

# **Cash from the Commons: Improving Natural Products Value Chains for Poverty Alleviation**

By

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### **Abstract**

Agricultural production in the southern African regions' marginal areas where the majority of rural populations reside is highly unreliable, often due to poor soils, erratic rainfall and frequent droughts. Alternative livelihood sources are therefore needed to address the declining livelihood opportunities and increasing food insecurity. The natural products sector development being promoted by PhytoTrade Africa seeks to facilitate the generation of supplementary incomes for rural communities through the sustainable exploitation of wild harvested natural products. These natural products are harvested mainly from common pool resource areas. This paper draws on experiences from eight southern African countries to demonstrate that natural products trade can be an alternative source of livelihood to agriculture for poor rural communities, especially women who are often marginalised. Improvement in the livelihoods of these communities can be achieved through the development of efficient and reliable value chain and Fair Trade and organic systems within the natural products sector. The experience from southern Africa shows that the rural people living in marginal areas, and in particular women, are realising increased incomes from natural products that are used to meet household food requirements, pay children's school fees, and make family investments such as purchasing livestock and household utensils.

**Key words:** natural products, food security, fair-trade, gender, common pool resources, PhytoTrade Africa, and southern Africa.

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<sup>1</sup> PhytoTrade Africa is a natural products Trade Association representing producers, primary processors, traders, development organisations and researchers from eight countries in Southern Africa that include Botswana, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe.

## 1.0 Introduction

The last few decades has seen a shift from emphasis on agriculture as the main source of income in rural areas to exploring alternative livelihood sources such as the development of natural resource based enterprises (Hulme and Murphree, 2001). In southern Africa, the natural resource based enterprises have been promoted through community-based natural resource management (CBNRM) initiatives. CBNRM offered opportunities for livelihood diversification through, for example, the consumptive use of wildlife (i.e. hunting safaris) and in some cases from non-consumptive uses such as tourism and eco-tourism (Steiner and Rihoy, 1995). Examples of CBNRM initiatives in the southern African region include the Communal Areas Management Programme (CAMPFIRE) programme in Zimbabwe, the Living in a Finite Environment (LIFE) programme in Namibia and the ADMADE programme in Zambia.

CBNRM is situated within the theoretical framework seeking to empower local communities through decentralised entrustments regarding the use and management of common pool natural resources in their locality (Mandondo, 2001). CBNRM has been defined as policy and practice that seek to give those who live in rural environments greater involvement in managing the natural resources that exist in the areas in which they reside and greater access to benefits derived from those resources (Hulme and Murphree, 2001). Within the CBNRM movement, it is generally believed that if communities realise tangible benefits from their natural resources, they would take active steps in ensuring sustainable use and conservation of those resources (Berkes and Farvar, 1989).

Community-based natural resource management falls within the broader common property resource management theoretical framework. One school of thought within the common property resource management literature suggests that local communities conserve natural resources if they benefit from these resources (*ibid*; Berkes, 1989). Within the same school of thought, others have argued that involving communities in resource management provides them with material and other benefits that act as incentives for ensuring sustainable use of the resources.

Within the CBNRM movement, emphasis was on the development of wildlife-based enterprises, yet wildlife resources tend to be confined to certain geographical areas. Debates on whether CBNRM can move beyond mega-fauna to include floristic resources began around the late 1990s (Campbell *et al*, 1999). This came from the realisation that floristic resources are abundant in southern Africa and appear to offer great potential for integration into an efficient and sustainable production system (IFAD, 2005). Thus the shift in focus towards natural products (NPs)<sup>2</sup> value-chain development at the turn of

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<sup>2</sup> Natural products are here defined as organic resources (flora and fauna), that are indigenous such as forest, veld or commons-based floristic resources available to communities. Natural products are sometimes referred to as non-timber forest products (NTFPs), defined as '*all goods derived from forests other than timber and firewood*'. NTFP's would include: mushrooms, fruits, and medicinal herbs among others (Arnold and Pérez, 1998; Shanley *et al*, 2002).

the millennium is not a surprise. This was spearheaded by the recognition that NPs, if used productively and sustainably, have the potential to promote economic growth and make a meaningful contribution to poverty alleviation (IFAD, 2005).

The natural product sector development and improved trade in NPs that is being facilitated by PhytoTrade Africa is one such initiative that attempts to contribute towards improving people's livelihoods and at the same time motivating them to manage their resources effectively. Natural products have traditionally been critical to rural livelihoods and their commercialisation contributes significantly to the overall household economy (Shackleton *et al*, 2007). The interest in natural products development in both conservation and development circles has its origins in a number of propositions including:

- natural products, much more than timber, contribute in important ways to the livelihoods and welfare of rural populations, through providing them with food, medicines and as a source of income;
- exploitation of natural products is less ecologically destructive than timber harvesting and therefore provides a more sound basis for sustainable forest use and management; and
- that the increased commercial harvest of natural products would add to the perceived value of forests by the users thereby increasing the incentive to retain the forest resource, rather than conversion of the land for use for agricultural purposes (Arnold and Pérez, 1998).

Two principal objectives for promoting the development and commercialisation of natural products have been suggested in the literature. These are: (i) to improve livelihoods and (ii) to facilitate the conservation of natural resources and the ecosystems that host these resources (Belcher and Schreckenberg, 2007). The argument for improving livelihoods suggests that commercialisation of natural products i.e. increasing the value of the NPs in trade, is expected to increase income and employment opportunities, especially for poor and otherwise disadvantaged people (Bishop and Scoones, 1994; Scoones *et al.*, 1992; Shackleton and Shackleton, 2005; Shackleton *et al*, 2007). The emergence of new markets for natural products as well as new marketing mechanisms such as Fair Trade and organic production has also contributed towards promoting the commercialisation of NPs for livelihoods improvement.

From a conservation perspective, there has been much speculation that the commercialisation of NPs can provide opportunities for sustainable use of forest resources. As Belcher and Schreckenberg (2007) note, this view was fuelled by research such as that by Peters *et al.* (1989), which suggests that the value of NPs that could be sustainably extracted from a hectare of forest far outweigh the value of the timber or alternative land uses. Conservation organisations have therefore been prominent among the advocates of NP commercialisation, seeing it as a way to encourage conservation-compatible

income sources and to displace more destructive land and resource-use options (Belcher and Schreckenberg, 2007).

In the southern African context, the growing interest in the use and commercialisation of natural products is a result of studies that have shown NPs as being an important alternative to dryland agriculture, which in most cases has low yields to sustain rural livelihoods due to poor and erratic rainfall and in some regions poor soils for reliable agricultural production (Shackleton, *et al*, 2007). Inadequate agricultural inputs are also a constraint in agricultural production, thus the high dependence on natural products by rural households for subsistence and in recent years for income generation. It is worth noting that these NPs are harvested in common pool resource areas.

While one school of thought suggests that NPs have the potential to improve people's livelihoods and promote economic growth (Scoones *et al.*, 1992; Shackleton and Shackleton, 2005; Shackleton *et al*, 2007), another school of thought has argued that rural people in developing countries receive low and insignificant returns from NPs commercialisation (Schreckenberg, 2004; Belcher and Schreckenberg (2007). Schreckenberg (2004), using shea butter from Benin, for example, suggests that on average income from shea butter contributes only 2.8% of total household income. While this income appears to be insignificant, Schreckenberg further notes that the income was found to be sufficient to cover a substantial part of women's annual expenditure and is particularly important for bridging the financial shortfall at the start of the season (2004: 99).

Belcher and Schreckenberg (2007) are of the view that commercialisation of non-timber forest products (NTFPs: in this case, NPs), cannot achieve livelihoods improvement as well as ecosystem and species conservation. Experiences from PhytoTrade Africa show different results from the above assertions. As will be shown in this paper, PhytoTrade Africa experiences reveal that one cannot talk about commercialisation without first ensuring that there is a profitable and viable market for the NPs being commercialised. Improvement in the livelihoods of the poor rural communities can be achieved through the development of efficient and reliable value chain and Fair Trade systems within the natural products sector. Often, commercialisation is spearheaded without ensuring that the market chain is developed and this frequently does not yield positive because developed markets (Belcher and Schreckenberg, 2007 page 5)

This paper draws on experiences from eight<sup>3</sup> southern African countries to demonstrate that natural products trade can provide an alternative source of livelihood security to agriculture for poor rural communities, especially women who are often marginalised. Alternative livelihood sources are needed to address the declining livelihoods and increasing food insecurity in rural areas. The natural products sector development being supported by PhytoTrade Africa seeks to facilitate the generation of supplementary incomes for rural communities through the sustainable exploitation of wild harvested natural

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<sup>3</sup> Botswana, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe

products. In developing the NP industry, focus has been on different players along the market chain and not just on the primary producers. This is to ensure that the industry is sustainable and that a market is developed for the NPs being traded.

### **1.1. Methodology**

Data for this paper was collected using a variety of methods that include literature review; use of participatory approaches such as focus group discussions and key informant interviews; questionnaire surveys with primary producers and with representatives of PhytoTrade Africa members. Questionnaires designed under the longitudinal case study initiative that PhytoTrade Africa has been undertaking for three years in three field sites annually in Malawi, Zambia and Zimbabwe generated quantitative data. The longitudinal case studies are aimed at assessing the impact of the NPs sector development in the southern African context using three case studies that focus on Baobab in Malawi, Mongongo in Zambia and Marula in Zimbabwe. Data for the paper was also drawn from the PhytoTrade Africa annual Monitoring and Evaluation reports as well as the Annual reports. One-off case studies were also undertaken in April 2007 with primary producers to identify the impacts of their involvement in NP commercialisation in Swaziland and Zambia are also drawn upon here

## **2.0 Experiences from the NP sector in southern Africa**

This section highlights the outcomes of developing the value-chain of natural products in southern Africa. The section starts with background information on PhytoTrade Africa, then describes the uses of focal species, followed by a description of the value addition strategies and processes facilitated by PhytoTrade Africa and the livelihood outcomes of these value addition initiatives.

### **2.1 Background to PhytoTrade Africa**

PhytoTrade Africa is the Southern African Natural Products Trade Association that was established in 2001 with the aim of facilitating growth in the NP industry in the region. PhytoTrade Africa's approach to NP development empowers rural communities in southern Africa to generate incomes from NPs and secure their future through investments in improved well-being, healthcare and schooling (IUCN, Natural Futures Programme, 2007). The rationale behind establishing the natural products trade association was that while the range of economic opportunities available to poor people living in marginal dryland areas of southern Africa is limited there exist potential opportunities to generate incomes for poor people from the commercialisation of natural products (i.e. indigenous, plant-derived). However, there are several major structural hurdles towards the realisation of this potential. To overcome these hurdles, a co-ordinated, sub-region wide approach that brings in the full range of public and private sector players actually and potentially involved in the NP industry was needed. PhytoTrade Africa was conceived by its

members as the structural mechanism that would enable this potential in NPs to be realised.

Whilst PhytoTrade Africa has an explicitly poverty reduction-oriented goal, it aims to achieve this goal through the development of private sector businesses in the NP sector. This is a conscious recognition of the fact that:

- a) the NPs industry is driven by the private sector, not by community-based enterprises;
- b) for primary producers to make money, everybody else along the market chain also has to be making money and
- c) the principal intervention points in the industry are higher up the chain than at the level of the primary producers (PhytoTrade Africa Strategic Plan 2004-2007).

As of April 2008 PhytoTrade Africa membership was at fifty-six paid up members, having started with nineteen members in 2002. Members of the trade association pay joining fees and annual subscriptions. Members are engaged in production and processing of wild harvested indigenous plants and are all signatories to the in-house Fair Trade and Environmental Charters which ensure that:

- Each primary producer (majority of whom are poor rural women) are paid a fair price for their products.
- All ingredients have been sustainably wild harvested.
- End users are buying high quality, naturally organic ingredients.
- There is overall support for a reliable and ethical supply chain.
- There is compliance with Access and Benefit Sharing standards.

PhytoTrade Africa's strategy is based on a three-stage approach in the development of the natural products sector. The first stage is investment in product research and development that is required to transform an NTFP that, whilst it may have been traditionally used and may have obvious market potential, has not previously been marketed on any large, commercial scale. The second stage is to invest in developing market awareness of, and markets for, these products. It takes considerable human and financial resources to build market recognition for any new product, but it cannot be sold without such an upfront investment. The third stage is to work with the supply chain to develop the capacity of primary producers to meet the demand for these newly-marketed products and, particularly, to meet the standards required for market access (Welford and Le Breton, 2008).

PhytoTrade Africa's product development in eight southern African countries focuses on a limited number of species that include Marula (*Sclerocarya birrea*), Manketti/ Mongongo (*Schinziophyton rautanenii*), Baobab (*Adansonia digitata*), Sausage tree (*Kigelia Africana*), Kalahari melon (*Citrullus lanatus*), Mobola (*Parinari spp*), Ximania, and Natal Mahogany (*Trichilia emetica*). An additional species, Devil's Claw was included in the original focal species in 2006. PhytoTrade Africa's members purchase raw materials from mostly rural primary producers. Members then add value to all the products purchased

from the primary producers for sale in the local, regional and international markets<sup>4</sup>.

## **2.2 Value Addition strategies and processes**

Findings from a wide range of studies have shown that it is generally the poorer and more marginalised households who engage in value addition and commercialisation of natural products, this being a particularly important activity for women (Shackleton *et al*, 2007; Neumann and Hirsch, 2000; Fortmann and Nabane, 1992). Several approaches to value addition have been promoted by PhytoTrade Africa. This also takes place at various levels that include the primary producer and members' level. Members of the association currently include private companies, non-governmental organisations, research institutions, community-based organisations and also as individuals.

### *2.2.1. Value addition at primary producer level*

Value addition that is undertaken at the primary producer level includes primary processing such as nut cracking and juice extraction for species such Marula and Mongongo; and seed and pulp extraction and sieving for Baobab. In the case of Marula and Mongongo, nuts are cracked by the primary producers, kernels extracted and later sold to a PhytoTrade member, who then processes oil from the kernels. Bulk oil is then sold to a commercial partner in who refines of the oil for sale to the cosmetics industry. In the case of Baobab, after pulp extraction, both seed and pulp are sold by the primary producers to PhytoTrade members who further process seed into oil and pulp into products for sale to a given commercial partner and other outlets. Traditionally, these NPs have been used mainly for subsistence, with little commercialisation e.g. Marula beer or sale of kernels. Baobab fruits have traditionally been sold as whole fruit, generating little income as in this case, there is no value addition done. With the current commercialisation initiatives, local communities are realising higher income as there is some value addition to the natural products traded.

At present traditional processing methods are widely used in the region for primary processing. Kernel extraction is often a difficult task that requires skill, patience and experience and thus, it has traditionally been an industry for older women in the community. Traditionally, two stones are used to crack the nuts, by placing the nut on a stone and hitting it with a smaller stone. This method is efficient for production of quantities for only household consumption. Although the same method is used for production of kernels for commercial purposes with the development of the NPs sector in southern Africa, faster and more efficient methods would benefit primary producers. PhytoTrade Africa members throughout the region have experimented with various kernel extraction techniques for Marula, Parinari and Mongongo as

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<sup>4</sup> For detailed uses of the selected species that are traded through PhytoTrade Africa see Annex 1.

these nuts are the toughest to crack and there is a recognition that that the technologies developed must be accessible to the rural producers.

While efforts have been made to mechanise primary processing such as in the case to of nut cracking, a breakthrough is yet to be realised. Thus communities continue to use the traditional methods for processing the NPs. It is worth noting that there are fears within the NPs sector that mechanisation of processing may take away income currently realised by women, as they are the majority of the people involved in the use of traditional processing methods. Besides primary processing of raw materials, in some cases, primary producers are engaged in oil pressing and this has been noted especially for community-based organisations.

As part of the process of value addition to NPs for creating and securing reliable markets, certification has emerged as an important element in the development of the NPs sector (Welford and Le Breton, 2008). Certification is a relatively new forest tool that has been developed with the aim of fostering responsible resource stewardship through labelling of consumer products (Shanley *et al*, 2002). Different forms of certification such as Organic certification and Fair Trade certification has further enhanced the revenues realised by the various players in the NP sector as well as securing international markets for their products. PhytoTrade Africa has in the last two years facilitated access to certification grants for trade association members that have expressed an interest in trading in certified products.

So far, three members of PhytoTrade Africa have been certified, that includes Eudafano Women’s Cooperative that produces Marula oil, Ecoso Dynamics a Devil’s claw producer in Namibia, and Swazi Indigenous Products that produces marula in Swaziland. Table 1 shows the percentage of total sales of certified products sold by PhytoTrade Africa members in 2007.

**Table 1: Percentage of total sales certified organic and environmentally sustainable in 2006 within PhytoTrade Africa**

	<b>Volume (kgs)</b>	<b>Percentage of total</b>
Total volume of NPs sold by Phytotrade members	49,495kg	100%
Total volume certified organic	9,414kg	19%
Total volume certified environmentally sustainable	1,678kg	3%
Total volume certified both organic and environmentally sustainable	0kg	0%

(Source: Welford and Le Breton, 2008)

At the *primary producer level* both economic and non-economic benefits are reported in Swaziland as a result of organic certification. Prior to active involvement in Marula Kernel harvesting, most key informants interacted with indicated that they used to make reed mats, engage in crop production and sale of livestock. These sources of income had some constraints that the women, in particular faced. For instance, with reed mats, they had to cross the Mozambique border to collect the reeds and this meant spending several



days camping at the reed site, leaving their children alone at home or being taken care of by relatives. Regarding agricultural production, this is often constrained by unreliable rainfall that often impacts negatively on the production levels. Traditionally, Marula juice was used for brewing wine and fresh juice, with the kernels used in relish or eaten as a snack, and some of the kernels being processed into oils used in vegetables, but the commercialisation of Marula kernels, especially targeting the cosmetics industry has opened up new economic opportunities for the Swazi women. Case 1 illustrates the impact of organic certification at the primary producer level.

**Case 1: Khelina Hluphekile Magagula – an Organic kernels producer**

Khelina is 49 years old and lives in Hlane area. She divorced nine years ago and has seven children. She lives with three of her children and two grandchildren that she looks after. Khelina started working with Swazi Indigenous Products (SIP) in 2005 as a supplier of conventional kernels. Following the training that she received from SIP, she is now a supplier of organic kernels and she is very happy about this as organic kernels give her more income. She says the income from Marula kernels "takes care of us and helps us in many ways". The money generated from Marula kernels is used to buy mealie-meal, laundry soap, sugar, salt and pay school fees for her grandchildren. Khelina also uses the money generated from sale of kernels to buy flour for use in baking fatty cakes for sale especially during the off Marula season. She also uses the money to buy airtime for her mobile phone that she got from her son who works in South Africa.

Since she started selling Marula kernels to SIP, Khelina has been happy with the price she gets for her kernels. In 2005, she sold her kernels for E23/kg<sup>5</sup>; in 2006 she sold them for E24/kg and in 2007, because her kernels were organically certified, she sold them for E27/kg. For those members of SIP who are selling conventional kernels they are paid E25/kg while non-members get E24/kg for their conventional kernels. To be a SIP member, Khelina paid E10.00 in 2006. She normally sells 20kg of kernels per month but on the day of the interview she sold 25kg of organic kernels. In 2006 she got approximately E900.00 from selling kernels.

She has benefited from being a member of SIP through training courses and workshops that she attended. She attended a training course of organic kernel production and she is now realising the benefits of this course as she is now an organic kernel producer and earns E27/kg instead of E25/kg for the conventional kernels.

Another source of income for her from Marula trees is through brewing beer from the Marula fruits. However, this does not give her significant income as many other women also brew Marula beer at the same time resulting in poor sales. Brewing Marula beer is also costly as she has to buy sugar to use for the beer, yet for cracking, no inputs are needed except her labour and time.

While there has been an increase in the number of women involved in the kernel production, this has not affected the number of trees available as they collect only the fruit that have fallen on the ground. They do not cut trees and also do not use sticks to harvest the fruits. The men who use Marula trees to carve mortars and pestles are encouraged to cut the trees that do not bear fruit<sup>6</sup>.

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<sup>5</sup> The currency used in Swaziland is the Lilangeni which trades at 1:1 with the South African Rand. At the time of the fieldwork, the South African rand was trading at 7:1 against the US Dollar on the international money markets.

<sup>6</sup> In reality, the men may be cutting the male fruit trees, which may in the long run have negative implications for the fruit production of the female trees.

Traditional leaders have also put in place rules and regulations that govern the use of the Marula trees. For instance, to ensure that the trees continue to bear fruits, women in the village at a given time brew Marula beer which is then taken to the relevant traditional leader in the area as some form of thanksgiving to the ancestral spirits.

**Source: Key Informant interviews in Hlane area, April 2007.**

While female headed households appear to have benefited more, observations in the community are that the income from kernels has also empowered married women who are now able to make their own decisions as to how to use the money from Marula kernels. Prior to accessing income from kernels, these married women depended entirely on their husbands and the men would make decisions on how to use money from livestock and crop sales during good agricultural years. As one key informant put it, “there is more ‘visible’ happiness in the homes of married women involved in kernel production as the women do not ask for money for salt, soap, and sugar from their husbands but are instead contributing to household income”.

The commercialisation of Marula kernels in Swaziland is having some positive impacts at both the primary producer and PhytoTrade Africa member levels. Organic certification has been very important as the prices for organic Marula products are more lucrative than for the conventional kernels. It will therefore be important to ensure that standards for the production and processing of organic Marula kernels are maintained.

In Namibia, certification for the women’s cooperative as part of value addition to their products has yielded both economic and non-economic benefits. These include capacity building for the cooperative members on how to harvest organic kernels, dry and store the kernels and hygienic standards to be maintained. Community-based internal inspectors were trained to monitor organic production and ensure set standards are met. As a result of the organic certification, the cooperative members now realise higher prices for the oils they produce. Prices for the organic lipids have been negotiated to 150% of the price of conventional products (Saskia den Adel, 2007). The prices for organically certified oils are US\$30.67 (€22.48)/kg for Marula and US\$20.46 (€15)/kg for KMS while the prices for conventional oils are US\$20.46 (€15)/kg for Marula and US\$13.64 (€10)/kg for KMS respectively. Due to the three-fold increase in prices of organic oils, there has been a huge increase in total amounts of revenues generated from both Marula and KMS lipid oils as can be seen from Table 2.

**Table 2: Volumes and revenues generated from Marula and KMS between 2005 and 2007 within PhytoTrade Africa**

	2005	2006	First half 2007
Volume (kg)	7159	4139	3749
Value (US\$)	42,797	31,660	74,748

(Source: PhytoTrade Africa M & E data)

Economic benefits have seen women being able to pay school fees for their children, buy school uniforms, buy food for the family and invest in livestock.

The women involved in the project report that the benefits to them go beyond money, affording them a sense of independence, competence and confidence. Other non-economic benefits include:

- Gaining a sense of independence from their husbands and men in general
- Gaining self-confidence and business management competence
- Building the future generation through education
- Strengthening the capacity of the primary producers through training and enhancing their understanding of the market requirements, record keeping and organic certification principles.

The awarding of organic certification to the women's cooperative in Namibia has shown that the rural women can comply to international standards if appropriate training is done. This has improved the access to better markets with better prices for the women's Marula and KMS oils. Overall, it means better incomes for the entire supply chain, from the primary producers to other higher levels of the market chain. With higher incomes the women members of the cooperative can fend for their families much easier, their standard of life has improved and they can surpass their basic needs.

#### *2.2.2 Value Addition at members' level*

At the trade association's member level, value addition has so far involved mostly oil pressing and food processing. The commonly produced oils are Marula, Baobab, Kalahari Melon Seed, Ximenia and Mongongo oils. Most members sell the crude oils but some refine them in order to manufacture some finished products such as Marula lotions, Mongongo hair food and Mongongo body gel. Baobab and Marula pulps are being processed into finished food products and sold into the local market. This has come through investments by members and the trade association in cosmetic formulation and proper packaging of finished products.

To facilitate productivity at members' level, various efforts at technology development have been made. PhytoTrade Africa has commissioned research amongst its membership to explore production and processing techniques relating to species traded. This approach has stimulated not only greater diversity in the potential products, but also a significant increase in the level of collaboration between primary producers and processors within its membership. The research and development programme has generated new knowledge on appropriate processing and extraction methods for natural products that were previously unknown to the global market. In several cases, technology and systems for extracting lipids, fruit pulps and botanical extracts have been developed, thus providing ground-breaking work.

Organic certification, as discussed in the previous section, is one strategy that has been adopted as part of value addition to the NPs traded. The impact of the organic certification process under the Swaziland member at the members' level is that staff members are more aware of the principles of organic certification, the importance of adherence and resultant improved

incomes from the sale of organic oils. Organic kernels sell at E27/kg while conventional kernels sell at E25/kg.

To support factory level organically sound production:

- 159 organic suppliers were registered by end of January 2007 but after all inspections were done, the active organic suppliers were down to 122. A few opted out of being organic suppliers, but most of the loss was due to wrong handling by the primary producers, disqualifying their nuts from being organic.
- 1,400 kg of organic kernels purchased during the first year of organic certification (although the target was 3 metric tonnes of organic kernels for 2007). This means the primary producers have received higher incomes as organic kernels have a higher price than the conventional kernels.

As part of value addition processes, some PhytoTrade Africa members are investing in training primary producers to ensure sustainable yields and maintaining quality of products. For instance, Ecoso Dynamics, a Namibian member who produces Devil's Claw trained harvesters to collect Devil's Claw in using environmentally friendly methods. Harvesters have historically officially collected Devil's Claw from communal areas and not from surrounding commercial farms where Devil's Claw is also found in abundance. The kind of training provided by Ecoso Dynamics on good harvesting practices has enabled harvesters to access Devil's Claw found in commercial farms because the farm owners now have confidence that the harvesters will not cause environmental damage. When commercial farmers denied access to harvesters prior to the training, harvesters still poached the Devil's Claw and in the process used unsustainable harvesting methods. All the trained harvesters are given certificates at the end of the course with one-year validity. This means that the harvesters have to attend refresher courses before the start of each harvesting season. The Devil's Claw from Ecoso Dynamics was organically certified in January 2007. Assessments for organic certification had been done in August 2006. Organic Devil's Claw is bought for N\$22/kg from the harvesters while conventional Devil's Claw is purchased for N\$18/kg. The price difference motivates harvesters and encourages them to harvest organic devil's claw. Each harvester can produce up to 100kg of dry Devil's Claw per season.

For 2007, Ecoso Dynamics in Namibia had a target of 80,000 tonnes of devil's claw, basing this on their production of 40,000 tonnes in 2006. By May 2007, the company already had 32,000 tonnes of devil's claw from the 2007 season of which 20,000 tonnes was organic and 12,000 tonnes is conventional. The season for Devil's Claw harvesting stipulated by the Ministry of Environment is between the 1st of March and 31st October each year. Annually, land owners of where Devil's Claw will be harvested must apply for a permit that includes the list of all the harvesters that will be harvesting from their land. Top priority is placed on sustainability and to achieve this, this company hires dedicated people to monitor the harvesting processes. Training that has been provided to the harvesters includes harvesting techniques that do not disturb regeneration of the plant species and hence ensure sustainability.

### *2.2.3 Value addition at commercial partner level*

PhytoTrade Africa's commercial partners play a crucial part in the value addition chain. These employ advanced methods of oil filtration that meets international standards and acceptable to their clients that produce finished products on the international markets. Commercial partners invest into research that removes bugs in the bulk ingredients without altering the desired characteristics of the oils. The commercial partners also play a key role in developing the markets of the natural products in key global markets.

### **2.3. Livelihoods outcomes of the NPs sector development**

The rationale for supporting NPs commercialisation is often to improve the livelihoods of poor people, especially the primary producers. Incomes realised by different players in this sector that include processing companies and primary producers along the supply-chain of NPs have been on the increase. Often, emphasis is placed on economic benefits from NPs, yet there are other non-economic benefits. This paper analyses both economic and non-economic benefits and these benefits are discussed below.

#### *Economic benefits*

By creating and capturing more economic value in particular, it is hoped that poor people will gain from improved income and employment opportunities. Natural products are an important source of cash income for people living in agriculturally marginal rural areas, as is the case with many rural communities in southern Africa. Some people have argued that NPs have relatively low value compared to timber products, and thus makes them more accessible to the poorer households as the better-off often diversify to other higher paying activities (Neumann and Hirsch, 2000). While this may be true for some NPs, experiences from PhytoTrade in southern Africa reveal that the trade in NPs has numerous advantages that allow participation by the poor and those with a few other choices. These advantages include less competition with the better-resourced households; little or no investment required except labour and time; accessibility to the NPs as their use is not stringently regulated as for timber. Trade in NPs is more accessible to the poor because there are few barriers to entry and there are minimal and in some cases no harvesting costs other than labour and time. Secondly, for harvesting and processing, people already possess the required skills. Trade in NPs often builds on rich traditional knowledge, technologies and skills which in turn may contribute towards the development of new externally facilitated products and markets.

It is often argued that income from NPs is relatively small (Belcher and Schreckenber, 2007). On the contrary, experiences from PhytoTrade Africa in southern Africa show that NPs trade offers poor households with access to income that they would otherwise not have access to. Even though the absolute value of NP-derived income appears to be not high, its timing may complement that of other activities, providing an income at critical times of the

year and/or in years when other activities fail (Shackleton, 2006; Schreckenberg *et al.*, 2002;). In 2006, primary producers of natural products earned a total of US\$384,000 from the sale of raw or value added plant material to PhytoTrade Africa members. This was a 27% increase over the amount earned in 2005.

Successful trade requires a minimum set of skills and assets, including business contacts and knowledge of the ways of doing business. Poor people typically do not have those skills and assets. Thus, when new commercial opportunities arise, they may be out-competed by local 'elites' with more capital to invest, better connections and better skills, or by competitors from other areas. Natural products harvesting and selling is one of the few livelihood options available in the rural areas of southern Africa. It is therefore critical that primary producers are equipped with the necessary skills to enable them to interact with other players in the NP sector, be able to negotiate for fair prices for their products and realise tangible benefits from the NP trade. The cash income realised from selling NPs often comes at particularly crucial times of the year e.g. when money is required for school fees, uniforms and books. Uses of cash incomes realised from trade in NPs are presented below.

*Income realised by the primary producers from natural products is used to:*

- Buy basic food stuffs such as mealie-meal (particularly in a drought years such as the 2006/2007 agricultural season), cooking oil, sugar, salt and flour for baking fatty cakes for sale.
- Pay school fees
- Buy soap for the family
- Buy clothes, especially for children.

Below is a case study on baobab harvesting in Malawi that highlight the contribution of NPs to the overall household economy.

#### **Case 2: The Case of Baobab processing in Malawi**

Baobab harvesting and sale has been a major source of income for both women and men living in southern part of Lake Malawi. About 97% of households harvest baobab fruit each year and approximately 75% are involved in selling the fruits. Baobab seed and pulp is sold mainly to a local private company, Tree Crops Limited, which is based in Lilongwe and sells by-products from baobab to both local and international markets. The income from baobab is used by the rural producers to meet households' needs such as buying food, clothes, paying hospital bills and school fees. In most villages in this area, for people who are not actively involved in fishing activities, baobab has become the second most important source of income after crop production. High baobab species density and a combination of institutional factors have a high potential for sustainable resource use in this southern part of Lake Malawi.

Ranking of income sources showed the following results:

Livelihood source	% contribution to overall Household economy
1. Crop production	26.8%
2. Selling NPs (mainly Baobab)	23.4%
3. Livestock production	20.0%
4. Vegetable production	13.7%
5. Fishing	3.9%
6. Brick moulding	2.9%
7. Informal employment	2.9%
8. Drought relief	2.9%
9. Formal employment	2.0%
10. Craft production	1.5%

In the ranking of income sources, selling of NPs was ranked as number 2, a change compared to the 2005 data that showed sale of NPs as number 4 on the rank, after crop production, fishing and livestock production (2005 PhytoTrade Africa longitudinal case studies data).

*Source: Gabriel Ngorima, September 2006 – The socio-economic and environmental impacts of Baobab (Adansonia digitata) commercialisation in Malawi.*

Many NPs represent important sources of ‘safety-nets’ (i.e. resources that households can turn to in times of need), subsistence (for households’ own consumption) or cash income. Increased commercial trade can quickly lead to reduced access through over-exploitation and/or changing property rights, such that poor local people are left worse-off and more vulnerable. In the case of Marula in north-central Namibia, for example, although the tree is widespread, one quarter of households do not have direct access to Marula fruits and related products and rely on the goodwill of their friends and neighbours to share the resource. There is a risk, therefore, that commercialisation will lead to the increased ‘privatisation’ of the resource and the exclusion of certain groups from the benefits (Wynberg *et al.*, 2003). This was noted in Swaziland where people now lay claims to Marula trees that they did not claim before. Where commercialised products have important local ritual or medicinal uses, increased exploitation to supply the market may lead to an erosion of cultural values and health. This may be particularly problematic for women, who frequently bear the brunt of the greater labour investments required by increased commercialisation. In the long-term, increased harvesting may lead to reduced prices, once again with negative impacts on small-scale producers.

Experiences from the commercialisation of Mongongo in Zambia show that new opportunities for economic growth have been opened up, especially for poor rural women. Both economic and non-economic benefits are also reported in the harvesting, processing and sale of Mongongo in sites in Western Province of Zambia as illustrated by the case in Case 3.

**Case 3: Experiences from Mongongo harvesting, processing and sale in Sesheke district, Zambia**

My name is Mrs. Betha Monde and I started selling Mongongo kernels in the year 2000 to a company called Lusinde Investments. I joined the Mongongo project because I need some case income in order to take care of my family. I look after

three orphans belonging to my late brother-in-law. I need to pay school fees for them and also for my own two children. I have been married for 10 years and in our household we live with seven people and this includes my husband, five children and myself. As from January to April this year, I have produced 450kg of Mongongo kernels and have sold all of them to the company that buys Mongongo kernels from our area at a price of K4000 per kg (US\$1 = Zambian Kwacha 4000). I have managed to raise K1,800,000 (US\$450) from Mongongo kernel sales during the last three months. I am amazed that I made so much money from Mongongo kernels because traditionally we used the kernels as relish and for making small amounts of cooking oil.

The earnings from Mongongo sales have enabled me to buy groceries and two cows for my family. The cattle cost K350,000 each, hence I spent K700,000. I am looking forward to the coming agricultural season because now I have draught power. I have also bought two goats at a total cost of K80,000. I paid K15,000 to the school development association to support our local school. Prior to engaging in Mongongo production, our main income source was maize production. The last agricultural season we harvested 400kg of maize. We did not sell any maize because the price is low. During the 2005/2006 season we sold eleven 50kg bags of maize and got only K450,000. This translates to K1125.00 per kilogram and is much lower than the price of Mongongo. During the last few months, I also brewed beer from Mongongo pulp and earned K140,000.

My husband is very supportive and helps with collecting and transporting Mongongo fruits from the forest to our homestead, as well as with cracking the nuts. During school holidays, my children assist me in picking the fruit from the forest. The chief in our area is very supportive and has also joined the Mongongo project. Our chief encourages us to collect Mongongo fruits in a way that does not harm the trees.

**Source: Gabriel Ngorima field notes, May 2007.**

### ***Non-income benefits realised by the participating women***

The experiences from PhytoTrade Africa show that non-economic benefits are important for households involved in NPs trade. Confidence building among the primary producers has been enhanced through:

- Exposure to the existing and potential opportunities for marketing NPs and related products.
- Interaction with outsiders who visit their community to learn from their activities related to NPs exposes them to new ideas and also gives them the opportunity to share their story with outsiders.
- Economic independence of women, especially the married ones who previously depended on their husbands to access money for even basic stuff such as salt, sugar and cooking oil.

Other non-economic benefits include:

1. Networking with other community members.
2. Increased awareness on the value of NPs and the need for sustainable harvesting.
3. Independence and self-esteem.
4. Enhancing the women's capacity for organic production of NPs through training in:



- Organic production as in the case of Swazi Indigenous Products, Eudafano Women's Cooperative and Ecoso Dynamics.
- Identifying appropriate geographical areas where to collect NPs such as in the bush where no chemicals have been used. If collecting from the field, these fields should have been lying fallow or having use of organic manure only during the last five years.
- During processing of NPs, these should be dried on clean grass where there is no possibility for contamination.
- During storage, the products should be stored in properly covered containers that are labelled 'organic products' and not stored in a room that has been sprayed for e.g. malaria control in recent years.
- Sustainable harvesting of the NPs.
- Grading of the products i.e. separating grade A from grade B products.

#### **2.4. Challenges within NPs sector in southern Africa**

The case studies presented above show that there has been some positive steps towards ensuring that poor rural communities benefit from their NPs. Despite the recorded success stories showing that trade in NPs has contributed towards livelihoods improvements in southern Africa, there are challenges faced that need highlighting. These challenges may in the long-term negatively affect the sustainability of the NP industry if not timely addressed. Challenges identified so far include insecure tenure regarding access to NPs; logistical constraints that include storage, processing technology and transportation; perishability and low technological development. These challenges are elaborated on below.

*Insecure tenure:* NPs are generally harvested from the wild and often from locations that are distant from the home and over which the collector has no secure tenure. If NPs are successfully commercialised, this may increase competition among the primary producers. In the long-term, conflicts may emerge over access to these resources, although currently, this is not the case.

*Logistical constraints:* Storage, processing and transport may be more or less complex, depending on where the product is produced, the nature of the product, the degree of processing, as well as the requirements of the consumer. In Malawi for example, baobab is collected from the bush and processing is done at a central venue by all involved in Baobab trade to ensure quality and hygiene standards are met. Transporting the whole fruit to the processing venue is a logistical constraint, especially for women who use head loads as men often use bicycles. In addition, there are distances involved to the areas where baobab is harvested because most of the fruits are collected from the wild. Very few trees are located in fields and around homesteads.

*Perishability:* natural products trade involve harvesting or collection of fresh fruit for which perishability is a serious challenge. These require careful storage and handling and rapid transport to market or some level of primary processing close to the point of origin. To deal with the problem of perishability, primary processing is done at the local level. Products that are sold to members for processing at factory level are often semi-processed (such as kernels for Marula and Mongongo or Baobab seed and pulp) and these have a lower perishability risk.

*Low technological development:* there has been low investment in developing technology that can make nut cracking more efficient. This has made processing of NPs such as Marula and Mongongo cracking more of a home-based process. On a positive note, this low technological development has limited the potential of displacement of women (by men) from the primary production process, thus creating economic empowerment for women. The aim therefore will to encourage technological development that is both efficient and accessible to rural producers. This is will be better than technological development that is focussed just on efficiency.

### **3.0. Conclusion**

In this paper we have demonstrated the importance of NPs trade in improving the livelihoods of the rural poor by drawing on the experiences from the development of NPs trade in southern African countries focused on indigenous plant species. Given that these NPs are wholly wild harvested and available mainly in the dry areas that are agriculturally marginal, revenues generated from the NPs trade inevitably accrue to the poor people who live in these marginal lands. Most of the selected NPs utilised are not derived from roots or bark and therefore there is an in-built environmental sustainability. In addition, conscious training on sustainable harvesting techniques has been given to the primary producers – who are the harvesters – by the NPs trade association members. There is no evidence at present that point to negative impacts of fruit harvesting for commercial purposes. Detailed ecological surveys are therefore needed to ascertain the potential environmental impacts of fruit harvesting in the long-term.

Experiences from southern Africa show that value addition and market development are crucial elements for the success of commercialisation of natural products. Encouraging poor rural producers to engage in NPs harvesting, processing and trade when there has been no market development initiatives would result in situations as described by Belcher and Schreckenber as yielding insignificant returns for the rural producers.

The majority of primary producers are women, who are also often the poorest of the poor in these rural communities. Income realised from the NPs trade has been used to cushion poor rural households from food insecurity especially during drought years, used to pay school fees and injected in other income generation activities such as savings clubs. Income from NPs also

comes at critical times of the year when households are at their lowest earning from other incomes. These findings from southern Africa are contrary to what Belcher and Schreckenberg (2007) found in studies they carried out in several developing countries that suggest low and insignificant returns from NPs. It is worth noting that currently, benefits from the NPs sector development in southern Africa cannot be overestimated as the industry is still in its infancy. Current trends though are a cause for great optimism. Experience so far demonstrates that it is possible to build a value chain between poor communities in remote, low potential areas of southern Africa and sophisticated international NPs markets and that these markets can make an important contribution towards the livelihoods of poor rural producer communities.

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<http://www.phytotradafrica.com/products/sausage.htm>

<http://www.phytotradafrica.com/products/melons.htm>

### Annex 1: PhytoTrade Africa focal species, common uses and traded products

Common Names <sup>7</sup>	Botanical names	Commons uses	Product traded through PhytoTrade
<b>Baobab</b>	<i>Adansonia digitata</i>	<ul style="list-style-type: none"> <li>• Pulp used to make porridge and some drink</li> <li>• Leaves are eaten as fresh vegetables and also used as manure</li> <li>• The fibre is used to make mats and baskets</li> <li>• Roots are used to make dye</li> </ul>	<ul style="list-style-type: none"> <li>- Dried fruit pulp</li> <li>- Oil from seed</li> </ul>
<b>Kalahari melon,</b> tsama melon, water melon	<i>Citrullus lanatus</i>	<ul style="list-style-type: none"> <li>• Source of water in the desert</li> <li>• The flesh is pounded into a pulp, then it is eaten and drunk</li> <li>• The seeds are roasted, sieved, winnowed, and ground for consumption</li> <li>• The seed-meal has a long history of use as a cosmetic</li> </ul>	<ul style="list-style-type: none"> <li>- Oil from seed</li> </ul>
<b>Devil's Claw,</b> Grapple	<i>Harpagophytum spp.</i>	<ul style="list-style-type: none"> <li>• Devil's Claw has been used medicinally by the San people for centuries</li> <li>• Ethno-medicinal uses have been recorded for dyspepsia, fever, blood diseases, urinary tract complaints, post-partum pains, sprains, sores, ulcers and boils</li> </ul>	<ul style="list-style-type: none"> <li>- Botanical extract and raw material for extraction from tuber</li> </ul>
<b>Kigelia,</b> African sausage	<i>Kigelia africana</i>	<ul style="list-style-type: none"> <li>• Used to treat a wide range of skin ailments, from fungal infections to skin cancer</li> <li>• Treatment for dysentery, ringworms, malaria, diabetes, pneumonia &amp; toothache</li> <li>• Used by women on their faces to ensure a blemish-free complexion</li> <li>• The fruit is said to hasten the beer fermentation process</li> <li>• Leaves are used as fodder and fruits are eaten by monkeys and elephants</li> <li>• The fruit has also found traditional use as an aphrodisiac</li> </ul>	<ul style="list-style-type: none"> <li>- Botanical extract and raw material for extraction derived from the fruit</li> </ul>
<b>Parinari,</b> mobola, mpundu	<i>Parinari spp.</i>	<ul style="list-style-type: none"> <li>• The wood is used in making canoes, mortars and in building houses</li> <li>• The bark is used in making beehives and for dye</li> <li>• Leaves yield very good dye used in colouring traditional craftwork</li> <li>• Fruit is commonly consumed raw or is made into porridge or delicious syrup</li> <li>• Kernels are used in relish and oil extraction used for skin and hair application</li> <li>• Root infusion is taken orally for treatment of a painful uterus and for toothache</li> </ul>	<ul style="list-style-type: none"> <li>- Oil from kernel</li> </ul>
<b>Mongongo,</b> manketti	<i>Schinziophyton rautanenii</i>	<ul style="list-style-type: none"> <li>• The fruits and nuts are consumed</li> <li>• Fruits are used to brew beer</li> <li>• Oil from nuts is used as skin moisturiser</li> </ul>	<ul style="list-style-type: none"> <li>- Oil from the nut</li> </ul>
<b>Marula</b>	<i>Sclerocarya birrea</i>	<ul style="list-style-type: none"> <li>• Fruits are used for beer brewing and making jam</li> <li>• Kernels are eaten as snacks, oil pressing, and ground for butter used in relish</li> </ul>	<ul style="list-style-type: none"> <li>- Fruit pulp</li> <li>- Oil from kernel</li> </ul>

<sup>7</sup> Names in bold denote the names commonly used within PhytoTrade Africa

		<ul style="list-style-type: none"> <li>• Marula bark treats stomach ailments and is used for dye.</li> </ul>	
<b>Trichilia</b> , Mafura	<i>Trichilia emetica</i>	<ul style="list-style-type: none"> <li>• Leaves, bark and seeds are used for stomach and intestinal ailments</li> <li>• The oil extracted from the seed is used for rheumatism treatment</li> <li>• Used as a hair care product and nourishing the skin</li> </ul>	- Oil from seed
<b>Ximenia</b> , Sour plum	<i>Ximenia spp.</i>	<ul style="list-style-type: none"> <li>• The fruits are nutritionally rich in Vitamin C</li> <li>• The bark is used to treat toothache, mouth infections and stomach aches</li> <li>• The seed oil, extracted in various ways, is edible and used in cooking.</li> <li>• The oil is used by bushmen on their bows and bow strings</li> <li>• Women and girls use it to anoint their bodies and hair</li> </ul>	- Oil from seed

(Source: Adapted from Le Breton, 2007, PhytoTrade Africa, 2006 Annual Report)