INDIGENOUS MEDICINAL PLANT TRADE

Sector Analysis

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Prepared by

Institute Of Natural Resources

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Institute of Natural Resources
P. O. Box 100396
Scottsville 3209
Tel: 033 – 3460796
Fax: 033 – 3460895
Email: inr@ukzn.ac.za

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EXECUTIVE SUMMARY

Changes in the medicinal plant market in South Africa are being prompted by rapidly dwindling wild stocks of medicinal plants with some of the particularly high demand species such as *Warburgia salutaris* and *Siphinochilus aethiopicus* having become almost extinct outside of formally protected areas. This is creating an opportunity for commercial propagation of these high demand species. However, unless ways are found to engage current market players (i.e. mainly Black women who harvest medicinal plants in rural areas and retail them at urban street markets) in medicinal plant cultivation and legal trading in this modernising medicinal plant supply chain, many of harvesters and traders from predominantly poor rural areas are at risk of losing their livelihoods.

A number of studies have been commissioned to investigate commercial propagation of scarce high demand medicinal plants. However there are few initiatives to legalise access to medicinal resources in protected or privately owned areas. Legalisation would provide a mechanism for control, whereby harvesters would collect medicinal plants under the supervision and control of authorities who would then be in a position to monitor and regulate the species, quantities and areas from which plants are harvested. In addition legalizing access to these resources would increase income security to those who rely on the trade in harvested indigenous medicinal plants as a valuable and often only source of cash income.

The results and recommendations presented in this report are largely synthesized from a number of studies undertaken by the Institute of Natural Resources since 1998. The recommendations are therefore not built on conclusions from a single study, but rather out of observations and lessons learned over a number of years. While these studies were largely undertaken in KwaZulu-Natal the bulk of indigenous medicinal plant material traded in South Africa and surrounds is harvested in this province. Furthermore the characteristics of the trade in KwaZulu-Natal are believed to be largely representative of the trade in South Africa in general.

1 THE MEDICINAL PLANT TRADE

A large trade exists in plants used for the preparation of herbal and natural medicinal products. It is estimated that 80% of the world's population, mostly from developing countries, depends on traditional medicine for primary health care. Furthermore, while largely unrecognised, it is estimated that 25% of all prescribed medicines contain some ingredient(s) derived from plants. This includes prescribed medicines produced and purchased in developed countries. The UNCTAD COMTRADE database contains worldwide import and export statistics in pharmaceutical plants since 1962. These figures provide some indication of the trade in natural medicinal products. Hong Kong is the largest importer of pharmaceutical plants with annual import figures of 77,250 tonnes (US$ 133,7 million). Germany ranks third (42,800 tonnes with a value of US$ 96,2 million), France ranks sixth (15,950 tonnes at a value of US$ 39,5 million), Italy ranks eighth, United Kingdom eleventh and Spain twelfth. Europe imports approximately 25% (132 000 tonnes) of the medicinal plants traded internationally, of which 60% is estimated to originate from Africa. In 1996, in the region of 26,500 tonnes of medicinal plants were exported from Africa to Europe (Mander *et al* 2001).

In Africa, the market for medicinal plants lies mainly with the indigenous cultures where traditional medicines remain an important health service. It is estimated that 80% of the population utilises traditional medicines. Local trade is largely informal, with much cross border trading taking place. Botswana for example imports in the vicinity of 123 medicinal plant types, most of which probably originate in South Africa and Swaziland (Mander 1998).

Figure 1.1: Raw or semi-processed medicinal plants traded in Durban street markets

There are an estimated 28 million users of medicinal plant products in South Africa and 255 000 traditional healers in southern Africa (SADC). The demand for medicinal plants is increasing, with a growing consumer population and no suitable alternatives or substitutes available (Mander et al 2001).

The bulk trade in medicinal plant products takes place at informal street markets, and involves the sale of relatively large quantities of unprocessed or semi-processed products. In KwaZulu-Natal, an estimated 4500 tonnes of plants are traded annually, while in the Durban street markets approximately 1200 tonnes of plants are traded per annum. Over 400 species are traded in the markets, both wholesale and retail. Products are sold in both the whole form or in a semi-processed form, where products are chopped into small pieces.

2 SUPPLY OF MEDICINAL PLANT RESOURCES

2.1 Wild harvests

Approximately 16 000 harvesters, predominantly rural Black women, operate in KwaZulu-Natal. The harvesters collect plants from the wild and supply these raw products in bulk, with little or no processing, to the urban informal street markets. Approximately 4500 tonnes of medicinal plant resources are traded per annum in KwaZulu-Natal. Most of these resources are harvested within the province. The supply of plants in the traditional medicine sub-sector is declining as naturally occurring (wild) stocks are systematically depleted. The extinction of certain popular local species such as the pepper bark tree (*Warburgia salutaris*) and wild ginger (*Siphonochilus aethiopicus*) have already been reported. Harvesters are now targeting resources in formally protected areas to access scarce high value plants. The declining supply of plants is reflected in the rapid escalation of product prices. The supply of scarce resources in particular is being supplemented with resources harvested in the Eastern Cape, Swaziland and Mozambique. The extinction of local species and escalating prices indicates that the current uncontrolled harvesting rates are exceeding the ability of local unprotected wild stocks to meet the demand, and consequently are not sustainable (Mander *et al*. 1999).

Figure 2.1: Illegal harvesting of bark in Ngome Forest

However it is important to recognized that there remains a wealth of medicinal plants in the wild, which is managed appropriately could be sustainably harvested thereby providing valuable income generating opportunities for many existing harvesters and traders from poor rural areas. Legalisation would provide a mechanism for control, whereby harvesters would collect medicinal plants under the supervision and control of authorities who would then be in a position to monitor and regulate the species, quantities and areas from which plants are harvested. A pilot sustainable harvesting project has already been successfully implemented in the DWAF Umzimkulu Forests. In this case, the Sizamimpilo Harvesters Association has been registered and legal harvesting permits have been issued to the members by DWAF for the collection of indigenous medicinal plants by Association members, in collaboration with DWAF, from the Umzimkulu Forests. The members of the Sizamimpilo Harvesters Association are mainly women from the Umzimkulu District who have for many years been illegally entering and harvesting medicinal plants from the DWAF managed Umzimkulu Forests. The constantly ran the risk of arrest, fines or even jail. However the need to earn incomes motivated them to continue with the harvesting. However they all regretted having to operate illegally and immediately supported the opportunity to legalise their activities, through formation and registration of the Association, which provided a platform for engaging DWAF and legalizing the harvesting through obtaining permits.

2.2 Commercial cultivation

The increase in demand and the decline in wild stocks available for harvesting clearly indicates that there is both the need and opportunity for commercially cultivating indigenous medicinal plants (Mander *et al.* 1999), yet to date there are only an estimated 5 commercial

producers currently producing less than 1 tonne of medicinal plant products per annum in KwaZulu-Natal. These resources are being commercially cultivated from plant material propagated using tissue culture or from parent material harvested from the wild. Only a few species are being produced commercially, with production focused on high value plants currently being traded in informal markets (Figure 2.2 and 2.3). Commercial producers engage in the bulk trade of raw products, directly to processing and manufacturing plants, where the raw materials are processed into tablets, tonics, tinctures, or creams.

Figure 2.2: Commercially cultivated pepper bark tree (*Warburgia salutaris*)

Figure 2.3: Commercially cultivated wild ginger (*Siphonochilus aethiopicus*)

3 TRADERS AND MARKET OUTLETS

Trade in raw materials, simple mixes and complex prescribed mixtures by traditional healers and traders is conducted from *muthi* shops, through healers' practices, and street markets. The following volumes are estimated to being traded in Durban alone (Mander *et al* 2001):

- Street retailers trade 330 tonnes per annum to consumers
- Shops traders supply 260 tonnes per annum to end consumers
- Healers' practices trade 940 tonnes per annum to patients.

3.1 Street traders

The bulk of the trade in medicinal plant products takes place at the informal street markets, and involves the sale of relatively large quantities of unprocessed or semi-processed products. Between 80% and 90% of the street traders are women. In Durban, approximately 40% of the informal traders are permanent street traders, while 60% are harvesters who bring their products from rural areas to sell at the urban markets (Figure 3.1). The street traders in Durban are located in two main markets:

- The Ezimbuzini market is located on the periphery of a large black township (Umlazi). Ezimbuzini is the smaller of the two markets, with between 60 and 80 traders/harvestes trading at the market. An estimated 5 to 7 tonnes are traded weekly, with the annual trade estimated to be between 250 tonnes and 340 tonnes.
- Russel Street market is located on the periphery of the Durban central business district. Russel Street is the larger market with between 200 and 300 traders/harvesters trading at any one time, turning over an estimated 10 to 15 tonnes weekly (Mander 1998) which translates into between 490 tonnes and 730 tonnes per annum.

The two markets are located on major transport nodes where commuters catch taxis or busses for intra- and inter-city destinations. These street markets are estimated to trade 66% of the total volume of plant material traded in Durban. Products are sold in both the whole or semi-processed form, where plant materials are chopped into small pieces or ground to a powder. Simple well-known mixtures are also prepared and traded. The shelf-life of these raw or semi-processed products is short, frequently resulting in wastage of large amounts of raw material. The lack of communication between the street traders (who are aware of demand and supply at the markets) and the harvesters, or between harvesters themselves, frequently results in harvesters supplying the market with large quantities of raw materials for which there is already sufficient stock. As a result the market is flooded, prices drop, and whatever can't be sold in the short term is wasted.

Prices for products in the informal sectors of the medicinal plant market are highly variable. Products are usually traded in units of handfuls, bowls, bags and sacks. A study by Mander (1998) revealed that the wholesale purchasing of large volumes (bags and sacks) was usually associated with aggressive bargaining making it difficult to ascertain realistic selling prices for bulk purchases.

Figure 3.1: Harvesters and street traders selling raw products at informal markets

Urban street markets have the same unit prices for a wide range of products, with many goods being traded in convenient coinage units, such as R2 and R5. However, the mass per unit of product purchased differs, with distinct prices per kilogram. Common plants that are relatively cheap, such as *Scilla natalensis* (between R1.89/kg and R6.80/kg), are sold in large units (large bulbs with a mean mass of 416.6g), while scarce plants such as *Siphonochilus aethiopicus*, which are expensive (R140.45/kg) are sold in small units (small rhizomes with a mean mass of 35.6g).

3.2 Shop traders

There are approximately 110 shop traders, operated mostly Indians, in KwaZulu-Natal (Figure 3.2). These shop owners trade mainly in whole or chopped plants and standard mixes, which they either buy in the rural areas directly from harvesters, or from street traders at the informal markets.

Figure 3.2: Traditional healers selling complex prescribed mixtures, depicting current attempts at packaging

Mander (1998) reported that shop traders and healers[1] purchase their products in large sacks (containing between 23kg [bark] and 30kg [bulbs] of material) for unit prices ranging between R50 and R100, with the price per kg ranging between R1.67/kg and R4.44/kg for selected species purchased. *Haworthia limifolia* and *Siphonochilus aethiopicus* are generally not available in large quantities and have to be bought at street prices (the same price consumers would pay).

3.3 Traditional healers

There are between 8 000 and 16000 traditional healers, mostly Black, practicing in KwaZulu-Natal. These traditional healers (both *Izinyanga* and *Izasangoma*) mainly buy raw or semi-processed products from harvesters and traders, and use this to process complex prescribed mixtures to treat their patients. A small number of traditional healers are currently cultivating small quantities of raw products for their own use. Traditional healers sell products in both prescribed and self-medicated forms. The prescribed products are sold during a consultation, and the average price in Durban is R37 (Mander 1998). Products not prescribed are sold in a similar manner to the shop traders and are discussed above. The shop traders' prices for products (the nine species studied by Mander) ranged between R1.04 and R3.10 per unit, and between R6.46/kg to R450/kg. As in the street trade, *Scilla natalensis* is the cheapest popular product per kilogram, while *Siphonochilus aethiopicus* is the most expensive plant product per kilogram. The markup in price was considerably greater than in the street markets, with a range of between 125% and 974%, and a mean of 612% (Mander 1998).

3.4 Commercial manufacturing companies

There are currently two commercial manufacturing operations, where raw materials are processed using highly technical manufacturing processes into complex products such as pills, tonics, etc. These products are then marketed and traded by the commercial manufacturers themselves, to a range of local and international consumers. Commercial

[1] Shop traders and healers are grouped as their purchasing strategies are similar. In terms of sales, they sell at similar prices when selling 'non-prescription' products. Furthermore, it was not possible to measure the mass of products being added to mixtures in prescription products, and consequently the survey has used the shop traders volumes and prices for estimating sales to consumers at both shop traders and healers marketing channels.

producers conduct marketing campaigns, with marketing primarily via the internet or adverts in popular publications.

Commercial traders retail their products in response to consumer demand arising from their marketing initiatives. Internet and mail order are two important channels to local, national and international consumers. The quantities traded are kept confidential. However, Mander (1998) reported that wholesale/mail-order companies bought sacks of material exclusively from shop traders for between R75 and R95, depending on the species. The more scarce species, such as *Warburgia salutaris* and *Eucomis autumnalis* cost R95 a sack; while the less scarce popular species, such as *Ocotea bullata* and *Scilla natalensis* were bought for R85 per sack. The range in prices paid for the popular plants was between R4.20/kg and R2.80/kg. The wholesaler did not trade relatively scarce species, such as *Siphonochilus aethiopicus* and *Haworthia limifolia,* and therefore the range in wholesale prices is narrower.

The prices charged for non-processed plant products ranged between R7.66/kg and R26.85/kg when packaged, with a markup of between 174% and 539% (Table 2.3). However, packaged standard mixtures had higher prices. For example, one popular mix (*sifazonke mpupu*) was sold for R33.36 per 600g units (12 × 50g sachets), or R55.60/kg. The mix of species used in this product is unknown, however, assuming that the price paid for the raw plant materials was the same as for the most expensive species (R4.20/kg), then the markup in price would be at least 1 233% for a product that is semi-processed and packaged (Mander 1998).

4 PROCESSING AND PACKAGING

Raw materials (Figure 4.1) supplied to informal markets are generally processed in one of two ways (Mander *et al* 2001):

- Street traders, shop traders and traditional healers process the raw products into simple mixes using simple processing techniques
- Traditional healers engage in more complex processing techniques, producing complex prescribed mixtures.

The end products are packaged using mainly recycled materials such as plastic bags, bottles or paper. The current processing and packaging systems result in end products that are often unhygienic, and have a limited shelf life. In general, consumers are dissatisfied with the quality of the products traded, and most report that better product packaging and standardisation of products are necessary improvements (Mander *et al*. 1999).

Figure 4.1: Unprocessed or semi-processed plant products traded at the informal markets

The commercial manufacture of medicinal plant products involves sophisticated processing using complex technology and manufacturing equipment. The end products are packaged and labeled using conventional plastic containers manufactured specifically for them. The final product is hygienic and has an extended shelf life.

5 FUTURE TRENDS AND RECOMMENDED INTERVENTIONS

A significant decline in the wild stock of medicinal plants has already been noted. This decline in the supply of indigenous medicinal plant material and the associated medicinal products is likely to result in significant economic losses and impact on the welfare of a large number of people who either consume or trade in indigenous medicinal plants and products. The continued decline in wild stocks will impact negatively on trade opportunities for current markets players, resulting in harvesters and traders leaving the sub-sector to look for alternative sources of income (Figure 5.1). Increased competition between traders will reduce their individual economic returns. Intensive harvesting of wild stocks is also a serious threat to the biodiversity of the region as over 400 plant species traded in KwaZulu-Natal (Mander *et al.* 1999).

Commercial cultivation of medicinal plant resources by new market players would replace or supplement the dependency on wild stocks and ensure a supply of scarce species. This reliability of supply from commercial cultivation operations presents a potential threat to current market players who are likely to be excluded as formal trade channels develop and harvesting of wild stock becomes superfluous. The new commercial growers would therefore begin to dominate the sub-sector allowing them to dictate prices of raw material and processed products.

In the current scenario the traditional market players (largely poor rural women harvesting and trading in indigenous medicinal plants) slowly lose their share of the market and with it their incomes. This is replaced with commercially cultivated plants through operations owned by new market players (largely white commercial farmers. However, in a desired scenario, current market players (i.e. Black harvesters and traders) remain the dominant market players, and the sustainability of their businesses and incomes is secured through securing access to a sustainable supply of plant material. These traditional market players become the dominant role players in commercial manufacture and production activities in the sub-sector – from production through to retail. The trade in traditional non-commercialised products would also continue, ensuring the supply of cheap traditional products, with very little value adding, so that consumers could still get relatively cheap undifferentiated products.

A number of interventions are required to achieve scenario of securing a market share for current market participants, and to prevent the market from becoming dominated by new commercial market entrants. These interventions include:

- Securing a sustainable supply of medicinal plants to the market from commercially cultivated stocks.
- Securing a sustainable supply of medicinal plants from well-managed wild stocks.

A reduced reliance on dwindling wild stocks and the development of reliable commercially cultivated stocks will help to secure the supply of raw materials for current market players. However cultivation operations are expensive to establish and require secure contracts for the purchase of the plant material to guarantee a return on the investment in cultivation. This potentially excludes a large majority of the existing harvesters and traders, particularly those from remote and poor rural areas. It is therefore important to supplement the commercial cultivation initiatives with legal and sustainable harvesting opportunities from protected areas where extensive resources of medicinal plants still remain, yet are often threatened by uncontrolled and illegal harvesting. Legalisation of harvesting provides a win-win opportunity with harvesters securing legal access to a supply of medicinal plants managed by the authorities, while the authorities are offered an opportunity to gain control over the harvesting of resources from their protected or private areas. As described earlier, harvesting of these resources is often occurring anyway. However because it is illegal, little information is gathered on the values and species being harvested. By legalizing the harvesting, authorities are able to implement management systems and mechanisms for recording, monitoring and regulating the species, quantities and areas for harvesting.

While an example demonstrating the potential for this system has already successfully been implemented in association with DWAF in the Umzimkulu Forests, the model has yet to be widely applied. The mandate of the Making Forest Markets Work for the Poor Project, and its location within DWAF, makes it well positioned to lobby and assist in rolling out the legalization of access to harvesting of medicinal plants by local rural harvesters. This initiative would need to include the following components:

- Create awareness among relevant DWAF staff (National and regional) of the needs for legalizing access.
- Develop a system for the registration of harvesters' associations with DWAF.
- Assist DWAF in developing a model system for issuing and managing permits allocated to registered harvesters' associations.

- Develop a generic system for the recording of the areas and quantities of harvesting, so that impacts can be identified and regulated. This system should closely conform with the DWAF initiative to develop principles, criteria, indicators and standards for sustainable forest management.
- Assist in the organization of harvesters at selected sites to assist in the rollout of the project.

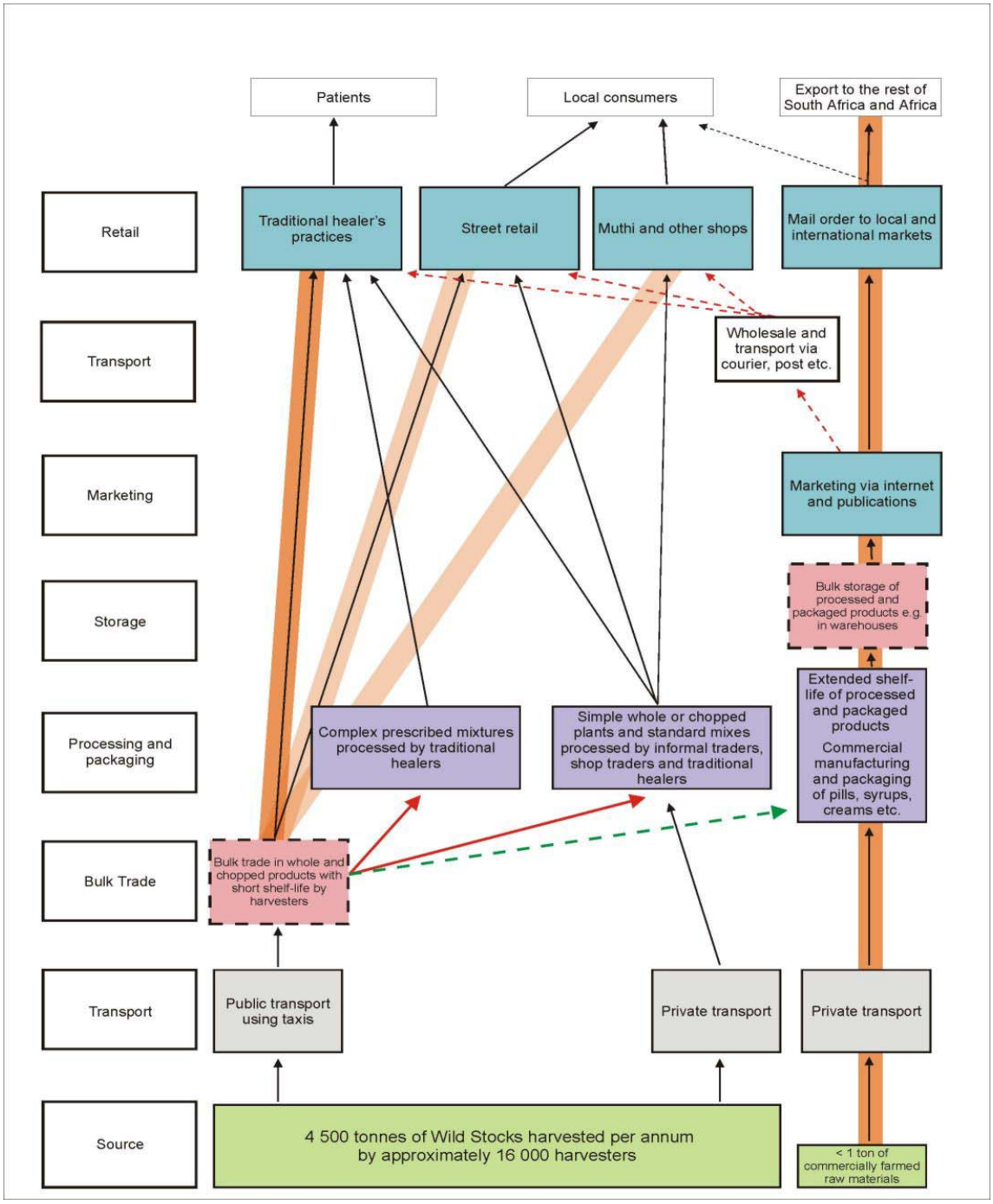

Figure 5.1: Overview of the current medicinal plant products sector

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