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Economics of the Traditional Medicine Trade in South Africa

Abstract

The trade in traditional medicines in South Africa is estimated to be worth R2.9 billion per year, representing 5.6% of the National Health budget. With 27 million consumers, the trade is vibrant and widespread. There are at least 133 000 people employed in the trade, with a large percentage of rural women. The plant trade is a key rural industry and business incubator. However, supply of plant material (some 771 species) and medicines is not sustainable. All plants are harvested from the wild, with popular species becoming locally extinct and being traded at very high prices. Much of the current research and development effort focuses on novel drugs research, with little effort being directed at improving the current harvesting, production, processing, storage and treatment technology. The future of the traditional medicines trade and its benefits are uncertain.

i Futureworks!

Introduction

The traditional medicines trade in South Africa is a large and growing industry. There are some 27 million consumers of traditional medicine and the trade of these medicines contributes to an estimated R2.9 billion to the national economy.[a] For many people in South Africa, traditional medicine is not considered an inferior alternative to western medicine, but is thought to be desirable and necessary for treating a range of health problems that western medicine does not treat adequately. A survey by Mander indicated that some 84% of clinic patients in Durban used traditional medicines, with only 18% of the patients indicating that they may reduce their use of traditional medicine in the future.[1] However, 97% of traditional healers' patients indicated that their use of traditional medicines was by choice and not a result of access and cost issues associated with western medicines.

This chapter describes the economics of the traditional medicines trade in South Africa, with a focus on the trade in traditional plant medicines. This chapter does not consider the trade in animal parts, or the services rendered by traditional healers, except in respect of the value that plant medicines add in prescriptions prepared by traditional healers. The demand, supply, trade chain, economic value and implications for health care of the medicinal plant trade are also discussed.

The demand for traditional medicines

Traditional medicinal plant consumers

Seventy two percent of the Black African population in South Africa is estimated to use traditional medicine, accounting for some 26.6 million consumers. These consumers are from a diverse range of age categories, education levels, religions and occupations. The education levels of medicinal plant consumers in Durban is outlined in Table 1.

Table 1: Levels of education of medicinal plant consumers in Durban

Education level	% of respondents surveyed at healers' practices (n = 99)
No schooling	7.8
Up to Grade 7	31.0
Up to Grade 10	26.0
Up to Grade 12	26.0
Tertiary qualification	8.7

Source: Mander, 1998.[1]

The diversity in consumers show that consumption of traditional medicine is a common practice across most sectors of the Black African population, and that traditional medicine use is not confined to poor, rural and uneducated users. Furthermore, the survey conducted by Mander showed that traditional medicine was often more expensive than at local government clinics, dispelling the myth that traditional medicine is a cheaper alternative.[1]

The average frequency of traditional medicine use per consumer in South Africa is 4.8 times per year, with an average mass of 157g plant material per treatment. Interestingly, the South African estimates are similar to Ethiopia, with Ethiopian consumers buying traditional medicine 6.1 times a year, with an average mass of 267g per treatment.[2] While 72% of Black South Africans consume traditional medicine, some 68% of the Ethiopian population use traditional medicine. This indicates that despite South Africa being one of the more developed countries in Africa and Ethiopia being one of the less developed countries, consumption patterns of traditional medicine for both African countries does not differ significantly. This indicates that throughout Africa, the consumption of traditional medicine appears to be a firmly entrenched cultural practice.

The average South African consumer of traditional medicines uses 750g of medicinal plants a year. It is estimated that in South Africa some 128 million courses of traditional medicine treatments are prescribed per year, resulting in the consumption of approximately 20 000 tonnes of plant material, most of which is indigenous.

Ongoing observations of the medicinal plant trade indicate that since some of the initial surveys in 1997 and 1998, the markets have continued to be buoyant, with street markets remaining well patronised and market demand for plants increasing. This is evident by a visible growth in the street trade of medicinal plants in both urban and rural markets in KwaZulu-Natal (KZN) and Mpumalanga. The HIV and AIDS

a The estimates in this chapter are based on a synthesis of research findings from four seminal surveys conducted in the trade in recent years. The calculations used in the synthesis are not discussed here for sake of brevity. However, in essence the approach adopted was to generate averages of particular variables from the four studies and then to extrapolate these sample averages to the broader population. The key surveys originate from multiple sources.[1,3,5,6] Any estimates which are not a product of the synthesis are referenced separately.

epidemic is also fuelling demand, with many consumers consulting with traditional healers who offer HIV and AIDS treatments, or immune boosters. For example, in 1997 in Mpumalanga, 94% of traditional healers reported that they treated HIV and AIDS.[3]

Over the past five years, traditional medicinal product development has taken place in response to increasing consumer demand for attractive and hygienically packaged traditional medicines. Traditional health shops have emerged in downtown locations, and are patronised predominantly by low income group Black African consumers.[4] In downtown Durban, there are now five health shops selling a range of traditional medicines in 'modern' packaging.

The sustained demand for traditional medicinal products clearly shows that a large proportion of Black African consumers make use of a dual health care system. Both western and traditional medicines are demanded depending on the ailment. Importantly, traditional medicine is not perceived by these consumers as an inferior good. Certainly, when people live in remote locations, then traditional medicine is the only alternative. However, in urban or other settings where both health care systems are available, consumers may even pay substantially greater costs for access to traditional medicine. For example, a traditional healer in Bushbuckridge in Mpumalanga has a large client base in the Eastern Cape. Once several clients have paid a basic consultation fee (of several hundred Rands each) into his / her account, he / she then travels down to the Eastern Cape to treat them.

Many customers report that they choose to use traditional healers as they feel the treatment is more holistic than western medicine. Rituals combining ancestor worship, divination and plant medicines are often part of the consultation process and it is this dual spiritual and physiological treatment that many customers appreciate. It is reported that this combined mind and body approach addresses both the cause and the symptom of the ailment.

The supply of traditional medicines

Traditional medicinal plants

The predominant source of medicine for traditional healers is indigenous plants, with at least 771 plant species recorded in the trade in South Africa.[3] An estimated 20 000 tonnes[b] of indigenous plants are harvested from grasslands, forests, woodlands and thickets in eastern South Africa every year, with only a few tens of tonnes (maximum 50 tonnes per annum) being cultivated. A range of plant parts are used and these are listed in Table 2.

Table 2: Percentage of different plant parts found / used in the medicinal plants trade

Plant parts used	Percentage in trade (%)
Bark	27
Roots	27
Bulbs	14
Whole plant	13
Leaves and stems	10
Tubers	6
Mixtures of parts	3

Source: Mander, 1998.[1]

Importantly, 86% of the plant parts harvested will result in the death of the entire plant.[3] This has significant implications for the sustainability of supply. A comparison of the travel times for harvesters to access popular medicinal plant species showed a 48% increase in travel time between 1990 and 1998.[1] This scarcity is further reflected in plant prices, with common species such as *Scilla natalensis* achieving prices of R53 per kg and scarce species such as *Salacia kraussii* achieving up to R4 800 per kg. The trade in plants from Mozambique and Swaziland to South Africa is vibrant, with many traders in the street markets of Durban and Johannesburg coming from these countries. Estimates indicated that at least 40 tonnes of *Warburgia* was being imported into South Africa from these countries. In Mpumalanga, 92% of traditional healers reported that they had difficulty in accessing popular plants, while 60% of traditional healers in KZN reporting scarcity.[1,3]

b The total tonnage harvested is based on consumption estimates as it is very difficult to measure harvesting due to the dispersed and secretive nature of wild plant harvesting. The total amount harvested therefore represents a minimum as there is wastage and spoilage in the trade. Based on observations, it is assumed that at least 10% of the volume is wasted, implying that the total harvest could be some 22 000 tonnes.

In addition, several species such as the African Wild Ginger *(Siphonochilus aethiopicus)*, are now reportedly extinct in the wild.[c] Importantly, highly valued plants are becoming increasingly inaccessible to the traditional medicine industry and very little is being done to cultivate these plants.

Informal traditional medicine suppliers

The majority of the trade in traditional medicines is conducted in the informal sector. Much of the street market trade in medicinal plants is conducted in R5 to R10 units. A summary of the characteristics of the informal sector role players in the South African trade is highlighted in Table 3.

It is estimated that approximately 74% of medicinal plant harvesters, street traders and traditional healers are women, and of these some 80% are rural and 20% are urban. The remaining 26% of the trade role players are men, with 50% rural and 50% urban.[1,3,5,6] The trade role players are thus predominantly rural women. Their involvement in the trade constitutes an important livelihood option for these women, as medicinal plants are one of the few low-volume high-value natural resources that can be harvested and traded to generate rural incomes.

Plants can be sold as raw material or as partially processed (chopped or ground) products by traders and traditional healers, or they can be prescribed in the form of complex mixtures. Most of the packaging is in the form of reused newspaper or reused liquor bottles. Medicines can be sold in dry powder form or in a wet mixture, most often with water being used as the liquid component. The stability and hygiene of these products is unknown, but probably varies enormously between traders and traditional healers. Much of the trade happens on sidewalks in urban areas near public transport nodes, and in informal market places on pension days in rural areas.

There is growing interest from local municipalities in improving the conditions for informal medicinal plant traders and this is driven largely by a growing recognition of the importance of the trade in the informal economy, for sustaining livelihoods and providing important health care services. This is manifested from investment into improving street market infrastructure, to promoting commercial plant production on farms. For example, eThekwini Municipality recently invested in market infrastructure upgrades in both the Warwick Junction Herb Market in the city centre, and in Ezimbuzini in Umlazi. These two markets are the main trade points for medicinal plants in the greater Durban area. In addition to developing stalls and ablutions for the traders, the municipality invested in the installation of plant milling machines and a machine operator in the Warwick Junction Herb Market. This milling facility resulted in more than R750 000 value being added to R250 000 worth of raw material through its processing to a powder form and sale in hygienic packaging. The municipality's investment into the set-up and operation of the milling facility was approximately R90 000 for the first year, with 12% of the additional money earned by the traders as a result of the value-added to their products by this facility. The municipality has also invested in five rural medicinal plant nurseries and farms in an attempt to begin to promote a more sustainable supply of plants into the Durban trade.

Table 3: Number and type of informal sector role players in the traditional medicines industry in South Africa

Role players	Number in industry	Average annual income per participant (Rands per month)
Plant harvesters	63 000 (although many harvesters will also do part-time street trade)	7 941
Street traders	3 000	7 941
Traditional healers (herbalists and diviners)	68 000 (Full-time traditional healers only) There are a number of part-time traditional healers but the number is not known; some traditional healers' organisations report that there are over 200 000 traditional healers in South Africa	38 491

Source: Synthesis from multiple sources.[1,3,5,6]

c Personal communication, N Crouch, South African National Biodiversity Institute, 2000.

Formal traditional medicine suppliers

The formal traditional medicine suppliers are made up of retail 'muthi' shops, health shops, pharmaceutical manufacturers and *laissez faire* manufacturers. These groups are detailed in Table 4.

In recent years there has been a considerable growth in *laissez faire* manufacturers of traditional medicines that make numerous claims to the efficacy of their products. Many of these manufacturers seem not to conform to industry Good Manufacturing Practice (GMP) standards.

There are relatively few large, certified pharmaceutical manufacturers producing formalised traditional medicines. This is thought to be a result of several factors:

- high investment requirements for the development of clinically tested and certified medicines (using traditional medicinal plants);
- intellectual property rights issues regarding medicinal plants and products, and the high cost of resolving these issues prior to investing in product development; and
- risk associated with volume and sustainability of raw plant material supplies, given that the majority of indigenous medicinal plants are not cultivated.

The investment required by any single pharmaceutical company to develop formalised and certified traditional medicinal plant products, and a secure raw material supply chain for those products, has thus been largely prohibitive to the development of this sector of the industry.

Research and development in traditional medicines

While almost every university in South Africa is involved in indigenous plant chemical research and / or seeking novel chemical products for new markets, there is little research and development taking place in support of the existing traditional medicines trade. A number of bioprospecting companies and consortia have also been established that are investing heavily in this research. Interestingly, any discoveries made by these researchers will benefit relatively few, if any, current role players in the medicinal plants trade.

While it is not surprising that private sector research investment in medicinal plants should be focused on bioprospecting, it is a concern that there is such limited public sector investment into addressing the sustainability of the current trade in traditional medicines, given the economic, social and cultural importance of this trade.

There is a dire and urgent need to develop new technologies for medicinal plant harvesting, farming, processing, stabilisation, packaging, dispensing and treatment; as well as a need for assistance and support to be provided to current role players in the industry to address the challenges and opportunities that they face.

Table 4: Number and type of formal sector role players in the traditional medicines industry in South Africa

Formal producers	Numbers trading	Products sold
Retail 'muthi' shops	Between 300 to 400 in South Africa	These shops sell similar products to the informal trade: plants traded as raw material, chopped or as simple mixtures. They also trade quality packaged traditional medicines supplied by manufacturers.
Health shops specialising in traditional herbal medicines	Number unknown for South Africa, but there are at least 5 in Durban	Popular medicinal plants are sold in various processed and packaged forms (creams, mixtures, tablets). Products are manufactured by pharmaceutical companies and by *laissez faire* manufacturers. They also trade a number of non-traditional chemical mixtures.
Pharmaceutical manufacturers	5 to 10 in South Africa	Usually single species products containing safe (non toxic) plants. Products include tablets, creams, tinctures or mixtures without any claims of efficacy. These products are manufactured using industrial Good Manufacturing Practice standards.
Laissez faire manufacturers	50 to 100 in South Africa	Usually complex mixes of species (with claims of up to 50 species per single product) in various forms (creams, mixtures and tablets), with numerous unproven claims of efficacy. The safety of these products is not proven.

Source: Market research by the authors.[d]

d This is based on data generated from key informant interviews and survey findings by the authors.

Economics of the trade

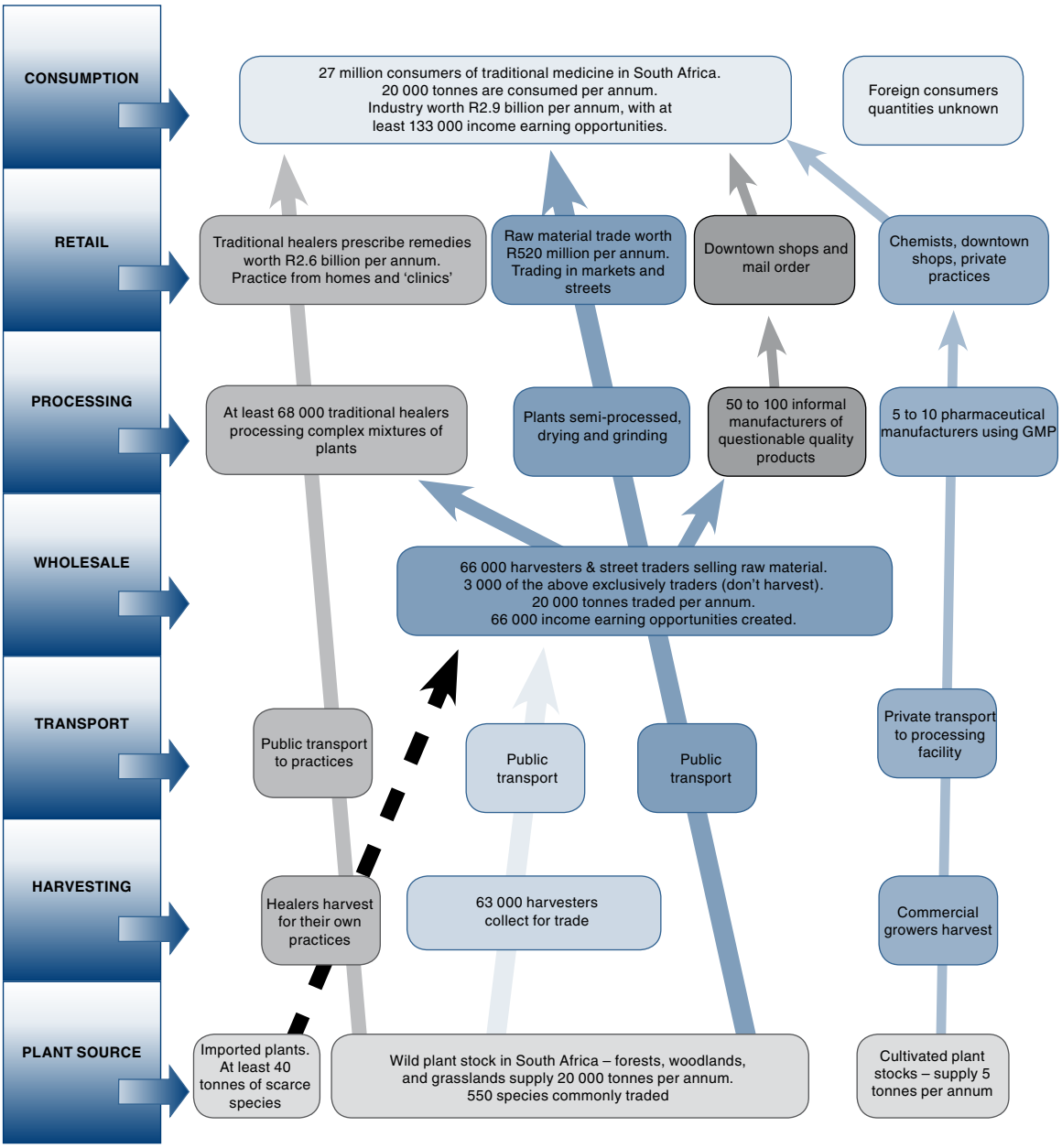
The value of the trade in raw medicinal plant materials in South Africa is estimated to be approximately R520 million per year (in 2006 prices). An additional R2.6 billion value is estimated to be added through prescription of traditional plant medicines by traditional healers. In total, the traditional medicinal plants and products trade in South Africa is estimated to be worth R2.9 billion per year. Most of this value does not enter into the formal trade and therefore is an addition to the Gross Domestic Product (GDP).

At the above prices, the annual value of the medicinal plant trade in South Africa is equal to 5.6% of the National Health budget, or equal to the whole Mpumalanga Health budget, or equal to the KZN Provincial Hospital budget.

Importantly, there are at least 133 000 income earning opportunities generated by the trade in traditional medicinal plants and products in South Africa.

The trade in medicinal plants is summarised in Figure 1. The trade chain shows the numbers and values of the trade in various stages of the trade.

Figure 1: South African medicinal plants industry: trade chain



Source: Model compiled by the authors based on summary of figures and estimates of the trade.

Conclusions

The consumption of traditional medicines in South Africa is widespread and growing. Consumer demand for better quality medicinal plant products is increasing. However, the supply of better quality traditional medicines is currently only being met on a notable scale through improved product packaging, with the quality of the medicines contained therein of uncertified and probably variable quality.

The supply of wild medicinal plant stocks is declining and highly valued species are becoming inaccessible due to extinctions and rapidly rising market prices. Current levels of production of medicinal plants through commercial farming activities are insignificant compared with the volumes of plant materials currently demanded for the trade.

The trade in medicinal plants is an important livelihood option for rural women, and for those involved it is a major contributor to rural household incomes. At least 133 000 households are dependent on the trade in medicinal plants in South Africa.

The use of traditional medicines is a positive choice made by consumers, who are often prepared to pay a premium price for these products and services, even when this exceeds the cost of western treatments. South Africa thus has a dual health care system, with some 26.6 million people preferring to use both traditional and western health care systems. However, as the supply of medicinal plants into the trade is not sustainable, the economic and health care benefits of the industry are not sustainable in the long-term.

Apart from regulation, there is little public or private sector investment into the support and development of the current industry and its role players. Although there are a number of universities and bioprospecting groups undertaking research and development (R&D) into novel plant drugs, few large pharmaceutical manufacturers are investing in the industry and seem to be cautiously watching the consequences of emerging intellectual property rights legislation. In the absence of any notable investment into the development of certified traditional medicines, there is a rapid emergence of manufacturers of *laissez faire* traditional medicines that lay claim to cures for all manner of ailments, most of which are buying their raw materials from unsustainable plant supply sources.

So what does the future hold for the industry in South Africa?

- **Traditional medicine consumers:** Some 27 million consumers of traditional medicine will have diminishing access to highly valued plants and traditional treatments. Those seeking better quality products will have little option but to purchase quality packaged over-the-counter traditional medicines, but that are of questionable efficacy and safety.
- **Traditional medicine traders:** There is likely to be less trade in high value plants with a declining market share, and more people will be trading lower value plants. There will be more international imports of highly valued plants from neighbouring countries, such as Mozambique, Zambia and Swaziland.
- **Pharmaceutical manufacturers:** Large manufacturers are unlikely to engage in R&D in the trade while they remain unsure of the security of the intellectual property of their research findings. They will also be unlikely to develop products and markets for traditional medicines for fear of litigation around unsafe products. They may shift production to neighbouring countries like Botswana and Swaziland which have a more favourable manufacturing legislation.
- ***Laissez faire* manufacturers:** This group is likely to continue to grow rapidly while they operate without R&D costs and have little fear of litigation for unproven claims.
- **Western health care practitioners:** With little development of the current industry or traditional medicine practice, western practitioners will have to develop greater capacity to work with the positive or negative impacts of traditional medicines, and to engage with the possible changes in traditional medicine practice, especially the trade in over-the-counter traditional medicines of unknown quality which are not dispensed by knowledgeable traditional healers.

Recommendations

The informal sector does not respond well to regulation and consequently regulation alone is unlikely to improve the traditional medicines industry and the associated health care for the millions of consumers in South Africa. In addition to regulation, incentives need to be established that promote the development of appropriate technology in wild plant harvesting, farming, storage, packaging, dosage and treatment that encourages the current market players to participate in the development of their own industry. These incentives should be established by the various tiers of government by way of bursaries, research funds, safe and hygienic market infrastructure development, developing processing facilities and easy access to clean packing. Furthermore, local and foreign pharmaceutical manufacturers need to be encouraged to invest in the South African traditional medicines sector by ensuring that investors can secure the ownership rights of the technologies developed. Encouraging the *laissez faire* manufacturers to invest in product improvement will be a challenge, where currently they operate outside of formal regulation and compete with both the pharmaceutical manufacturers and the current market traders.

Clearly, a new and inclusive vision for the traditional medicine industry needs to be developed in South Africa. In the past it has been the traditional healers talking to either the Department of Health (DoH) or nature conservation. A sustainable industry needs to generate cooperation between all current and / or potential role players (e.g. the rural harvesters, traders, healers), the trade promotion agents (e.g. Department of Trade and Industry, development corporations), R&D institutions (e.g. universities, Council for Scientific and Industrial Research, Foundation for Research and Development), manufacturers (e.g. pharmaceutical companies and *laissez faire* manufacturers), regulatory agencies (e.g. Medicines Control Council, DoH), plant conservation agencies (e.g. provincial and municipal conservation departments, National Forestry Department, forestry companies), plant production agents (e.g. Department of Agriculture) and of course – the consumers. A first step in developing a more sustainable industry would be to begin a dialogue between all role players. The current market players themselves are unlikely to lead such an initiative. A strategic role player is required to lead such an initiative.

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Case Study

Traditional Medicine and the Vulture Trade

The use of vultures and other scarce animals is an important component of traditional medicine in South Africa. There is evidence to suggest that traditional use is one of the major causes of the rapid decline in vulture populations in this country. There is a widely held belief in many African cultures that health, disease, success or misfortune are not chance events but the result of the active influence of individuals or ancestral spirits. For this reason traditional medicine, which invokes the assistance of ancestors in healing, is held in high esteem in such cultures and is regularly used by a large proportion of the population.

Traditional medicines use herbal, animal, and mineral materials for physiological and symbolic / psychological purposes. Twenty seven million South Africans use traditional medicine in one form or another because pharmaceutical drugs are too expensive or traditional methods are considered more appropriate.[1] Stimulated by rapid urbanisation, HIV and AIDS and high levels of unemployment, the demand for traditional medicines is probably higher than at any time in the past. Population increases, declining economy, rising unemployment and increasing uncertainty about the future are all indicators that the demand for traditional medicines will continue to increase in the future. These factors have also given rise to a rapidly expanding commercial trade in plants and animal parts for traditional medicine. The value of the trade in indigenous plant species for traditional medicine in South Africa is estimated at R496 million per annum, with another R2.5 billion in value added as prescriptions.[1] Some 20 000 tons of plant material are sold each year.[1] Despite the persistence of customary controls on use of many species, the commercial trade and consequent economic benefits has eroded many of these controls to the detriment of the species involved and the systems in which they occur.

Until recently, little information on the extent of the trade in animal parts, particularly vultures, for traditional medicine was available. The trade in animal parts is secretive and mostly illegal in South Africa. This makes it extremely difficult to obtain reliable information on the quantities of species traded, which is essential to assess potential impact on species populations. Also, the control over animal medicines relate to the politics of control over supernatural power from animals with powerful symbolism (e.g. vultures, pythons, ground hornbills, pangolins and owls). Research indicates that approximately 200 animal species and 550 plant species are actively traded for traditional medicine in KwaZulu-Natal (KZN).[1,2] The most popular and threatened species traded as traditional medicine are shown in Table 1.

Table 1: Popular and threatened species traded as traditional medicine

African Rock Python
Black Mamba
Black Rhino
Bushbabies (Thick Tailed, Lesser)
Cape Grysbok
Dwarf Chameleons (several species)
Giant Golden Mole
Girdle Tailed Lizards (several species)
Hyaena (Spotted and Brown)
Monitor Lizards (Nile, Land)
Nile Crocodile
Southern Ground Hornbill
Vultures (Cape Griffon, White-backed, Lappet-faced, White-headed)

Source: Mander et al., 1997.[2]

i KZN Wildlife

ii Futureworks!

Ezemvelo KZN Wildlife recently facilitated much needed research into the possible impact of traditional use on vulture populations in South Africa. This was stimulated by ongoing documented declines in vulture populations coupled with repeated media reports that aspects of traditional use were contributing to vulture declines. The research conducted addressed the following questions:

- Is traditional medicine contributing to the documented decline in vulture populations? If so, to what extent?
- What factors are driving the demand for vultures?
- What is the extent and value of the trade in vultures for traditional medicine?
- Are there effective and practical interventions which can be applied to conserve vultures while also conserving traditional belief systems?

The survey assessed trade in vultures in South Africa at the following three markets: Mona Market in Nongoma; Durban Herb Market; and Faraday Market in Johannesburg. Interviews were conducted with a range of market players in a variety of localities, including vulture hunters, traders, traditional healers and consumers.

The research confirmed that vultures are used in the traditional medicine industry for a range of purposes, but are believed to be most effective for providing clairvoyant powers, foresight and increased intelligence. The main drivers of demand for these uses are betting and gambling, for improved business success, and intelligence in school children. Vulture is also prescribed by traditional healers for various ailments, including headaches.

An estimated 160 vultures are sold per annum in eastern South Africa and there are approximately 59 000 consumption events of vulture pieces annually. The total annual value of sales of vulture in eastern South Africa (excluding the costs of vultures as input costs) is estimated at R1.2 million.[3]

Various species of vulture are used for traditional medicine and there is no distinct species preference. In many cases, traditional healers and traders were not able to distinguish between species of vulture, particularly where they had sourced parts of vulture from another trader. Vultures traded in the eastern South African markets are harvested by vulture hunters in game reserves and farm lands in KZN, Eastern Cape, Lesotho and southern Mozambique. They are reported to be killed using shotguns, poisons or traps. Poisoning is the most destructive method of harvesting, as large numbers of vultures are usually killed in one poisoning event. For example, in January 2007, 50 vultures were poisoned in a single incident near Mkuze Game Reserve. The majority of vulture users indicated that they were concerned about the health risks associated with using vultures that have been killed by poisoning. However, only half of the vulture traders and users surveyed knew the method used to kill the vultures that they traded or consumed.

Two thirds of the sales of vulture parts were to consumers. These are people who know what to use vultures for (either from having used it before, or from having been given a prescription by a traditional healer) and ask traders directly for it. Traditional healers also drive demand for vultures by either prescribing the use of vultures or using vultures themselves to assist in making predictions for their clients. While some prescribed uses of vulture are for the treatment of medical ailments, such as headaches, traditional healers believe vulture is most effective for clairvoyant purposes. Importantly, traditional healers indicate that there are no comparable alternatives for this use. This implies that for clairvoyance use, vultures are the only product that is considered effective.

The majority of market players in the vulture trade claim that they are not aware of any laws regulating the trade in vultures. This means that apart from increasing scarcity and cost of vultures in the market, there is no other incentive to use or develop alternative products to vultures. The majority of traditional healers and traders indicate that demand for vultures has not increased noticeably, but that vultures are becoming more difficult to obtain. It is estimated that there are 1 250 vulture traders, hunters and traditional healers operating in eastern South Africa that benefit financially from the trade in vultures. These individuals earn between R950 and R2 500 per annum from this trade.

The research found that the trade in vultures is not sustainable at present harvest levels in the context of poor population replacement and recruitment. The implication is that for all those individuals involved in the trade, the benefits currently enjoyed will no longer be available in the next 15 to 30 years. The White-backed vulture population in Zululand could become exhausted in 26 years in the best case scenario, with as few as 10 or 11 years left in the worst case scenario. This population cannot withstand the current environment and harvesting pressures being placed on it. The White-headed and Lappet-faced vultures are very small populations in Zululand and they are likely to disappear from this region in the next 5 to 10 years unless there is a dramatic change in management effort. The Cape Griffon vulture

populations in the Eastern Cape, KZN and Lesotho could become locally extinct within 44 to 53 years. If the numbers of White-backed vultures decline, a larger proportion of the current harvesting pressure (the whole 160 vultures traded per annum) could fall on the Cape Griffon vulture populations. In this instance, the Cape Griffon vulture populations in Lesotho, KZN and Eastern Cape could be exhausted in 12 years after the Zululand populations disappear.

Our cultural heritage, traditional knowledge, ecosystems and economic benefits associated with traded vultures and other scarce animals are threatened. Vultures offer a special challenge to conservation, they fly out of protected areas and expose themselves to uncontrolled markets. To date, there have been several successes in conserving scarce species in farmlands in South Africa. The new challenge is to develop a cooperative effort between the traditional medicine market players, rural farmers and conservation agencies in South Africa.

"Hlonipha amanqe"!

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