management Areas and Controlled Hunting Areas, which are the key lands and concession areas where CBNRM is implemented. Both consumptive and non-consumptive use of natural and wildlife resources form the basis of successful CBNRM activities that result in development and conservation. However the recent **Ban on Hunting** in 2014 has resulted in the suspension of consumptive tourism and there is now considerable pressure to find alternative income generation from non-consumptive wildlife tourism, veld products and cultural heritage resources.

Sustainable management of hunting forms one of the key pillars of CBNRM, and without this source of income there is a focus upon the **National Ecotourism Strategy** of 2003, the **Tourism Act** of 2009 and the 1990 **Tourism Policy** which is currently under review. The policy describes tourism as the new “engine of growth” that can diversify the economy from reliance upon mining. The policy calls for employment in rural areas to reduce urban drift and to promote rural development by stimulating the provision of services and products from remote and rural areas of the country.

This brief initial review of the Policy Context for developing a commercially viable honey and marula value chains in Botswana illustrates that on paper at least there is an enabling policy environment for increasing trade and competitiveness led by the private sector, SME development, diversification of livelihoods in rural areas, and sustainable management of natural resources.

2.3 Institutional support context

2.3.1 Support structures and services directly relevant to the potential development of Honey and Marula in Botswana

Any expansion of honey and marula supply chains in Botswana is likely to include both community based organizations as beekeepers or harvester groups (desirable in terms of development impact) and entrepreneurs who may set up their own business either as a supplier or processor. Whatever the organizational structure, other than the obvious practical feasibility of natural resource availability and production in the area, the entrepreneurs and community representatives will need access to:

- Business development services (to assist with business planning, establishing sound internal control systems, planning and budgeting production etc)
- Physical inputs (equipment, packaging)
- Financial services (start-up finance, working capital loans etc)
- Technical services (laboratory facilities, certification etc)
- Market information

This initial review of available institutional support for honey and marula in Botswana has suggested that the following organizations and institutions should be of some practical assistance.

Local Enterprise Authority (LEA) (www.lea.co.bw)

The LEA has as its mission: *To promote and facilitate entrepreneurship and SMME development through targeted interventions in pursuit of economic diversification.*

As the following table of offerings from the LEA (taken from its website) illustrates, on paper the LEA offers the complete package of services that an entrepreneurial beekeeper or group of beekeepers could need. It is not immediately clear from the LEA online information whether beekeeping and honey production would qualify; it should, given that it is within Agriculture. Assuming that a honey business or entrepreneur could apply for support from LEA it is not automatic that support would be forthcoming. There is a rigorous screening process.

Pre-Start

Products and services offered under pre-start are largely client driven and allow the entrepreneur to understand their business map.

- Business Plan Development
- Monitoring and Mentoring
- Entrepreneurship Development & Training
- Start up facilitation
- Business Incubation

Access to Finance

LEA will facilitate access to finance through:

- Credit Facilitation
- Loan Application
- Financial Counselling
- Financial History Analysis
- Business Risk Analysis

Start-up Services

LEA will assist entrepreneurship to implement their Business plans by providing support through:

- Enterprise
- Development
- Monitoring and Mentoring
- Enterprise Evaluation and profiling
- Facilitation of product certification for Quality Assurance

Access to Markets

Market access is important for start up and existing business to become sustainable and to LEA offers:

- Market Access Development
- Government Procurement and Tendering
- Export readiness programme
- Export Capacity Development
- National & International Linkages
- Awareness on Local fairs and exhibitions facilitation
- Buyer/seller match making
- Export credit facilitation
- Export Insurance Facilitation

Business Growth

LEA believes that at this stage enterprises can explore different operational structures and financing with a view expanding to become large enterprises.

- Facilitating access to finance including:
- Equity financing
- Export facilitation
- Awareness Creation on Treaties and Trade agreements
- Customs and Excise Awareness

Citizen Entrepreneurial Development Agency (CEDA) – (www.ceda.co.bw)

CEDA was established in 2001 to provide professional management of a growing range of financial services available to support enterprises at different stages of their development. CEDA offers a range of financial products including business loans, equity financing, lease loans, property loans, credit guarantees and also business development services. It is not entirely clear under which sector honey production might fit. CEDA focuses on agriculture but specifies livestock and crop production. Honey production might fit under the 'Manufacturing' umbrella but this is something we need to confirm.

In terms of Quality Control, Standards and Production

- **Botswana Bureau of Standards (www.bobstandards.bw)** Currently honey is not a regulated product though standards applying to packaging of food products would apply to packed honey. Any export development programme will require development of standards for honey.

- **National Food Research and Technology Centre (NAFTEC) (www.naftec.org)** NFTRC offers a range of services: Process Design, Quality Monitoring, Food Analysis, Technical Information, Product Development, Training, Food Safety, Nutritional Advice and Consultancy. The r&d department of NAFTEC is focusing on value-adding from available food resources. Within the Food Technology section there is capacity for advising companies of HACCP compliance and a wide range of other aspects of food proc-

essing control. In principle NAFTEC should be well-placed to provide testing of honey and bee products, as well to offer technical support to companies wanting to meet standards suited to entering export markets.

In terms of general business development and support:

- **Botswana National Productivity Centre (www.bnpc.bw)** The BNPC has a mission of increasing the professionalism of the private sector and its range of services could be of use to developing honey businesses. More immediately, BNPC offers an annual training programme of courses covering important aspects of business management.

In terms of exports and trade:

- **Botswana Exporters and Manufacturers Association (BEMA)** Botswana Exporters and Manufacturers Association is a non-governmental Trade Organization that seeks to facilitate global trade and enhance economic growth and diversification from traditional exports to non-traditional exports (manufactured goods and services).

- **Botswana Investment and Trade Centre (BITC) (www.bitc.co.bw)** *BITC's mandate is to promote Botswana as the leading destination for investment and trade in Africa with a focus on accelerated economic growth and diversification, employment creation and export development.* BITC's EXPORT DEVELOPMENT PROGRAMME (EDP) could be of relevance to companies wishing to start exporting honey and bee products. The EDP aims to *increase exports of products and services that add domestic value and contribute to the diversification of the economy. It provides a platform to ensure participating companies are given intensive support to enhance their export competitiveness establish a significant foothold in regional and international markets. The programme offers an integrated approach to training and educating potential exporters, and takes into account the needs of larger and established exporters.* Not surprisingly, honey is not a target sector but BITC does stress that companies in sectors outside of the targeted sectors can be considered. To qualify for the EDP companies need to be serious about wanting to export their products and must have a minimum annual turnover of P500,000 ($58,000)

2.3.2 Support structures specific to beekeeping

To build the beekeeping industry and the honey and beeswax value chains there must be a level of institutionalized support in the form of technical training, advice, standards and so on. In some countries, including South Africa, this type of service can be found in national and regional/provincial beekeeping associations (see below). In more developed economies the private sector often has a significant role to play, particularly with regard to input supply but also training. Vocational training institutions and other types of college of further education can also be a source of support in the form of apiculture training. The situation in Botswana is somewhat mixed. There is an established service within the Ministry of Agriculture but there is no national level beekeeper association. Apiculture courses no doubt exist in certain colleges and identifying these and reviewing course content will be important in the field work stage of this study.

The Ministry of Agriculture has a **Horticulture and Beekeeping Division.** This was established in April 2008 as a result of the upgrading of the Horticulture Section and the Beekeeping section. The Division is supposed to:

- *Coordinate, formulate, supervise and direct plans and programmes as well as provide leadership and technical backstopping to the farming community*
- *Conduct horticulture and beekeeping demonstrations and facilitate field days and farm walks to show case improved or new technologies*
- *Facilitate training of farmers and extension staff*
- *Provide technical support and guidance in establishment and maintenance of horticulture and beekeeping projects*[5]

The Beekeeping Section (Apiculture) Section is responsible for *promotion of beekeeping programmes or projects through manipulation of honey bees for maximum production of honey and beeswax, and enhancement of bee species conservation and protection against bee predators, pests and diseases*.

The Section has 4 Units. The Extension Service Delivery Unit is responsible for provision of capacity building inputs to beekeepers, establishing demonstration apiaries, and provision of pollination services and regulations. The Unit also is charged with responsibility for integrating beekeeping in conservation programmes and for public awareness campaigns.

The Apiaries Development & Management Unit, as the name suggests, is responsible for providing technical advice on plans and proposals to establish apiaries and develop the apiculture sector.

The Bee Products Promotion & Marketing Unit is responsible for market access, focusing on activities such as monitoring production levels as well as imports of bee products, supporting formation of Beekeeper Associations, and promoting Bee Products quality standards and regulations.

Finally, the Division has the Regional & District Beekeeping Extension Unit which is responsible for all matters pertaining to Beekeeping Technology Transfer and Industry Development in the Agricultural Regions and Districts. The other Units provide technical support and assistance to the regional units.

In principle (subject to its resource capacity), this Division and the specific Units focused on different aspects of beekeeping is an excellent resource for the development of the honey and beeswax value chain in Botswana. It will be interesting to see how much support is currently offered at local level to beekeepers and how much support could be available were the beekeeping industry to expand.

In addition to the Beekeeping Division, the Ministry of Agriculture has its NAMPAAD, *a master plan intended to streamline arable Agriculture and Dairy development programmes to address existing government Policy objectives, namely food security, poverty alleviation and economic empowerment of rural people*. Beekeeping is one area of focus under NAMPAAD. The aim is to improve delivery of extension services. In addition, under NAMPAAD the Government is establishing Farmers Service Centres to support commercialization in target sectors. It is not clear how many FSCs now exist or if they support beekeeping in practical ways.

[5] Taken from MOA Website

Beekeeper Assocations: From the initial review and some limited direct contact with beekeepers, it appears that the existing Beekeeper Associations are all local, representing small numbers of individual beekeepers. Such associations play an important role in convening beekeepers for training, passing on information about eg market needs, and potentially creating access to equipment that could be owned at Association level (eg protective clothing).

Training institutions: there are as many as 30 colleges and other centres of higher education but it is not clear if any offer beekeeping training other than the Botswana Agricultural College. The national Agricultural College does offer a course on beekeeping but it is one option within a degree programme:

CSB413: Beekeeping (2 credits)

The course covers importance of beekeeping, bee biology and behaviour, queen rearing, bee feeding, colony establishment and apiary management, processing of bee products, beekeeping equipment, and bee protection. This is a 2 credits core course offered in semester 5 Level 300 and has no pre-requisites. (1L, 2P)

2.3.3 Support structures specific to Marula

The main government ministry that is relevant to the development of Marula trade is the **Ministry of Environment, Wildlife and Tourism**. Within the Ministry, the Department of Forestry and Range Resources, is the entity responsible for the commercial harvesting of Marula fruits by rural communities for onward trade for processing. The department has extension offices throughout the country that are actively involved in the district economic development plans and with community groups that want to commercialise their natural resources.

There are three leading local not-for-profit institutions in the sector of CBNRM and the commercialisation of Veld products – **Kalahari Conservation Society** and **Veld Products Research & Development** and **PhytoTrade Africa**.

3 Honey Trade

The following section will focus on honey for the following

- Benchmark good practices in 3 countries of SADC, namely: Namibia, South Africa, and Zimbabwe
- Identify key players in the European market for consideration as distributors of honey Determine minimum required quality standards set in the European market for imported goods, with special emphasis on honey
- Locate champion producers of honey products in Botswana

The Regional Context

3.1 South Africa: setting the standards but facing serious challenges

In southern Africa (certainly from a Mozambican perspective) we tend to regard South Africa as leagues ahead in terms of its beekeeping sector. However, while the national production of c1,500 tons/year is substantial, it is nothing compared with Ethiopia (40,000+ tons), Tanzania (30,000+ tons) and Kenya (25,000+ tons). Nevertheless, South Africa's beekeeping sector is more sophisticated than most, particularly in terms of the relationship between beekeeping and agriculture. Today, however, the industry is facing serious challenges and it needs to reform if it is to prosper.

In this brief overview we present first the institutional and policy framework for beekeeping in South Africa.

3.1.1 SABIO

SABIO is the South African Bee Industry Organisation. Its Mission Statement is: *To represent and promote the interests of all persons involved in the beekeeping industry in South Africa in order to establish, support and develop an economically viable and sustainable apicultural sector and ensure the environmental security of the honeybee.*

3.1.2 Policies and standards

The following sections are based largely on information available on the excellent SABIO Website.

Beekeeping Legislation

Agricultural Pests Act (36/1983): In respect of beekeeping the Act focuses on restrictions on the importation of beehive products such as honey and beeswax and used apiary equipment and provides for the requirement of import permits for such goods. It also makes provision for the promulgation of Control Measures for disease control and prevention and for penalties for non-compliance in respect of these measures.

Control Measure GN R585 15 November 2013 – Control Measure relating to Honeybees
This Control Measure makes it obligatory for all beekeepers to register through Department of Agriculture, Forestry and Fisheries (DAFF) on **an annual basis**, to keep proper records of their beekeeping activities, to mark their beehives and to manage their colonies in a responsible manner to prevent and control bee diseases.

Grading, Packing & Marking of Honey Products

In terms of the **Agricultural Product Standards Act (119/1990)** a set of Regulations relating to the **Grading, Packing and Marking of Honey and Mixture of Bee Products Intended for Sale in the Republic of South Africa, Regulation 835 of 2000**, sets out the standards required for all bee products in South Africa, including in particular liquid honey, creamed honey, comb honey and chunk honey. It defines two Grades, Choice Grade and Industrial Grade for liquid honey, creamed honey and comb honey, and only Choice Grade for chunk honey and a mixture of bee products. It sets out the tests required for determining the standards for the composition, quality and ripeness of honey. It also sets out the requirements for the labelling of honey for the consumer market.

In terms of **Regulation R146** dated the 1 March 2010 under the **Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972)**, **Regulations Relating to the Labelling and Advertising of Foodstuffs,** statutory requirements have been prescribed in respect of labelling and marketing of foods. Honey is mentioned in these Regulations: no person shall manufacture, import, sell or offer any pre-packaged foodstuff for sale unless the food container is labelled in accordance with these Regulations. Whereas most foodstuff labelling requires the date of durability to be stated on the label using the terms "best before", "use by" or "sell by", honey is exempt from this requirement. The Regulations prohibit the use of false, negative or misleading descriptions on the labelling and prescribe what may or may not be used.

Food Quality and Importation Requirements

The **Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972)**, makes provision for the control over the safety and quality aspects of the sale, manufacture and importation of foodstuffs, as well as of aspects such as labelling. It prohibits the sale or importation of any foodstuff, including honey, which does not comply with the provisions of the Act. The Act also provides for the irradiation requirements of certain food products, which include honey, and labelling requirements on food products subjected to irradiation measures to ensure consumers are not misled and can make informed choices.

The Directorate: Plant Health and Quality of the DAFF is responsible for laying down specific phyto-sanitary requirements for certain products which includes imported honey which needs to be irradiated to prevent the dissemination of the pathogen *Bacillus larvae*, which causes American Foul Brood. Any person wishing to import honey into South Africa must first and foremost comply with section 3 (1) of the Agricultural Pests Act, 1983 (36/1983) for a Permit for the Importation of Controlled Goods from DAFF **subject to conditions** laid down by the authority. The importer must produce this permit signed by DAFF before the Department of Health may proceed with processing of the application for irradiation of the imported honey.

Honey Production and Extraction

Government Notice R918 of 1999: Regulations Governing General Hygiene Requirements for Food Premises and the Transport of Food was promulgated in terms of the **Health Act, 1977 (Act 63 of 1977)** and covers *inter alia* the standards required in premises for the preparation and packing of foodstuffs. This would affect premises where honey is extracted – (Extraction Facilities) to ensure hygienic standards are maintained and foodstuffs are not contaminated.

Biodiversity and Bee Forage

The **Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)** (CARA) falls under the Department of Agriculture. It was promulgated to ensure the long term protection and sustainable use of natural agricultural resources. Part of its purpose is to ensure the prevention of the erosion and weakening of the country's water sources, the protection of natural vegetation and the combating of weeds and invader plants.

Municipal By-laws

In some of the larger cities such as Johannesburg and Pretoria there are Municipal By-Laws falling under the Health Departments regarding the keeping of bees in urban or the municipal areas.

3.2 Zimbabwe: effective engagement of smallholder beekeepers

Most of the honey produced in Zimbabwe is produced by the smallholder farmers in various parts of the country notably in Chipinge, Hurungwe, Karoi and Lower Inyanga. Almost all the honey produced is consumed locally. In 15 months from January 2013 to end March 2014 Zimbabwe produced 650 tons of honey.

Hurungwe Beekeepers Association

3500 Members; Hurungwe and Mutoko Districts Beekeepers in Hurungwe District of Mashonaland West and Mutoko District of Mashonaland East Provinces work in groups. Those in Mutoko formed an association known as Mutoko Beekeepers Association to enable the members of the association to bargain for fair prices of their produce collectively. Members of the Hurungwe beekeeping groups managed to establish a honey-processing centre at Magunje Growth Point with assistance from Zimbabwe

Farmers Development Trust

The latter Trust facilitated the establishment of another honey processing factory at Nyanga District Centre to serve beekeepers in Nyanga and Manicaland Province. Zimbabwe Farmers Development Trust has Board Members derived from the beekeepers and experts from different disciplines essential for the provision of technical backstopping support to producers.

Media report: Zimbabwe: Honey Industry in Disarray

5 OCTOBER 2011

ZIMBABWE'S potentially lucrative honey production industry is in disarray and costing the country thousands of dollars in lost revenue, it emerged this week at a beekeeping symposium in Harare.

With everything, from processing to marketing a shamble, the national co-ordinator of the Bee Keepers Association of Zimbabwe (BKAZ), Mutandwa Chaipa, said there was now an urgent need for a national bee keeping programme and policy to co-ordinate and guide the industry to realise its full potential.

4. The European Honey Market

4.1 Minimum required quality standards for imports of honey from Third Countries

To export honey to the EU there are several challenges and issues to be aware of relating to a range of EU directives and legislative documents designed to ensure that imported food products are pure and free from contamination. For potential exporters to the EU there are two processes:

1. Monitoring residue levels (permitted and prohibited chemicals)

2. Obtaining a veterinary Health Certificate approving quality control and processing standards in line with EU requirements and standards – primarily by having a HACCP system in place

The requirements below are set out in **Directive 2002/99/EC** which applies to the imports of products of animal origin from third countries (therefore applicable to a variety of food products and not only to honey).

- For any exports of honey to any EU member country to be accepted, the country of export must be included on the 'list of third countries'. Acceptance on the list is a matter for national governments not individual businesses.

Residue monitoring requirements for non-EU countries wishing to export food of animal origin to the EU

Directive 96/23 outlines the relevant requirements (Articles 29 and 30). Article 29 (1) states that a non-EU country must submit a plan with the guarantees it offers for the monitoring of the residues and substances in Annex I of the Directive. Guarantees must have an effect at least equivalent to those in the Directive and meet the requirements of:

- Article 4 and specify the particulars in Article 7 of the Directive;

- Article 11 (2) of Directive 96/22.

Key requirements:

- A centrally co-ordinated residue monitoring plan must be in place (Article 4, Directive 96/23);

- Description of the legislation governing the authorisation, distribution and use of veterinary medicines (Article 7 (indent 1), Directive 96/23);

- The number of samples taken must comply with the sampling levels and frequencies of Annex IV (Article 7 (indent 6), Directive 96/23);

- The legislation states the substances for which there are Maximum Residue Limits (MRLs) (set down in Regulation EEC 2377/90) as well as those that are forbidden. There are certain veterinary drug residues for which no MRL is needed as the substances are not harmful to human health. These are:
    - - Lactic acid
    - - Formic acid
    - - Eucalyptus
    - - Camphor
    - - Menthol
    - - Thymol
    - - Fluvalinate
    - - Phenol

The list of substances which are not allowed at any level (therefore no MRL applicable) include:

- Chloramphenicol
- Chloroform
- Chlorpromazine
- Colchicines

- Dapson
- Dimetridazol
- Metronidazol
- Nitrofuran

Every shipment of honey must be accompanied by a '**health certificate'** stamped by a local veterinary officer. This certificate refers to the *processes* rather than the product itself, although poor health and safety standards could result in honey becoming contaminated with bacteria, dust, insects etc. In order to match the standards required of EU production, the main requirement of this legislation is that whoever packs the honey for export must have a **HACCP**29 system in place.

Product specification

Under EU Regulations[6] the following specification states clearly the parameters for the key characteristics of honey, and these should be adhered to.

Fructose and glucose content (sum of both):

Blossom honey	Not less than 60% or 60g/100g
Honeydew honey	Not less than 45% or45g/100g
Sucrose content	In general not more than 5% or 5g/100g
Moisture content	In general not more than 20%
Baker's honey	Not more than 23%
Water insoluble content	In general not more than 0.1% or 0.1g/100g
Pressed honey	Not more than 0.5% or 0.5g/100g
Electrical conductivity	In general, and blends not more than 0.8 mS/cm
Honeydew and chestnut honey, and blends	Not less than 0.8 mS/cm
Free acid	In general not more than 50 milli-equivalents/1000g
Baker's honey	Not more than 80 milli-equivalents per 1000g

Diastase activity & HMF after processing & blending

(a) Diastase activity (Schade scale): In general, except baker's honey, not less than 8. Honeys with low natural enzyme and an HMF content of not more than 15mg/kg - not less than 3

(b) HMF (*Hydroxy Methyl Furfuraldehyde):* In general, except baker's honey, not more than 40mg/kg. Honey of declared origin from regions with tropical climate and blends of these honeys - not more than 80mg/kg.

(*Note: while the regulations might allow a higher HMF level in honey from Africa, in practice major buyers will not accept it. Given the high temperatures for many months in Botswana any plan to export honey to the EU will require temperature-controlled storage and a system that allows for export as soon as possible after production.)*

[6] As set out in the EU honey directive: **Council Directive 2001/110/EC**

In addition the regulations state that, with the exception of baker's honey, the product should have "*no foreign taste or odour*", should not have fermented or begun to ferment, and should not have been exposed to heat that has destroyed or inactivated the natural enzymes. The latter two can be controlled with quality control systems. The question of taste, however, is much more complex!

Documentation

- Health Certificate: Required in all EU countries, signed by the competent authority in the country of origin. It should be remembered that honey is an animal product.
- Packing List: Honey is purchased on actual weight so the weight of each numbered barrel should be noted on the Packing List.

Packing for export

- Export Packing**:** in steel drums (described variously as containing between 295 kg and 330 kg, though this may simply be the difference between net and gross weights) with the following conditions:
    - Food quality
    - Completely clean and free from residual taste or smells of other products
    - The inside phenolised, preferably lacquered and moisture-proof. Or it can be coated with beeswax if the drums are unlacquered. Paraffin wax should not be used for coating
    - Drums that have previously contained chemicals should NEVER be used.
    - Free of dents and rust
    - Rubber seal around the closure.
    - A 5cms space to be left when filling the drums to allow for expansion.
    - All drums should be marked with consecutive numbers

(*Note: it is assumed that exports would be of bulk honey as there is little opportunity for large volume export of packed honey.)*

4.2 European Honey Markets

Germany is a leading market for Fairtrade certified honey in the world, accounting for 24% of the global market – but Fairtrade products still account for less than 1% of the total German honey market (Fairtrade International, 2011). It is also important to note that 10%-30% of Fair Trade honey is likely to be organically certified. The volumes traded in these specialist markets are relatively small but they are high value.

Leading German importers (not necessarily interested in African honey) include:

- Tuchel & Sohn - http://www.tuchel-sohn.de/ - Fairtrade certified
- Breitsamer & Ulrich - http://www.breitsamer.de - Fairtrade certified
- Fuersten-reform - http://www.fuersten-reform.de/ - Fairtrade certified
- Gepa Fair Handelshaus - http://www.gepa.de - leading importer of Fairtrade certified honey
- Walter Lang Honigimport - http://www.honigimport.de - Fairtrade certified. Targets industry.
- Stute - http://www.stute-nahrungsmittelwerke.de - packer of private label products

The UK is another key market. However, the major importers such as Rowse and Gale have shown no interest to date in Africa. The UK does have though, in **Tropical Forest Products Ltd**, one of the leading EU importers of African honey.

Tropical Forest Products (www.tropicalforest.com) was set up and is still run by David Wainwright. TFP is biggest importer of African honey into Europe and is the exclusive supplier of honey and beeswax to all Body Shop manufacturers. TFP produces an exclusive own label range of honeys for Fortnum and Mason, Marks and Spencer etc. The company also supplies African beeswax to many leading cosmetic manufacturers. Currently, most of TFP's African honey is from Ethiopia.

5. Lead producers of honey in Botswana

Real Tasty (Bee Keeping Company) – Mock's Apiaries

The Company operates from the Southern Region of Botswana (40 km from Kanye to Jwaneng when using the Trans Kalahari Road/Sir Seretse Khama High.7klm from Moatle going North)

The Company delivers its products to Ladies No.1 Farmers Market in Gaborone, Botswana Craft Market, and Shell Restaurant Filling Station in Jwaneng.

The Company was established and is still run by Serefete Ramantsima. It has three employees. The Company produces a range of products including honey syrup, bee wax lip balms, body moisturizer and wax soap

Products are foraged from the wild forest and have been tested by Botswana Bureau of Standards (BOBS) and National Food Technology (NAFTEC). The Company was funded by Government with P21 000 – a loan that was subsequently repaid in full, with interest.

Mr Ramantsima received extensive support from the Ministry of Agriculture (MoA) together with Local Enterprise Authority (LEA). He and his Company have received various awards.

5.1 Document review of beekeeping in Botswana

The Consultant reviewed the following documents specifically focused on beekeeping in Botswana:

> The potential of beekeeping industry in enhancing rural household incomes in Botswana: a case study of Gaborone region, J. P. Lepetu[1], O. Thelo[2], and N. V. Sebina[3]
> [1] Department of Crop Science and Production, Botswana College of Agriculture, Private Bag 0027, Gaborone, Botswana
> [2]Ministry of Agriculture, Private Bag 005, Gaborone, Botswana
> [3] Department of Agricultural Economics, Education and Extension, Botswana College of Agriculture, Private Bag 0027, Gaborone, Botswana
>
> GOVERNMENT OF THE REPUBLIC OF BOTSWANA, SUPPORT TO NEPAD–CAADP IMPLEMENTATION TCP/BOT/2902 (I) (NEPAD Ref. 05/37 E), Volume VI of VII BANKABLE INVESTMENT PROJECT PROFILE: Beekeeping Development, *July 2005*

Situation Analysis of Beekeeping Industry in Southern Africa, TOTAL TRANSFORMATION AGRIBUSINESS (PTY) LTD, 2005

THE COMMERCIALISATION OF BEEKEEPING IN BOTSWANA, (Ministry of Agriculture), 2006 [Report by Manstrat & Le Toit Consulting]

From this review the following key points are taken:

- There is a strong tradition of 'honey-hunting' among the Batswana people

- Beekeeping as a managed activity existed in very small scale for many decades but the first intervention to promote beekeeping was in 1976 with the Kweneng Rural Development Association. By 1981 Government had established the Beekeeping Unit in Ministry of Agriculture and by 1999/2000 there were 40 Government-supported demonstration apiaries in the country (*this signifies a consistent appreciation in Botswana of the potential of beekeeping for creating sustainable livelihoods)*

- By 1999 there were 232 individual beekeepers, 85 4b Clubs, and 16 beekeeper groups – in total, some 1,503 people directly involved in beekeeping and honey production. By 2004 that number had reach 2,298. The Manstrat & Le Toit study suggests that in 2005 there were probably about 500 active members of beekeeper groups. They note that despite the effective promotion and reach of training, 60% of people trained did not continue with beekeeping. This helps explain why only 124 colonies were harvested in 1999/2000 yielding 600Kg; in 2003/4 this was 136 colonies yielding 1,206 Kg. Local production amounted to 11.8% of officially documented demand for honey (123 tons) over 6 years from 1996/7-2003/4 i.e. a total of just over 13 tons in 6 years. (*this is not insignificant but it is not a viable scale for considering an export programme)*

- The Commercialisation study presents a useful and interesting demographic analysis, revealing that most (60%) beekeepers are in the age range 36-65 years, and most (62%) are men. *(It will be interesting to see if the situation has changed in the last 8 years)*

- The main problem identified in the reports was low productivity. The case-study presents a range of causes (as identified by beekeepers)

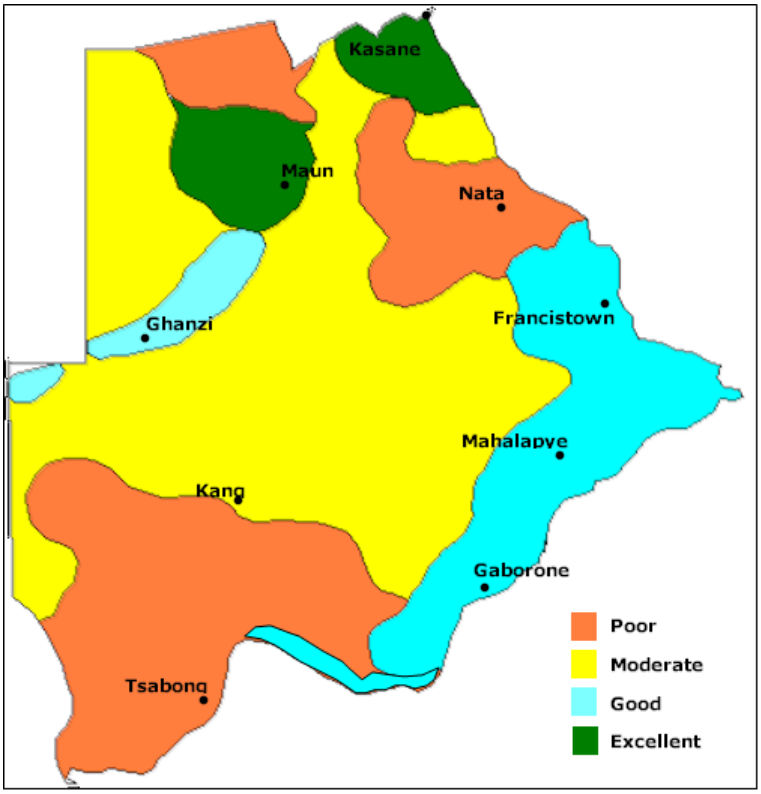
    - Lack of bee management skills (the most often cited challenge)
    - Lack of extension services (second most often cited causal factor)
    - Various pest attacks
    - Robbery
    - Colony absconsion
- The Commercialisation study reiterated these findings, stating that while beekeepers display good knowledge of forage plants and of bee behaviour, they know little about harvesting techniques (including hygienic handling of combs) or processing. Also, few beekeepers interviewed in the Commercialisation study had any business skills, and little or no knowledge of markets or marketing beyond the strictly local (where people prefer to buy in comb).

(*Since 2005 there has been renewed emphasis on strengthening technical support services, as noted above in the policy review, so it will be interesting to test how beekeepers feel about their own capacity today, and about the quality and availability of extension services)*

- With regard to markets the Commercialisation study suggests that the total annual national demand for honey (2005) was 40 tons, of which 35 tons+ was imported (one distributor, Seafood Wholesale Botswana, was reported to import 78% of all imported honey!).

- Several regions of Botswana are regarded as being suitable for beekeeping: Gaborone, Central, Southern Western, Northwest and Francistown. Interestingly, the rationale in some cases is because of low penetration of imported honey (*because of high transport costs?)* and significant local market. Each region has distinctive agro-ecological features. This is most clearly mapped out in the Commercialization report in which the authors present detailed data on forage plants by region and from that suggest areas for prioritizing. They propose bee hive stocking densities based on vegetation type define the following categories::
    - Poor beekeeping conditions. Open grassland with patchy trees. Less than eight bee hives per site.
    - Moderate beekeeping conditions. Savannah shrub land with open tree canopy. Eight to twelve bee hives per site.
    - Good beekeeping conditions. Mixed savannah bush veld with extensive flowering periods of different trees. Twelve12 to 20 bee hives per site
    - Excellent beekeeping conditions. Dense closed canopy savannah trees gradually changing into forests. Twenty to 30 bee hives per site.

- The map below (reproduced *without* consent of the authors) illustrates the areas of Botswana by prevailing beekeeping conditions. The authors write: *Good to excellent beekeeping conditions exist in the south-eastern parts of Botswana, the mixed bush veld around Ghanzi and the forest areas around Maun and Chobe. Small to medium size beekeeping operations of between 20-40 bee hives could be successfully implemented at various locations in these areas. A selected, but small number of beekeepers could even grow to operate 100-250 bee hives in these areas*. *Most of the central and western regions could support small beekeeping operations based on 20 bee hives.* (Manstat & Le Toit, p.124)



Bee plant forage potential in Botswana based on vegetation type.

- Recognizing similar challenges identified in the case-study, the Commercialization study and the proposed project focused on strengthening capacity of the Beekeeping Section (through training and provision of vehicles); establishment of Bee-breeding stations in North West and Southern regions; establishment of Bee Products Processing Plants in Gaborone and Central Regions; training of beekeepers; support for 50 income-generating projects

- The business model underpinning the CAADP proposal for 50 income-generating projects was that each would have 15 colonies/hives i.e. the focus was on 'entrepreneurial' beekeepers rather than the many smallholder families who maintain 1-5 hives (who would be the focus of general training and extension). The assumption in the proposal was that each project would produce 300Kg of comb honey (i.e. 20Kg/hive). This would generate revenue of P13,050 (c$2,900) per project and profit of P3,932 (c$880). In turn this could represent c30% of projected honey imports over the course of NDP9. (*The obvious issues here are:*

    - *How likely is 20Kg/hive average? (Case-study plus experience elsewhere suggests this is a maximum from top-bar hives even if very well managed)*
    - *Is it reasonable to assume 100% colonization? (In our work in Mozambique we assume 60% for planning purposes)*

- The Commercialisation study had taken a slightly different view. While the authors' profitability analysis of this 'back-yard' beekeeping does suggest that beekeepers could make a net profit of as much as P6,571 from 20 hives, their sensitivity analyses still assume 100% colonization *(which is highly unlikely)*. The authors' note that at 10 hives the beekeeper would not make a profit (assuming the level and type of investment proposed). It is important to note that the Commercialisation study assumed that the investment (P37,025) to reach 20 hives would be from donors or at least would be heavily subsidised.

- The CAADP proposal does not mention this, but the key element of the Commercialisation study was the recommendation to promote development of a small number (20) of commercial beekeepers with 100-250 hives. The authors find that the break-even point on 100 hives is 19.67Kg/hive (again, with 100% colonization). At 250 hives the break-even point is 9.34Kg/hive so the more hives that a beekeeper has, the greater the profitability because a significant part of the proposed investment is one-off.

  (This analysis makes sense but it is important to note that the investment model proposed for these commercial beekeepers includes processing equipment and packaging i.e. this is artisan production of finished products. There are other models to consider in which commercial beekeepers supply honey packers who do the processing)

- The Commercialisation study makes the recommendation, picked up in the CAADP proposal, to establish two Processing Centres, each one strategically located near to the key production zones. The Centres – and Queen Rearing stations - would be managed by the Beekeeping Section and then at some future date (possibly) transferred to an Association.

  (It is very interesting that no consideration appears to have been given to stimulating private sector engagement in the commercialisation process. The study does not discuss the business model for the Centres; it assumes that they will be donor funded and then launch products with a 'Botswana Honey' brand. In time the study recommends transferring the Centres to a co-operative or association similar to the Zimbabwe Farmers Development Trust. This is a worthy developmental goal but the study is very light on the process of capacity building that would be needed to reach such a goal. Experience from Ethiopia and Zambia shows that beekeeper associations can operate (in export markets) on a fully commercial basis, but the value chains in those countries are very well established with an array of private traders and honey packers. For both the national and export markets there will be a need to look more closely at business models and issues of ownership and inclusion of beekeepers.)

- The Commercialisation study makes an important point about export potential of honey production in Botswana. The authors suggest that the country could have 10,000+ hives. Though they don't do the calculation, at 15Kg/hive, even at 60% colonization, such a number of hives would produce double the national demand for honey and give a base for exports. However, *It should however be noted that producers should firstly be able to produce such products at an economically viable rate for the domestic market.* (Manstat & Le Toit, p.136)

6. Marula Trade

This following sections will focus on Marula trade [**Marula (*Sclerocarya birrea* var. *caffra*)]** for the following:

1. Benchmark good practices in 3 countries of SADC, namely: Namibia, South Africa, and Zimbabwe
2. Identify key players in the European market for consideration as distributors of marula products
3. Determine minimum required quality standards set in the European market for imported goods, with special emphasis on marula products
4. Locate champion producers of marula products in Botswana

6.1 Marula Trade in Namibia

Marula resource and community utilisation

The marula tree is widely distributed throughout the African continent. In southern Africa only the variety *S. birrea* var. *caffra* is found, and this variety is indigenous to southern Africa. In Namibia, it grows naturally in a belt across northern part of the country, from Caprivi all the way to Kunene, usually on sandy to sandy-loam soils, mainly on plains but also in other habitats.

The occurrence of marula in Namibia is highly correlated to the annual rainfall, and frost-sensitivity is another key factor influencing its distribution. For these reasons, the marula re-source is limited to the northern parts of the country which receive higher rainfall and have a warmer climate than the rest of the country. Marula's altitudinal range is from sea level to about 1800 m.

Figure 1 depicts the species' geographic distribution and abundance of marula (*Sclerocarya birrea*) in Namibia, as presented in the Tree Atlas of Namibia.

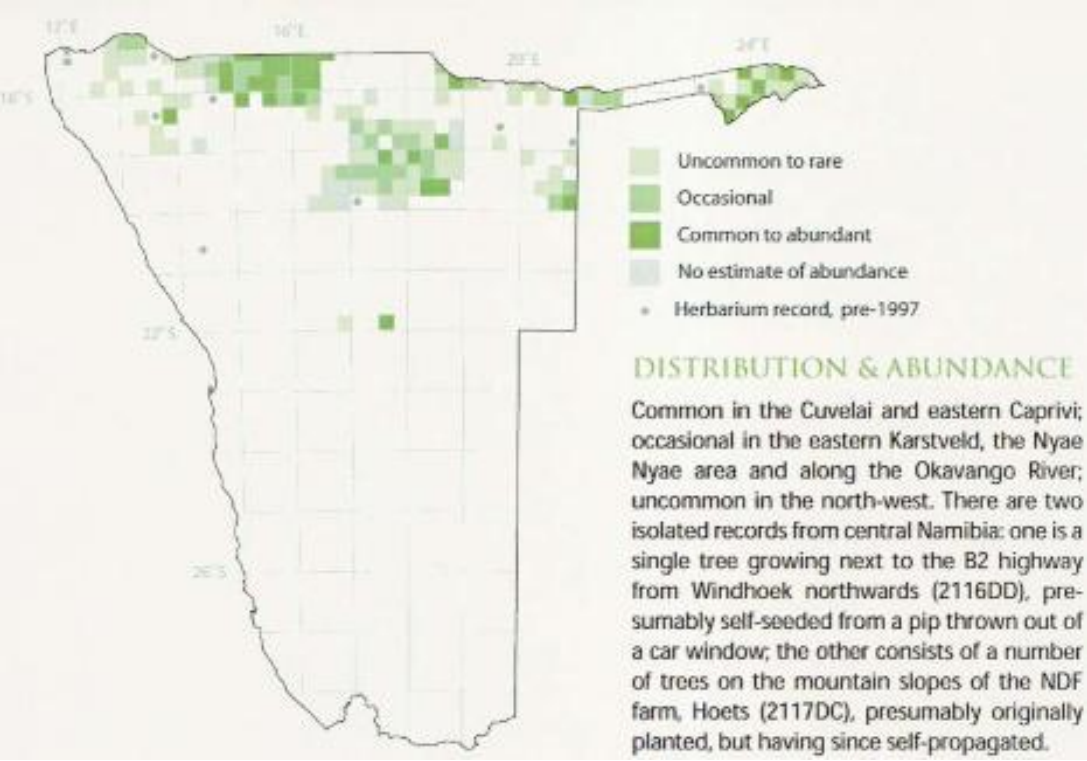


Figure 1: Geographic distribution and abundance of *Sclerocarya birrea* in Namibia (Source: Curtis and Mannheimer.2005)

The Marula resource is particularly abundant in the north-central Regions (NCRs) and this is where most harvesting and decortication by rural households is undertaken for supply to Eudafano Women's Cooperative for processing at the EWC factory. The north-central regions were settled by the Owambo due to the higher-quality soils within the Cuvelai delta and is now the most densely populated area of northern Namibia. Owambo settlers are known to have cultivated and protected marula trees on their farms as a valuable multipurpose tree crop. Hence in the North Central Regions the tree is mainly found and owned by farm households, rather than a tree growing in the wild on common land.

According to a survey carried out in 2010 by CRIAA SA-DC (den Adel.2010), farm households keep 5.3 fruiting marula trees on average, with 84% of the approximately 2500 households interviewed having between 1 and 10 fruiting (female) marula trees, 10% of the households more than 10 fruiting marula trees and only 6% of the households no fruiting marula trees on their farms. The same survey showed that households have preferentially selected female trees that bear abundant fruit and large kernels, and protect their seedlings with thorn branches to avoid livestock eating and destroying them resulting in 10 times more young trees than old. In comparison with areas, such as the Caprivi region, where there are abundant areas of Marula trees but low utilisation by rural communities, the ratio of female fruit bearing trees is lower and there is no protection of seedlings.

In 2010 the Namibian Directorate of Forestry conducted a marula resource survey throughout northern Namibia with a view to examining the abundance, distribution, size class and commercial supply potential of different marula populations. The survey showed that outside of the NCRs, marula trees in the Kunene Region occur in dense clusters on mountains, Marula popu-

lations in the Kavango and Caprivi Regions were found to be largely riverine populations, and dense populations were recorded around Tsumeb-Grootfontein areas, with a distribution comparable to the clusters observed in Kunene. In the Tsumkwe area, only large mature trees were found.

While marula is widespread in northern Namibia, it is only in the NCRs that the tree is commonly protected on peoples' farms and used as a multi-purpose tree crop. In the Kavango and Caprivi Regions, use of marula products is rare. In the Kavango Region, people have another valued multi-purpose tree – the manketti tree – reducing the need for using marula. In the Caprivi Region, there is a wider variety of indigenous fruit resources, and in wildlife-rich areas people prefer not to have fruiting marula trees around their homesteads for fear of elephants being attracted by the marula fruit and in the process destroying their crops. In the Kunene Region and in the mountainous areas around Tsumeb, marula trees grow naturally in the wild.

The experience of identifying Marula resources and the ability to establish efficient sustainable supply chains for the raw materials (either fruit or kernels) is relevant to Botswana in the following ways:

1. Understanding the community attitude and utilisation of the natural resource is more important than identifying where the abundant areas of the resource are located. In the NCRs the marula tree is an individual household asset that is grown, protected and utilised as a multi-purpose crop within land owned by the household. In areas outside of the NCRs, the marula resource is found to be abundant but not utilised nor protected, and no supply chains have been successfully developed in these areas.
2. Successful development of supply chains in the region have all centred around sourcing raw materials from communities where there is established traditional use – Zvishivane and Plumtree regions of Zimbabwe; Bushbuck Ridge region of South Africa; Throughout Swaziland.

In 2002 CRIAA SA_DC carried out a survey of domestic and commercial uses of marula products in the NCRs, and the results were as follows:

Table: Traditional uses of marula products by households in the NCRs (Source: den Adel.2002)

Marula Use	% of HH Marula use	Marula Use	% of HH Marula use
Wine (omaongo)	100%	Empty nuts as firewood	100%
Juice (oshinwa)	100%	Firewood	97%
Cooking oil (ondjove)	100%	Housing/fencing poles	78%
'Soup' from kernels	100%	Wood for utensils	52%
Eat fruit / kernels / cake	98%	Leaves/branches as medicine	52%
Porridge from fruits	78%	Roots as medicine	5%
Cake as an animal feed	68%	Bark as medicine	3%
Cosmetic Oil	28%	Edible caterpillars	30%
Jam	3%	Edible larvae	3%

The left hand column of the table above identifies uses of the fruit and kernel, and the right hand column on the uses of the tree.

The report shows that in sharp contrast to the NCRs, the use of marula in other Regions is rather limited. In Kunene Region where marula is not protected on farms but grows naturally in the wild, the trees are considered a source of food for livestock and the fruits are not collected for human consumption. In the Kavango Region, more people may be interested in the tree for shade than for the fruit, in which case they may prefer the male tree over the female tree in not having to clear fruits from under the tree. And in the Caprivi Region, people may shun the marula tree for fear of elephants being attracted by it. A possible conclusion from this difference in utilisation and regard for marula trees as a multi-purpose crop is that it will be considerably more complicated to establish a supply chain where there is not an established use of the fruit by the community and positive cultural significance for the community.

The resource survey in Namibia has shown considerable variability in the number of fruits that a marula tree can produce, and that location of the tree and its providence and maintenance is a major influencer. The average number of fruits in the NCRs in farm land where the trees have been nurtured and selected over time for highest yields, produce on average 35,000 fruits. Whereas fruits from trees in unprotected communal land produce on average 6,500 fruits. Average fruit weight is around 25g but can be as high as 80g in exceptional cases (Nerd, A. and Y. Mizrahi. 1993).

If an assumption is made based on the information above, it could be assumed that if a household harvests from 5 marula trees in the NCR, that the yield of fruit would be around 4,000 kg. And based on 1 kg of kernels requiring 50 kg of fruit, the yield of kernels would be 80 kg. Based on an oil extraction yield of 25% then this would produce 20kg of oil for the cosmetic market. However for a household that would harvest from 5 trees in communal land, then the fruit yield would be 800 kg, kernel yield would be 16 kg and oil yield 4 kg.

The implication for developing a supply chain of Marula oil in Botswana is that it is uncertain as to whether the fruit yield of trees has been developed by selective grafting of new trees by communities, and the extent of ease of access and ownership of trees by individual households, and the extent of traditional and current use of the fruit and tree as part of their daily food and livelihood. These will be important parameters to understand in order to develop a scalable supply chain to meet export demand for Marula oil.

Commercialisation of marula oil as a cosmetic product/ingredient destined for national and international markets and larger-scale commercial omaongo-making for regional and national markets have taken place within the organizational framework of the Eudafano Women's Cooperative. EWC has grown to an organization of more than 5,000 members (rural producers), organized in 22 associations in the four NCRs, each with its own management committee. Through this structure, rural producers have gained access to national and international markets and reaped shared benefits in terms of higher prices for kernel supplies and higher incomes from their supplies.

6.2 Trade in South Africa

In the 2002 study on The Commercial Marula Industry in South Africa: A sub-sector analysis, by Mander, M., Cribbins, J., Shackleton, S.E. and Lewis, F. at the Institute of Natural Resources, South Africa, five market channels were identified as follows:

- Amarula Cream channel
- Marula juice channel

- Marula oil channel
- Kernel channel
- Marula beer channel

And their supply chains are depicted in the diagram below.

6.2.1 Amarula Cream Channel

The Amarula Cream market channel is highlighted in the diagram below. The marula fruit is harvested from the wild by local communities, sorted and then sold to the pulp factory (owned by Distell, Mirma and a section 21 company) in Phalaborwa. At the pulping factory the fruit, including the skins, is pulped and the kernels are removed. This pulp is frozen before being transported to Distell in Stellenbosch. The pulp is then distilled into a brandy, which is matured in casks of oak for two years. The final step in the production of Amarula Cream is the blending of the brandy with cream and marula extracts.

6.2.1.1 Primary activities: harvesting and sorting

Marula fruits ripen from mid-January to mid-March in Limpopo province in South Africa. The study indicates that fruit is collected from the trees in areas surrounding the households mainly from communal grazing lands, and only 22% villagers interviewed indicated that the fruit is collected from their cultivated fields within the communal areas. This is in contrast to the Namibian harvest collection.

The majority of harvesters collect all the fruit available into sacks and transport it to their homestead where they will sort out the fresh fruits for sale to the pulping factory, and those that were not suitable for sale, but which could still be used by the household to make marula beer. The fresh fruits would then be stored and sold in sacks that on average hold 80 kg.

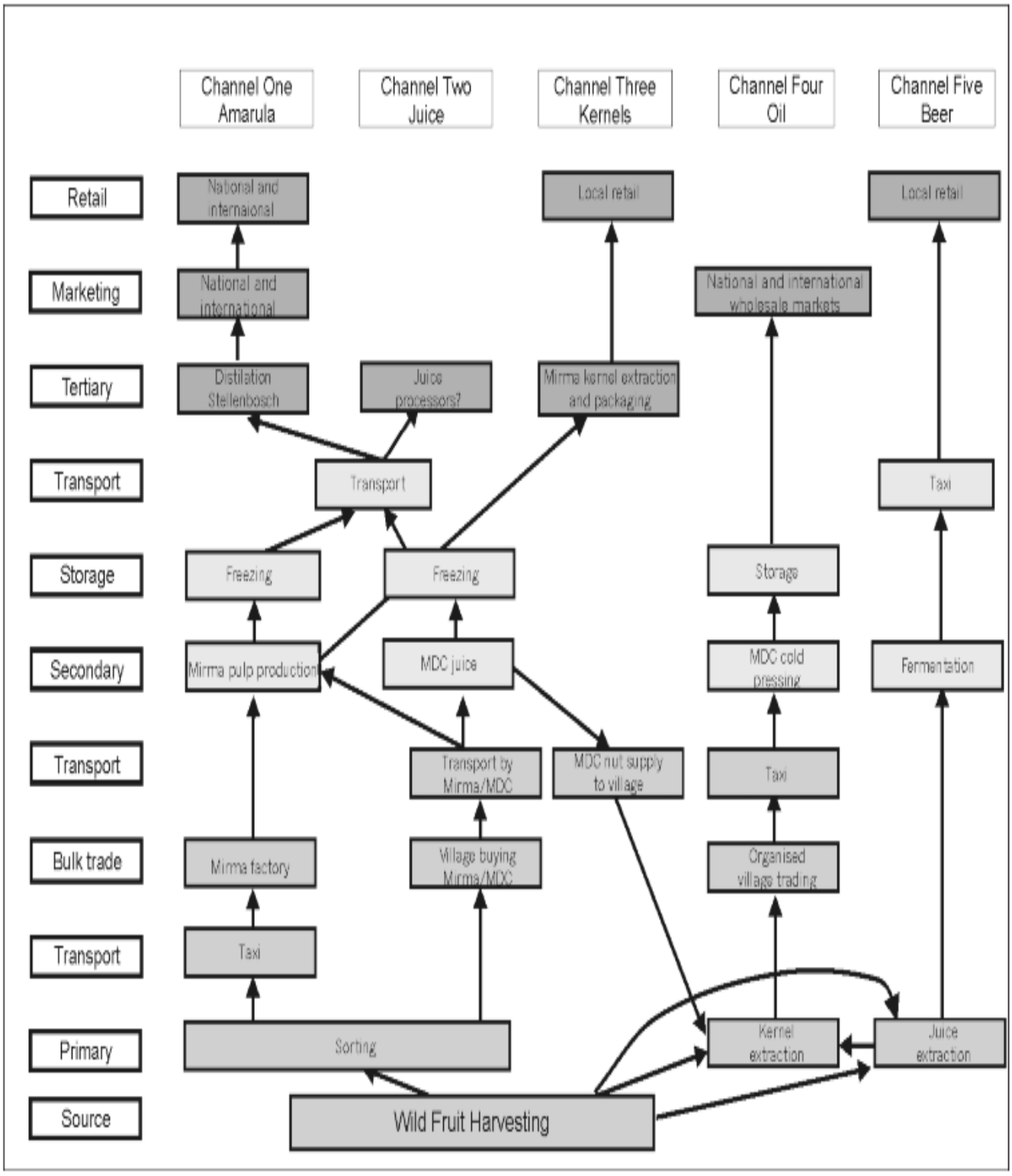
All the village areas from which marula fruits are supplied to the Distell operation are within 200km of the pulping factory.

6.2.1.2 Transport and sale

There are two transport and sale activities undertaken in supplying marula fruit to the pulping plant at Phalaborwa:

- Distell buys fruit from harvesters at the rural villages and transports the fruit to the pulping plant at their own cost.
- Households transport the fruit, by means of public transport (taxis), to Phalaborwa at their own cost and sell the fruit to Distell at the factory gate.

A greater number of harvesters prefer to sell directly to the factory even though they incur a transport cost as they are not constrained by the dates and venues of collection by the Distell transport service. The harvesters collaborate to hire a pick-up or truck to transport the fruit. It was also found that the households selling marula fruit directly to the pulping plant sell more fruit and their incomes are higher than those selling the fruit to the trucks that collect from the villages.


Channel One Amarula
Channel Two Juice
Channel Three Kernels
Channel Four Oil
Channel Five Beer
Retail
Marketing
Tertiary
Transport
Storage
Secondary
Transport
Bulk trade
Transport
Primary
Source
National and internaional
National and international
Distilation Stellenbosch
Juice processors?
Mirma kernel extraction and packaging
Local retail
National and international wholesale markets
Local retail
Transport
Taxi
Freezing
Freezing
Storage
Mirma pulp production
MDC juice
MDC cold pressing
Fermentation
Transport by Mirma/MDC
MDC nut supply to village
Taxi
Mirma factory
Village buying Mirma/MDC
Organised village trading
Taxi
Sorting
Kernel extraction
Juice extraction
Wild Fruit Harvesting

6.2.1.3 Secondary stage: Processing and storage

At the pulping factory the fruit is placed into crates, which are tipped onto a sorting conveyor belt. Damaged fruit is discarded and green fruit is held back to ripen. The fruit goes through a thorough washing process before reaching the pulping machine. In the pulping machine, rotating blades remove the flesh and skin from the hard nuts. The fruit pulp (including skin) and nuts are then separated.

The marula pulp is pumped into stainless steel cooling tanks where it is kept at a consistent temperature of below 8°C to prevent fermentation. The pulp is stored on site until it is transported to Stellenbosch. The pulp factory is based in Phalaborwa while distilling takes place in Stellenbosch (Western Cape), a distance of approximately 1900km.

The pulp processing plant can process 30 tonnes of pulp a day. It is estimated that 25 million fruits, or 2000 tonnes of fruit, are bought from community harvesters per season. From this, approximately 800 tonnes of pulp is produced. Of the 2000 tonnes of fruit bought, approximately 200 tonnes or 10% is wasted. This is often over ripe fruit that cannot be used, which increases the costs of production. Therefore 1800 tonnes are processed. The fruit to pulp conversion results in a yield of 44, 4%.

The nuts are the only by-products. Some of the nuts are sold raw. The nuts can be stored and processed during the off-season or in months when the pulp processing plant is not in operation.

6.2.1.4 Bulk transporting stage

The pulp is transported in bulk by tankers from the Phalaborwa pulp factory to Distell in Stellenbosch. During the transporting process the temperature is constantly maintained below 8°C.

6.2.1.5 Tertiary stage: Brewing and marketing

This stage of processing is undertaken by Distell at the Stellenbosch cellar, where the marula pulp is transferred into fermentation tanks. A yeast culture is inoculated into the pulp to start the fermentation process. During fermentation, which is performed at 18°C - 20°C, the natural fruit sugar present in the marula is converted into alcohol. Once fully fermented, the marula brandy is transferred to the distillery and is distilled. The product is then aged for two years in small oak barrels. When mature, the brandy is blended with cream and marula extract, and has an alcohol content of 17 percent alcohol by volume. The final product is bottled and labelled.

6.2.2 Mhala Development Centre Juice Marketing Channel

In 2000 the Mhala Development Centre started buying marula fruit from harvesters in local communities, with the aim of producing marula beer, which could then be sold to the workers at the mines. However this did not have much success due to a lack of understanding on the product required and incorrect pricing of the beer. Additional markets were then sought for marula beer. Investigations indicated that there was a market with game lodges for a sweetened and bottled (carbonated) beer. The MDC together with the CSIR produced a bottled carbonated marula beer, but this had sediment, and a brewery would be required to overcome this sediment problem. However, a micro-brewery would create fewer jobs and the local infrastructure was not adequate for such an undertaking. The beer production option was therefore abandoned.

6.2.2.1 Secondary stage: Processing and storage

Women use forks to pierce the flesh and extract the nuts. The pulp/juice is squeezed out by hand and then frozen. Some of the waste (skins) is recycled as animal feed. All the processing is done at the MDC factory. Fruit is collected by trucks sent by MDC and delivered to the factory. The fruit is sorted and washed before manual extraction of the juice takes place.

During 2001 MCD bought approximately 150 tonnes of marula fruit and it is estimated that 195 tonnes will be bought during the 2002 fruiting season. At the time of the survey (February 2002) 100 tonnes had been bought. Over a period of 25 days (or one month) 70 tonnes of fruit can be processed. Six tonnes of pulp was produced from 70 tonnes of fruit producing a yield of 8.6%.

On average 2.8 tonnes of fruit is processed per day, which yields between 240 and 300 litres of pulp. If 20 staff are processing the pulp, they average between 12 and 15 litres per person per day. The pulp is stored in plastic bags in a freezer and has a shelf life of one year. There is currently limited freezer space, which also limits the production.

6.2.2.2 Product development and sales

There were a range of technical problems associated with processing marula. With the assistance of the CSIR, MDA developed ways of stabilizing the juice, which opened the option of targeting the fruit beverage markets instead of alcoholic beverage markets. Mhala is not only adjacent to the game farms, but is also close to the commercial farming region that supplies sub-tropical fruit such as mangoes and litchis to the fruit beverage market on a mass commercial scale. The ability to join this wider supply chain proved critical to the potential viability of a marula juice product. Bronpro had a citrus processing line that was standing unused during the marula season. With minimal investment Bronpro was able to adapt its processing line so that it could cater for Marula, thereby optimising their equipment use. Bronpro was able to provide the essential freezer capacity to enable processing 24 hours a day and freezing the pulp.

Bronpro took the risk of processing marula despite not having a market because they were already supplying a range of fruit pulps to the industry, and had ready access to processors further down the chain. They succeeded in marketing the concept of a new juice line to a company called Fruit Time, who agreed to develop the first commercial marula juice product, which was retailed in 2002. Bronpro started working closely with Ceres over 2 years and to prove the availability of marula pulp, the company held considerable inventory for 3 years.

Ceres brought out a mixed juice product called Marula Mania under its Liquifruit label, with Bronpro supplying the juice, and MNP supplying the fruit. Ceres also produces a marula 'Liqui Cooler'.

The fruit pulp was initially semi-processed and stabilised on site at Mhala Centre, and then sieved and supplied to the manufacturers by Bronpro. Volumes increased from the initial 10 tons in 2002 to 450 tons in the 2006 season; Bronpro has further adapted its machines to handle the full pulping process, with MNP providing the fruit.

Mhala still produces a high-quality juice on site, to fill its ten-ton freezer capacity and to service growing demand from lower-volume niche markets.

In 2002, Bronpro secured a large order for marula juice from a German company. However, because marula was not registered as a food product in Europe prior to 1997, it could not be marketed in Europe without being proved safe for human consumption by the European Food Safety Authority in terms of EC Regulation No. 258/97 on Novel Foods and Food ingredients. Distell provided supporting documentation to assist MNP and Bronpro in their attempt to appeal

against this requirement on the grounds that Amarula had been marketed in Europe before the regulation, but this was rejected because the quantities of marula in Amarula are small compared to the juice.

The process of getting marula juice approved as a food product and other regulatory hurdles in order to access European markets has taken over two years and substantial legal and specialist expertise. The way is however finally clear for marula juice to be exported into Europe, based on organic certification – and the German order still stands. Now a US company has expressed interest, and it's the US Food and Drug Administration that will have to be tackled next - with another couple of years and more legal fees on the agenda before export to the US is feasible. Meanwhile, the South African market continues to grow.

6.2.3 Mhala Development Centre Oil Processing Channel

Over the past two seasons, Mhala Development Centre (MDC) has been supplying dried marula nuts, which are a by-product of the pulp extraction process, back to households for processing to extract the kernels. Additional nuts are also gathered by households during the process of harvesting the fruit in the wild.

Inside the flesh of the fruit is the nut, which contains kernels. There can be up to three kernels in a nut. The women extract the kernels by cracking the nut open and the kernels are sold back to MDC. The kernels are small tasty nuts, which are rich in protein and from which oil is extracted. This oil can be used in cooking and as a skin cosmetic. MDC buys the kernels from the communities and then presses the kernels to extract oil.

6.2.3.1 Primary activities: Harvesting and processing nuts

Most of the nuts processed by households are supplied (via a local shop) by MDC. Only 23% of the nuts processed by the households are collected from fruit that has spoiled in the surrounding lands and fields, or from fruit that has been used for producing other commodities such beer or jam (Table 20). Extraction of the kernel from the nut takes place at the collectors' homesteads. Kernels extracted from the nuts have a shelf life of a few of months to a year, depending on their quality.

MDC data shows that they buy kernels from 42 villages. All of the people interviewed that processed the nuts were women, with 30 % having no formal education. The average number of people per homestead was 6.77, with a range of 2 to 13 people per homestead.

6.2.3.2 Transport and sale of kernels to MDC

Once the kernels have been extracted, delegated community members transports the kernels to MDC for sale on behalf of the village collectors. The delegated collectors transport the kernels to MDC using public transport, as MDC does not provide a collection service for the kernels.

There are 42 villages supplying kernels to MDC. The collectors, mostly women, sell the kernels to MDC over a period of 8 months (April to November). The average volume bought from each collector is approximately 5kg per season (or 10 x 500ml tins). MDC pays R13 per tin (500ml), with the committee members / coordinators who oversee the sale process receiving R1 per tin and the supplier of the kernels R12 per tin.

The kernel collectors interviewed suggested the following ways of improving productivity and efficiency:

- Eighteen percent requested that MDC collect kernels from the villages each month.
- Fifteen percent said that nut cracker/extractor equipment would help to improve efficiency.
- Twenty-six percent said that a higher price would be beneficial.
- Twenty-one percent suggested that if the reliability of MDC was to improve, they could become more efficient.

6.2.3.3 Secondary stage: Processing and storage

Once the kernels are bought they are cold pressed to form raw oil and then stored in plastic containers. A cold oil press is used which is hand driven. The oil is then poured into 25 litre containers. In 2001 MDC bought 12 tonnes of kernels from which 4 tonnes of oil was made, producing a yield of 33%. This process was undertaken between April and November, in the fruiting off-season.

6.2.4 Local Marula Beer Trade Channel

One of the most common and important uses of this multi-purpose marula fruit has been, and still is, the production of an alcoholic beverage (commonly known as marula beer *[vukanyi]* or wine). The commercial markets for marula beer are relatively new, with the first sellers starting in 1998. It was not clear what triggered people to commence selling this beer, but it is likely that the presence of the MDC marula project had some influence, by demonstrating that it was possible to commercially retail marula products.

The method of producing this beer has not changed much over the years. Fruit is harvested from the wild, then sorted and processed. The flesh is mixed with water and left to ferment. Once it has fermented to the "brewers'" requirements, it is transported to the point of sale and sold.

Marula beer is not sold in the villages, but is transported to towns and sold at the markets.

6.2.4.1 Primary stage: Harvesting and sorting

The production of beer is undertaken during the fruiting season (January to March). Fruits are generally collected from a number of different trees to ensure that both sweet and sour/bitter fruits were obtained. It was reported that a combination of sweet and bitter fruit is required to make a good beer.

Marula fruit used by local beer brewers and traders was collected mainly from the communal lands surrounding the villages where the brewers live. Some were also using fruit from trees in their own or neighbours' yards or fields (38 %).

Producers/traders leave early in the morning to collect fruit, sometimes as early as 3:00 am in order to find adequate quantities of suitable fruit. The average collecting time was reported to be 2.35 hours. Collectors were gathering enough fruit on each trip to make 20 – 50 litres of beer (i.e. between one and two 80kg bags of fruit). Collection was undertaken two to three times per week, with the producers attending the market to sell their beer on the intervening days. Most of the interviewed traders (60.9 %) were gathering fruit on their own, while 19 % were assisted by other members of their family (mainly women and children). A number of women mentioned that their husbands did help in collecting the fruit, particularly in transporting the fruit home.

Most of the sorting of the fruit takes place in the field. Slightly green fruits were preferred as these could be ripened to the correct stage (a creamy yellow) in a shady place at the homestead. Over ripe or strong smelling fruits were avoided, as were the first fruits that fall, which are juiceless and too hard for beer making. Most women were knowledgeable regarding where to find trees producing favourable fruit for beer making.

6.2.4.2 Secondary stage: Processing of marula beer

There are two main steps involved in beer production:

- juice extraction
- fermentation

Juice extraction starts with removing the thick skin from the fruits using a fork. The brewer either does this on her own or with the help of family members. The skin is split and turned inside out, then separated from the flesh and discarded. The flesh is squeezed and the juice collected in a bucket. The nuts with the remaining flesh on them are placed in another bucket. Water is added to the nuts (just enough water to cover the nuts) and worked through to release any remaining juice and pulp. This water-juice mix (*veketa*) is then added to the pure juice and left to ferment. The nuts are put aside for later extraction of the kernels. Juice extraction is a fairly intensive process and takes on average 3.4 hours to produce 20 – 50 litres of beer.

One 80kg sack of fruit makes about 25 l of beer, although if a pure juice (*nhlowa* – see below) beverage is produced this requires about double the amount (two 80kg bags) of fruit.

A much stronger beer known as *nhlowa*, which can last from a few months up to one year, depending on how it is stored, can be made by using only the pure juice. *Nhlowa* is usually drunk at Easter and some of the traders mentioned selling this beer from home over the Easter holiday period. A few of the interviewees in the markets were selling a beer made from pure juice. This is often favoured by buyers and therefore usually fetches a slightly higher price.

During fermentation, the scum (*khuvi*) that forms on top of the fermenting beer is removed once or twice daily. Some fresh juice may be added during the fermentation process. The beer is ready for drinking on the third day of fermentation. It is usually decanted from buckets into 25 litre drums prior to transporting to the market, as these are less likely to leak.

The shelf life of the ordinary marula beer (*vukanyi*) is very short, only 2-4 days, depending on how hot it is. About ¼ of respondents mentioned that they could make the beer last longer if they topped it up with fresh juice on a daily basis. This could be done for about 2-3 days before the beer became unpalatable. Some producers had fridges that they stored the beer in. One of the problems in the market was that there was seldom a cool place to store the beer and, in fact, it often lay in the sun for part of the day. This tended to shorten the shelf life even more.

6.3 Trade in Zimbabwe

The trade of Marula in Zimbabwe has a long cultural tradition similar to that in Limpopo province in South Africa. There is juice, beer and jam making traditions, and the extraction of the kernels from the nuts for household consumption.

Speciality Foods of Africa is a company based in Harare that makes Marula Jam and Jelly. It produces several food products ranging from Baobab flavoured Maheu to Indigenous teas. In 2013 the company started to source Marula kernels from communities in southern Zimbabwe where they found large stocks of un-decorticated nuts in the homesteads. Whilst the older women of the village communities would crack and extract the kernels, there was a lack of motivation by younger women due to the lack of skill and risk of injuring fingers in the cracking process. In order to develop a high volume supply of kernels to enable the production of Marula oil for export, there will need to be a mechanical decortication solution that can be introduced into the villages, and/or a centralised factory decortication system.

7. The European Market

7.1 Regulatory Barriers

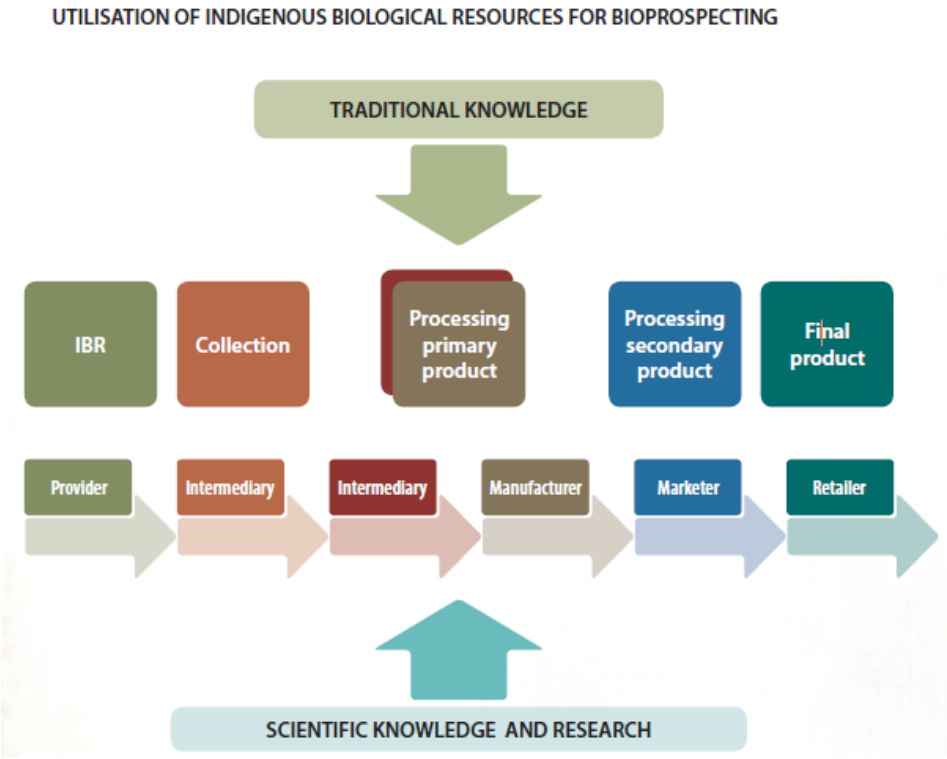
7.1.1 Access and Benefit Sharing Regulations

The most recent legislation that is directly relevant to the trade in any indigenous plant product is the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilisation.* As of 12th July 2014, 50 countries have ratified / acceded to the Nagoya Protocol and it will therefore enter into force in 90 days, on the 12th October 2014.

As a result, countries who have ratified including Namibia, South Africa, Mozambique, Madagascar and Botswana will have to have processes in place to deal with compliance, including Competent Authorities and National Focal Points, as well as regulations detailing these. Europe approved on 16th May 2014. The first meeting for the Conference of the Parties to the Nagoya Protocol on Access and Benefit-sharing will be held on the 6-17 October 2014, in South Korea.

The issues are complex but a comprehensive review has been undertaken by Wynberg et al. (2012) on South Africa's regulatory framework. The figure below depicts when the use of natural resources would be described as bioprospecting.

Figure:. Bioprospecting

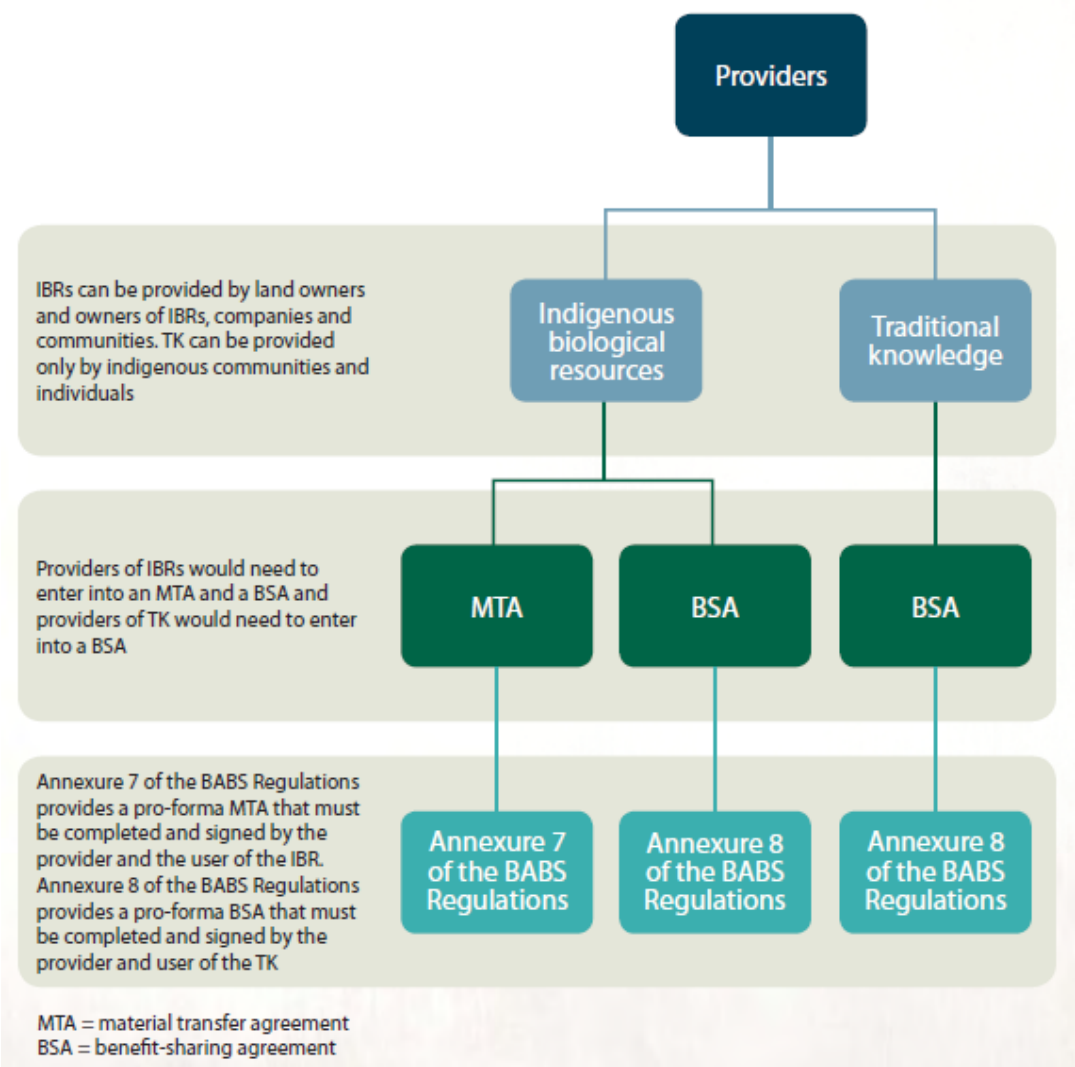


(Wynberg *et al.*, 2012)

As a guide to the ABS process which provides for the differentiation between the requirements for indigenous biological resource (IBR) research and traditional knowledge use. Providers of IBRs can include individuals, Landowners, indigenous communities or companies that control access. The right to provide access to an indigenous biological resource could either be through ownership, or control over the land in which it grows. This is slightly different in the case of ownership of traditional knowledge as in many cases the knowledge can belong to an indigenous community. In some instances one community can provide access to the resource, but indigenous knowledge is possessed by several communities.

In South Africa, the ABS regulations have been in force since 2008, and the are currently under amendment to make the process more practical. There is a permit system relating to research, bioprospecting and export of indigenous biological resources between providers and users through the implementation of Benefit Sharing Agreements (BSA) and Material Transfer Agreements (MTA).

Figure: Documents required in South Africa under Access and Benefit Sharing regulations



7.1.2 EU Novel Food Regualtions

The European Commission's website has a Novel Food Catalogue that provides information on Novel Ingredients that have the right to enter into the EU. At the following link the information below is provided (http://ec.europa.eu/food/food/biotechnology/novelfood/nfnetweb/mod_search/index.cfm?action=mod_search.details&seqfce=257)

Sclerocarya birrea

Common Names
Amarula, balsanowiec błękitnawy (PL), marula (FI) (CZ), Marulabaum (DE), maruula-elevandiõunapuu (ET), klanopraška čínská (CZ), Marula-fa (HU), Marula (LV), kaffirmarula (SE)

Description
The Marula tree (member of the Anacardiaceae Family), grows mainly in the warm, frost-free regions of subequatorial Africa, and, with minimal rainfall, normally brings forth an abundant

crop. Found at medium-low altitudes, in open woodlands and bush, this average-sized tree can be up to 10 metres tall.

Only the use of the berries of Sclerocarya birrea as food or food ingredient is established in the EU.

It is uncertain whether this approval we the result of an application and whether the approval is given to a particular processor or whether it is an open approval under which food and beverages from Botswana can enter the EU without the need for any submission of a dossier to request substantial equivalence. This needs to be clarified.

Marula Oil cannot be traded in the European Union as a food oil until Novel Food regulations are complied with and approval granted by the European Commission.

7.1.3 REACH regulations – Safety of Cosmetic ingredients within the EU

In order to trade Marula oil as a cosmetic ingredient the final processor of the oil has to be able to provide the following documentation:

Marula oil has to be accompanies with a Technical Data Sheet (TDS) that provides the following minimal information.

- Botanical name and origin
- Grade of purity
- Production details
- Organoleptic parameters (colour, odor, taste, consistency)
- Chemical and physical parameters (peroxide value, acid value, relative density)
- Composition of fatty acids
- Residues and heavy metals
- (Microbiological testing, aflatoxins, pesticides)
- Storage
- Shelf life

Combined with the TDS is the need for a Safety Data Sheet (SDS) that contains the following information:

- Product identifier
- Relevant identified uses and uses advised against
- Details of the supplier of the safety data sheet
- Hazard identification
- Composition/Information on ingredients
- First aid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Exposure controls / personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information

- Disposal considerations
- Transport information
- Regulatory information
- Other information

There are general toxicological requirements for cosmetic ingredients, and the final processor of the oil ingredient is required to provide following information when requested by any regulatory authority:

- Acute toxicity (if available);
- Irritation and corrosivity;
- Skin sensitisation;
- Dermal / percutaneous absorption;
- Repeated dose toxicity;
- Mutagenicity / genotoxicity;
- Carcinogenicity;
- Reproductive toxicity;
- Toxicokinetics;
- Photo-induced toxicity;
- Human data.

7.1.4 EU Regulations for Cosmetic Product manufacturers

If a Botswana company manufacturers a range of cosmetic products for export to the European Union, then the company would need to demonstrate Cosmetic Good Manufacturing Practices and would require a Product Information Dossier that provides information on the formulation, process and safety of each product.

Guidelines for the Manufacturer of Cosmetic Products, Colipa 1994 (www.colipa.eu; Colipa: The European Cosmetic Association) list the following reporting areas for good manufacturing processes:

- Organigram with the responsibilities
- Manufacturing processes (internal)
- Operating instructions
- Formulation
- Manufacturing regulations
- Batch specific production and filling process protocol
- Cleaning and disinfection instructions
- Records on quality inspections
- Documentation of the performed processes
- Hygiene plan
- Waste disposal plan
- Documentation: calibration and maintenance of control and measurement equipment
- Documentation of performed staff training

Documents and requirements for the Product Information Dossier are as follows:

- Quantitative composition of the cosmetic product including

    - Trade name of raw material and internal master data
    - INCI declaration
- Safety data sheet, technical data sheet and certificates of analysis of raw material
- Samples of the cosmetic product or copy of packaging including direction of use
- Packaging, size and material
- Product specification (e.g. pH, density, refraction index)
- Results of application tests e.g. Patch test
- Stability
- Microbiological challenge testing results
- Market introduction, date
- Information about adverse reaction
- Safety certification of the manufacturer of fragrance (IFRA conformity)
- Confirmation of respecting EU Cosmetic GMP Guidelines

7.2 The European Cosmetic Market

A **cosmetic product** is defined within the European Union as any substance or preparation intended to be placed in contact with the various external parts of the human body or with the teeth and the mucous membranes of the oral cavity, with a view exclusively or mainly to **cleaning** them, **perfuming** them, **changing their appearance**, and/or **correcting body odors**, and/or **protecting** them **or keeping them in good condition** (Directive 76/768/EEC).

The top 10 countries in the EU cosmetics market are ranked as follows:

Country	2004*	2005*	2006*	2007*	2008*	2009*
EU Total			65.129	67.369	67.607	69.500
GERMANY	11.046	11.101	11.713	12.328	12.604	12.829
FRANCE	10.382	10.109	10.440	10.680	10.746	10.517
ITALY	8.462	8.492	8.793	8.996	9.072	9.108
UK	9.187	9.176	9.993	9.863	9.142	8.855
SPAIN	6.795	7,113	7.442	7.872	7.781	4.502
NETHERLANDS	2.427	2.434	2.437	2.578	2.719	2.779
POLAND	N.A.	N.A.	N.A.	N.A.	2.632	2.361
BELGIUM/LUX.	1.682	1.690	1.720	1.754	1.810	1.850
SWITZERLAND	1.634	1.599	1.568	1.631	1.133	1.768
SWEDEN	1.338	1.527	1.552	1.585	1.594	1.299

*Value Retail RSP, EUR bn; includes: decorative cosmetics, hair care, fragrances, skin care and toiletries;
Sources: Colipa Association members and Euromonitor

The leading German Cosmetics Market is broken down into the different product sectors as follows:

Sub-category	2008	2009	2010	09/10 +/- %
Hair care products	3.049	3.048	2.967	-2,6
Skin care	2.926	2.973	2.941	-1,1
Decorative cosmetic	1.334	1.438	1.467	2,0
Dental/mouth care	1.319	1.329	1.332	0,2
Perfumes/fragrances (women)	974	985	1.007	2,2
Men's-cosmetics	881	885	896	1,2
Bath/ shower additive	840	849	830	-2,2
Deodorants	681	689	711	3,2
Soaps/syndeth	214	220	216	-1,8
Others	393	412	425	3,0
Total	**12.610**	**12.829**	**12.792**	**-0,3**

*Value Retail; bn EUR; Sources: Colipa Association members and Euromonitor

Within the German Cosmetic market, the natural cosmetic market segment is under 7% of the total market size – some figures are:

- 2009: 717 million EUR – 5.6% of market
- 2010: 795 million EUR – 6.2% of market

However the growth rate of the natural cosmetic market segment has out-performed any other segment, becoming the leading trend in growth

- 2008 -2009: 7% growth rate
- 2009 -2010: 11% growth rate

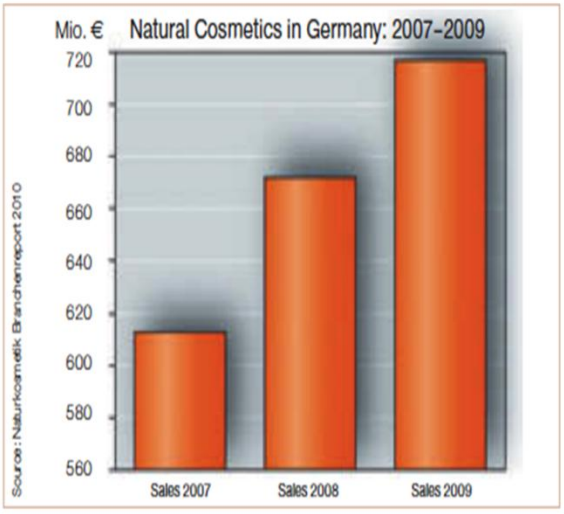


Figure taken from : Cossma 10/2011

The main EU producers of cosmetic products are the multinational companies:

- Unilever (The Netherlands/UK)
- L'Oreal (France)
- Wella (Germany)
- Sanofi (France)
- Beiersdorf (Germany).

World's top-20 beauty companies in 2007, ranked by sales of beauty products, in € million

Company	Sales in € million	Company	Sales in € million
Procter & Gamble	18,999	Coty	2,734
L'Oreal	16,880	LVMH	2,529
Unilever	10,593	Yves Rocher	2,050
Estée Lauder	5,399	Limited Brands	2,050
Avon	4,716	Chanel	1,709
Beiersdorf	4,716	Mary Kay	1,640
Shiseido	4,374	Natura	1,640
Kao	4,305	Access Business Group	1,230
Johnson & Johnson	3,485	AmorePacific	1,230
Henkel	3,007	Kosé	1,093

Source CBI Report "The market of natural ingredients for cosmetics in the EU, 2009

European Top 10 companies in 2011 (sorted by sales volume):

- Weleda
- Dr. Hauschka
- Lavera
- Annemarie Börlind
- Logona
- Speick
- Primavera
- Sante
- Heliotrop
- Farfalla

Natural Cosmetic Brands within EU

- The Body Shop
- Yves Rocher
- Korres Natural Products

- Melvita
- Weleda
- Dr. Hauschka
- Madara Cosmetics
- Couleur Caramel
- Aveda
- The Organic Pharmacy
- In addition: Naturalia, Natura, H&M, Burt's Bees

The key suppliers of Natural Oils in the European and regional markets are as follows:

AAK Natural Oils (Sweden Headquarters) is the world's leading manufacturer of high value-added speciality vegetable fats. They provide a selection of seed and nut oils including those certified Fairtrade and Organic, along with natural vegetable speciality oils which have been developed for the cosmetic sector. Their natural oil product range includes refined oils and those that are certified organic by the Soil Association and USDA NOP. Their refined range includes Almond oil, Macadamia oil, Brazil nut oil, Walnut oil and many others. They do not currently list any of the Namibian oils within their portfolio.
http://www.aak.com

A&E Connock (UK) is an international supplier of raw materials for the personal care industry and includes several vegetable oils. They offer a large range of vegetable oils including many of the lesser known oils. Their portfolio includes Babassu oil, Baobab oil, Manketti nut oil, Marula oil, Mobola Plum oil, Sacha Inchi seed oil, Tamanu oil and Watermelon Seed oil (Oontanga). There is little prominent information available regarding certification of the oils.
http://www.connock.co.uk

Aldivia (France) supplies plant and vegetable oils to the cosmetic industry as well as for industrial applications. Aldivia has been the primary supplier of PhytoTrade's members oils for several years and works with distributors around the world reaching many international markets including Europe, the US, and Southern Africa. The oils supplied by Aldivia include the Ubuntu range which includes Marula, Ximenia, Kalahari Melon, Mongongo and Baobab seed oils, along with Mafura seed butter. They also offer the Viatenza range which includes the same natural oils along with PEG-8 Esters, or Polyglycerol-6 Esters. Their product portfolio is wider than the African oils alone and also includes other oils such as Argan, Macadamia, Sweet Almond, as well as Shea and Cocoa butters. A selection of the oils are certified organic by Ecocert and Aldivia is also a member of the Union for Ethical BioTrade (UEBT).
www.aldivia.com

Arch Personal Care (Switzerland) is now part of Lonza and provide a range of products including natural botanical actives, and those which are Ecocert certified. Their portfolio of products includes Marula oil and PhytoTerra Organic Baobab Oil. In the UK, their ingredients are distributed by Adina Cosmetics Ingredients based in Kent.
http://www.archchemicals.com/Fed/PC

Ascot International (UK) is a chemical supplier to the personal care, chemical and agrochemical sectors in Europe. Within the personal care sector, they supply chemical raw materials, organics oils including absolute oils, essential oils, and carrier oils. One of the main products promoted on their website is Baobab seed oil which is produced in Senegal. Their portfolio of carrier oils includes Sweet Almond oil (cold pressed), Macadamia nut oil (refined), and Apricot

kernel oil. Where the oils are certified, a limited number of ingredients carry the Soil Association mark with the exception of Baobab oil, which is certified by Ecocert
http://www.ascot1.com

Croda GmbH (UK Headquarters) is one of the world's leading global supplier of speciality raw materials for the personal care industry. **Seatons** (UK) is a subsidiary of Croda and lists a range of cosmetic oils including Baobab oil, Babassu oil, Brazil nut oils, Macadamia nut oil, Marula oil, Melon Seed oil, Moringa oil, Shea nut butter and many others on their advertised list. They have an extensive portfolio and also offer services in formulation provision and those regarded as 'green' or 'free from'. A large selection of the oils are available as organic but product certification does not appear as a main marketing component on the company website.
http://www.croda.com and http://www.seatons-uk.co.uk

Cosmetichem (South Africa) is a distributor of cosmetic raw materials and represents several companies including PhytoTrade Africa members, Aldivia and Afriplex among others. As Cosmetichem represent PhytoTrade and Aldivia, the Namibian oil processed by Aldivia are available.
http://www.cosmetichem.co.za/

Cosmetochem (Switzerland) develop, produce and market botanical and natural extracts, actives and ingredients worldwide. Their product portfolio includes a range of water-soluble plant oils as well as botanical actives with target applications. They have also developed an ethical range of products with a focus on community development in Australia.
http://www.cosmetochem.com

Earth Oil Plantations (UK) supply a variety of speciality natural oils, vegetable oils and essential oils. They claim to provide organic, ethical and sustainably harvested oils which are sourced from international suppliers. They have production sites in India and Kenya, a purchasing office in France, as well as a base in the UK. Four products within their speciality oils range is sourced from Southern Africa including Baobab seed oil, Manketti seed oil, Marula seed oil and organic Grape seed oil.
http://www.earthoil.com

Gustav Heess Oelchemische Erzeugnisse (Germany) supplies oils and fats to the cosmetics, foods, pharmaceutics, chemistry and technical sectors. For the cosmetic industry, the company provides a range of vegetable oils and fats suitable including cold-pressed and refined oils. Their range includes Shea butter, Almond oil, Peach kernel oil, Argan oil, and Avocado oil. Gustav Heess also provide various organic certifications for different regions including Europe and the US. The company is certified by ISO 9001:2008 and GMP is applied through all practices.
http://www.heess.de

Henry Lamotte Oils GmbH (Germany) supplies and manufacturers vegetable oils, waxes and related products for the pharmaceutical and cosmetics industries. The company is certified for quality management through ISO 9001:2008 along with having HACCP, organic and Kosher certification. Henry Lamotte supply a number of standard cosmetic vegetable oils such as Babassu oil, Baobab oil, Sacha inchi oil and Shea butter, along with other specialities which are available on request. The oils on offer are either cold-pressed or refined, and are available as conventional or organic. Within Brazil, Beraca are the sole distributor of Henry Lamotte Oils.
http://www.lamotte.de

Hexachem (South Africa) is part of global company Inovia, and serves as an importer and stockist for chemical products into South Africa. Personal care including cosmetics and toiletries is one key market for Hexachem and they supply ingredients from Lonza, Unipex, Inovia such as botanical extracts, seed oils and butters.
http://www.hexachem.co.za

Jan Dekker International (Netherlands) has recently merged with IMCD and provide ingredients to cosmetics and food manufacturers around the world including oils, fats and butters. Jan Dekker offer a number of vegetable oils and butters including Argan oil, Shea butter, Mango kernel butter and Macadamia nut oil and have a focus on ecological, organic certified and ingredients that are sustainable and fairly traded. They provide technical and regulatory support to customers and can assist customers with cosmetic formulation using their ingredients.
http://www.jandekker.com

Kerfoot Group (UK) offers a large range of natural plant based products including carrier oils, essential oils and butters. The oils which are certified organic by the Soil Association include deodorised Argan oil, cold pressed Neem oil, refined and unrefined Shea butter, refined Sweet Almond oil, and cold pressed Tamanu oil. The Kerfoot Group reports that sustainability and responsibility are key components of their business, including environmental, social and economic dimensions. Kosher certified products are also available in some instances.
http://www.kerfootgroup.co.uk

Lehmann & Voss & Co. KG (Germany) is a chemicals company with activities in own production, distribution and trade. Lehmann & Voss offer a variety of raw materials to the cosmetic sector including oils. Their listed products include Macadamia seed oil, Sunflower seed oil and Moringa seed oil.
http://www.lehvoss.de

Nautica Organic Trading (South Africa) has been dealing in organic and conventional cold pressed, refined and essential oils in South Africa since 2006. Among their top selling indigenous products, Baobab oil, Marula oil, Ximenia oil, and Kalahari Melon Seed oil are listed.
http://www.nauticaorganics.com/

Olvea (France) specialise in the supply of a wide range of vegetable oils for the cosmetic, pharmaceutical, nutraceutical and food industries. They are a subsidiary of SIRH Group which is a industrial group specialising in vegetable, animal and marine oils. Olvea have organic certification from the European Commission Organic Farming body, along with EcoCert and USDA Organic. Standards are incorporated into the practices of the company including GMP, HACCP, clear traceability and the implementation of ISO 9001 on quality management. Olvea also operate to sustainable development charter and work closely with supply chains in Morocco and Burkina Faso.
www.olvea.fr

Paninkret Chem-Pharm (Germany) is a chemical-pharmaceutical marketing company who distribute plants and animal extracts to various industries including the cosmetics sector. Their portfolio of products includes 'natural oils' and lists Avocado, Macadamia nut, Rosehip seed, Wheat Germ and St John's Wort. The company is ISO 9001:2008 certified and offers products that are both Kosher and organic certified. Paninkret is also working with Devil's Claw extract.
http://www.paninkret.de

Scatters Oils (South Africa) is a subsidiary of Clive Teubes and a bulk supplier of natural, indigenous and organic oils for the local and international markets. After being rebranded in 2009, Scatters Oils now exports over 14 tons of oil per year and is in the process of constructing their fourth factory. Among their long product list, they include oils produced in Namibia such as Marula, Kalahari Melon Seed and Manketti, along with others of relevance including Mafura and Baobab. Scatters Oils has received organic certification in the past but from documentation available on their website it appears to be out of date.
http://www.scattersoils.com

Statfold Seed Oil Ltd (UK) is a manufacturer, producer, and trader of seed oils for the personal care, nutritional, pharmaceutical and food industries. They are based in England where they have a refining and deodorising plant, along with three of Automated Bottling Machines and the manufacturing facilities for lotions and creams. The company is certified by Fairtrade, and the Soil Association, KLBD (Kosher), and is a member of the British Association of Cold Pressed Oil Producers. In addition, the company has ISO Certification:9001:2008 BSEN. Statfold offer a range of globally sourced seed oils as well as essential oils. Their four main grades of oil for the cosmetic market include refined, natural, organic and organic refined. They offer an extensive range of oils which includes organic and refined Baobab oil, organic Marula oil and refined Manketti oil. In addition to the pure oil products, Statfold also formulate skin and hair care products and are able to provide a variety of organic base products such as an organic face serum base and an organic body wash base. These products are certified organic by the Soil Association. Within Statfolds marketing materials, they provide information about specific oils and their benefits/target skin and hair care applications. Information of this type is important for formulators when selecting new ingredients to work with.
http://www.statfold-oils.co.uk/

ZOR (Netherlands) describes itself as a service provider to the European oils and fats industry. Their services include the following components of transportation, product storage, import/export, sampling service, product analysis and packaging. They have developed refining procedures for a range of niche oils such as Babassu oil, Macadamia nut oil, and Argan oil among many others. The company is certified to ISO 9001 along with various organic certifications for different regions. In addition to their processing services, ZOR also supply the market with a small range of products. Their cosmetic ingredient range includes Shea butter and oleine, Babassu oil and Cocoa butter.
http://www.zor.nl

8. Leading SMEs in Botswana for Marula Trade

WildFoods of Africa. WildFoods (Pty) Ltd, Tribal Lot 12, Gabane, Kweneng, Botswana. This company was established in 2007 and is the only producer of wild food snacks on a commercial scale in Southern Africa from sustainably harvested wild fruits. Wild Fruits makes dried snack products from indigenous fruits and vegetables that are sustainably harvested from the wild. The four key raw materials - Marula, Wild cucumber, Kalahari Melon, and the Kalahari Desert truffle – are described in Table below:

Common Name (Scientific Name)	Harvesting Months	Common Uses
Marula *(Sclerocarya birrea)*	January - March	Fruit used for dried snack foods, jelly, jam, juice, beer; kernels used for snacks and high quality cosmetic oil; bark is used to treat stomach ailments and is used for dye
Wild cucumber *(Cucumis metuliferus)*	June - November	Dried fruit snacks, chutney
Kalahari melon *(Citrullus lanatus)*	May - November	Dried slices, Dried fruit snacks, cooked with porridge, seeds roasted and ground for consumption; seed- oil used for cosmetics
Kalahari desert truffle *(Kalaharituber pfeilii)*	April - July	Similar to black and white truffles, used in food, income generation

Source. PhytoTrade Africa and Botswana College of Agriculture

Kigetsi Ya Tsie

Kgetsi ya Tsie is a company based in Mpeo Ward, Lerala, Botswana, and is a privately owned domestic company that began its operations in 2001. The company currently employs 5 women. Situated in Lerala, in the central district, the company manufactures Marula oil, soap and jam.

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Matsheng Community Development Trust

Organisation: Matsheng Community Development Trust
Area of Implementation: Sojwe
Project Title: Conservation And Management Of The Thotayamarula Forest

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Matsheng Community Development Trust (MDCT) has launched a ‘promising’ project, as part of its mission to develop the community through management of natural resources.

MCDT Board Secretary, was upbeat that the Land Board had not taken long to respond to their application. The trust has plans to construct a lodge and a manufacturing plant to popularise the place beyond the area. “The trust is soliciting funds from the government and private entities to purchase equipment to be used in the manufacturing of jam, drinks, special oils and sweets,” he explained.

He said the project would start late because they do not have the start up capital yet, although the UNDP – Indigenous Vegetation Project - a project funded by the Global Environment Facility (GEF), has part-funded them.

“We received P235 500 from GEF, we are going to use the money to fence the site and to pay people who are writing our management plan,” he said.

The secretary explained that they have sent a member, Kalebe Lebate, for training at wildlife and management school in Maun to ensure that MCDT projects are driven by locals.

He said the trust has also trained some community members in business management skills to maintain its objective of creating employment. If well managed and implemented, the project, according to the secretary, will open job opportunities for the communities of Boatlaname, Leologane, Lephephe, Shadishadi and Sojwe.

“The project will also ease the government the burden of combating unemployment single-handedly,” he said. He said they are anticipating assistance from the wildlife department and other stakeholders. He said that they are working jointly with the Environment, Wildlife and Tourism ministry. “We have requested them to make soil tests in Thota-ya-marula so that we can establish if the soils will support our project.”