NAMIBIAN DEVIL'S CLAW

(*Harpagophytum* spp.*)*

A Case Study on Benefit-Sharing Arrangements

Prepared for the

Ministry of Environment and Tourism
Directorate of Environmental Affairs
Namibian National Biodiversity Programme
(National Focal Point - United Nations Convention on Biological Diversity)
Private Bag 13306, Windhoek, Namibia
Tel +264-61-240339 Fax +264-61-240339
email: pb@dea.met.gov.na
biodiver@iafrica.com.na
http://www.dea.met.gov.na/programmes/biodiversity

By

Dave Cole & Pierre du Plessis

CRIAA SA-DC
P.O. Box 23778, Windhoek, Namibia
E-mail: criaawhk@iafrica.com.na Tel +264-61-220117 Fax +264-61-232293

1 Overview

This case study reviews the efforts of the Sustainably Harvested Devil's Claw (SHDC) project in Namibia to secure better benefit-sharing arrangements for Namibian harvesters of a tuber with medicinal applications. It briefly describes the project's environmental, socio-economic, policy and commercial context at local, national, regional and international levels, and discusses key questions related to sharing benefits derived from cross-border genetic resources that have been commercialised for some time. Finally it suggests a simple and practical approach to maximise harvester benefits while such questions are being resolved.

1a) Main actors involved

The primary beneficiaries of SHDC have been 328 registered harvesters of Devil's Claw (representing around 1 600 household members) organised into Harvesters' Committees on 18 pre-Independence resettlement farms in the Omaheke Region of Namibia. The target beneficiaries of SHDC are the estimated 10 000 very poor Namibians who earn a cash income from harvesting Devil's Claw.

CRIAA SA-DC*[1] started the pilot phase of SHDC in 1997 at Vergenoeg farm. The project has been funded by the Oxfams in Namibia (including Oxfam Canada, Intermon of Spain and Oxfam UK and Ireland), the EC Food Aid Counterpart Fund, the Canada Fund, Namdeb Social Fund and ILO INDISCO[2]. In 1999 SHDC contributed to the establishment of a national Devil's Claw Working Group (DCWG)[3].

Government institutions that have supported SHDC include:

- Omaheke Regional Governor's office
- Ministry of Environment and Tourism (MET)
    - Directorate of Specialist Support Services* (DCWG Chair)
    - Directorate of Environmental Affairs
    - Directorate of Forestry
    - Directorate of Resource Management
- Ministry of Agriculture, Water and Rural Development (MAWRD)
    - National Botanical Research Institute*
    - Directorate of Planning*
- Office of the President
    - National Planning Commission

NGOs that have supported SHDC include the Omaheke San Trust (OST), the Working-group of Indigenous Minorities in Southern Africa (WIMSA) and the Oxfams in Namibia (through the Omaheke Integrated Development Programme).

From the private sector a key SHDC partner has been the exporting firm Gamagu, owned by Mike and Sabine Krafft of Dordabis. The Organic Herb Trading Company (formerly Hambleden Herbs) of the UK played a key role in the very early phases of the project and remains supportive. There have been negotiations with other European phyto-pharmaceutical companies, but at this stage none of these can be described as an active partner.

The University of Namibia* (UNAM), the Polytechnic of Namibia and the University of Cologne have supported research aspects of the project. The German Department of Nature Conservation (*Bundesamt für Naturschutz*) supports basic ecological and physiological research linked to SHDC.

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* Members of the Devil's Claw Working Group (DCWG)

[1] Centre for Research, Information and Action in Africa: Southern Africa Development and Consulting (Namibian not-for-gain association with French roots)

[2] International Labour Organisation – Inter-regional Programme to Support Self-reliance of Indigenous and Tribal Communities through Co-operatives and Self-help Organisations

[3] Officially constituted by MET in 2000, the DCWG's objective is *"to provide input into the management and utilisation of Devil's Claw in Namibia thereby contributing to the safe-guarding of the species and its sustainable utilisation by Namibians … [and to] provide a forum for the exchange of information, consultation and co-ordination …"*

1b) Ecosystem, species and genetic resources involved

The ecosystem in which SHDC operates can best be described as partially degraded Kalahari woodland and shrubland. It is a semi-desert environment with a low and variable rainfall (250 to 350 mm/a) and deep sands, which make surface water a rarity. Agriculturally the area is used for extensive grazing, which has increased considerably in the past century due to the availability of water from borewells. The resettlement farms are relatively densely populated and heavily grazed. For settlers without livestock, Devil's Claw harvesting often constitutes the only source of cash income.

Devil's Claw (family Pedaliaceae, species *Harpagophytum procumbens* (BURCH.) DC. ex MEISNNER 1840, ssp. *procumbens*) is a perennial prostrate vine that grows in deep Kalahari sands, mainly in Namibia but also in Botswana and some northern parts of South Africa, with the ssp. *transvaalensis* possibly occurring just inside Zimbabwe as well[4]. The plant has a strong taproot with a number of secondary storage tubers growing off it – these tubers are listed in the European Pharmacopoeia and are used mainly in the treatment of rheumatism and arthritic ailments. There is a growing international demand for Devil's Claw because it contains compounds that combine analgesic and anti-inflammatory properties with minimal side-effects.

Namibia is the main (and most drought-prone) distribution centre of *Harpagophytum procumbens* and its genetic biodiversity of this species has been the target of European and South African efforts to collect high-yielding strains for use in domestication and cultivation trials[5]. In March 2000 a German proposal to list the plant on Appendix II of CITES was postponed (see *2c - Impacts of the CITES proposal* below for a more detailed discussion of the effects of this proposal).

1c) Type of benefit-sharing arrangements and expected results

SHDC aims to establish and facilitate a long-term working relationship between locally organised groups of Devil's Claw harvesters and the market (at this stage a reputable Namibian exporter of the dried tubers). Efforts to link harvesters directly to a large European pharmaceutical company have not succeeded yet. The vision of the project is to create a clear and long-term market link between participating harvesters and upstream national and international operators, on the basis of a superior product.

The SHDC harvesters voluntarily use sustainable harvesting techniques and are assisted (through pre- and post-harvest ecological surveys) to set local harvesting quotas and to ensure that good resource management practices (not disturbing taproots, refilling holes etc.) are adhered to. They strive to provide a high-quality product (tubers are sliced with stainless steel knives to prevent discolouration and dried on shade-net racks to avoid contamination by sand). The product is certified Organic by the Soil Association of the UK[6].

Harvesting groups are equipped with scales and have access to secure storage facilities. This allows them to know exactly how much each harvester is supplying, how much the group is harvesting, and to collate commercially viable quantities of Devil's Claw at central points where it can easily be collected by the exporter. In return harvesters are paid a premium price directly by the exporter (at least 50% - and in some cases up to 1000% - more than prices paid by informal-sector middlemen[7]).

Subject to successful extension to a larger part of the Devil's Claw range - a process that has been initiated - it is expected that SHDC will result in:

- Continued sustainable utilisation of an important natural resource to secure cash income for its traditional users and other poor people in rural areas
- An increased share of total income accruing to harvesters

[4] Schmidt et al 1998
[5] Schmidt et al 1998; McVeigh 2000
[6] This involves an annual inspection of production areas and storage facilities, and a fully traceable audit of certified material. The Soil Association is used because its certification is recognised by all the relevant authorities.
[7] Prices outside the project range from N$1.00/kg to N$8.00/kg, while SHDC harvesters received N$12.00/kg (plus, for 2000, a bonus of N$1.00/kg on sales).

- A long-term and mutually beneficial relationship between harvesters and upstream operators (exporters, processors, pharmaceutical users)

- An opportunity for traditional wild-harvesters to avoid being forced out of the supply chain by possible domestication and cultivation of the plant

1d) Timeframe

SHDC started on one farm (Vergenoeg) in 1997 and by 1999/2000 had expanded to 17 other farms. Options for further expansion are being investigated. The project is envisaged to continue indefinitely, although not in its present donor-funded form.

1e) Relevance to CBD

SHDC was initiated without overt reference to the CBD, but the project is highly relevant to the Convention in that it:

- Encourages *conservation and sustainable use* by increasing the perceived long-term value of the plant to the harvesters
- Facilitates *sustainable use* through the dissemination of sustainable harvesting and resource management practices
- Results in a larger *share of benefits* accruing to harvesters and the holders of traditional knowledge
- Informs harvesters of their rights and market opportunities and encourages them to insist on *equitable compensation* for the use of their genetic resources.

2) Context

2a) Biological resources

The plants

The genus *Harpagophytum* comprises two species, *H. procumbens* (with two sub-species, *procumbens* and *transvaalensis*) and *H. zeyheri* (with three sub-species, *zeyheri*, *sublobatum* and *schijffii*). Only *H. procumbens* is included in the Pharmacopoeia as a medicinal herb. It occurs in Namibia, Botswana, South Africa and possibly Zimbabwe. *H. zeyheri* occurs in these four countries as well as in Angola, Zambia, and Mozambique. *H. zeyheri* is harvested and marketed as "fake" *H. procumbens*. It is also subject to on-going phyto-pharmacological research, but not preferred in the trade because of its lower concentration of active ingredients, believed to be mainly iridoid glycosides such as harpagoside, procumbide and harpagid.

In English the plants are called Devil's Claw or Grapple Plant because of the very sharp, hooked form of the woody fruits. These fruits are distributed by hooking onto animals and being carried away. They are shaped in such a way that ripe seed will be shaken out of old fruits while the animal walks. Seeds will also germinate close to the mother plant after being released by decaying pods.

The deep Kalahari sands in which Devil's Claw is most at home are very fast draining, and the rainfall of the region is low and fickle. The secondary tubers of Devil's Claw are water and nutrient storage organs evolved to cope with such a habitat, as is the plant's habit of dying back after fruiting and re-sprouting in spring.

Traditional harvesters have long known that plants will survive harvesting of tubers as long as taproots are not disturbed too much. This knowledge forms the basis of current guidelines for sustainable harvesting, which stress leaving taproots undisturbed, harvesting only a portion of tubers (and only after fruit-set) and refilling the harvesting holes.

The growth rate of Devil's Claw, and especially the tubers, under different conditions is obviously a key consideration in determining sustainable harvesting rates and the rest periods required before re-harvesting. There is some evidence that sustainable harvesting can stimulate vigorous re-growth under favourable garden conditions, and that leaving taproots undisturbed greatly aids survival of

harvested plants[8]. Knowledge about these parameters is sketchy, but subject to current research. Figures contained in the limited literature on the subject vary from no tuber growth under drought conditions[9] up to 3 kg tubers (300 g dry weight) per year under favourable conditions[10].

To set quotas SHDC has used a mean tuber growth rate of 200 g dry weight per two years and halved it, calculating off-take at 100 g dry weight per plant per year. Follow-up ecological surveys seem to support the sustainability of such an off-take rate, at least under the relatively drought-free conditions that have prevailed in the harvesting area since the inception of the project[11].

The plant population

In the absence of cultivation techniques that can work despite the many and varied agricultural constraints on an Omaheke resettlement farm, natural recruitment is key to the survival of the population. Mature Devil's Claw plants are very hardy, but there are opposing views about recruitment vigour. Some hold it to be an invasive weed favoured by heavy grazing and disturbed ground; others maintain that it has low competitive strength and tends to disappear under the impact of very heavy grazing pressure, or in ecological niches dominated by grasses[12]. As in many desert species, seeds germinate erratically over several seasons, probably to maximise the survival chances of seedlings. There is anecdotal evidence that harvesting encourages recruitment by burying ripe fruits and creating patches of disturbed soil[13].

As discussed below, the SHDC project areas are subject to higher grazing pressures than most of the Devil's Claw range - another factor that could play a significant role in resource sustainability. The leaves are readily grazed by livestock, although the vines are very tough and have been known to cause bowel obstructions in horses and donkeys. Personal observations suggest that grazing pressure (mostly from goats) is a significant factor only in very heavily grazed areas close to settlements and water points, and then mostly during the spring, when Devil's Claw regrows from tuber reserves before other grazing becomes available. The effects of grazing are being researched in more detail at present.

There has been no comprehensive range-wide survey of Devil's Claw, although one is planned in Namibia as part of the national Situation Analysis currently being organised by the Devil's Claw Working Group, and other range states might follow suit to comply with the CITES decision (see below). Population figures cited in the literature are therefore local and/or anecdotal. Population densities have been reported as varying from less than one to more than 2 000 plants per hectare[14].

Plants tend to occur in definite population clusters, which can possibly be explained by the adventitious establishment of a single mother plant due to the animal-borne seed dispersal described above, followed by a local population increase. However, there might also be a correlation with groundwater availability, and competition for this resource from other deep-rooted plants. This needs further investigation.

Sustainability and regulation

Concerns about the sustainability of harvesting go back at least to 1975, by which time exports from Namibia had risen to 180 tonnes per year. In 1977 Devil's Claw was listed as a protected species under the Nature Conservation Ordinance. In terms of this ordinance, permits were required to harvest the plant. However, a study[15] established that only 10% of the harvested Devil's Claw was being harvested with a valid permit, and the permit system for harvesting, possession and transportation of Devil's Claw was subsequently discontinued, as it could not be effectively implemented. Permits

[8] Burghouts 1985, quoted in Strohbach 1999b
[9] ibid
[10] Von Willert & Schneider 2001
[11] Strohbach 1998 &1999a. In 2001 the Omaheke region received late, poor rains and quotas were set substantially lower.
[12] var. pers. comm.; CITES Proposal 11.60
[13] Cole 1999
[14] Schmidt et al 1998
[15] Nott 1986

thereafter continued to be required only for the export of Devil's Claw and were mainly intended as a way to monitor exports - no quotas or other limitations were imposed.

Increasing concerns regarding possible over-utilisation, as suggested by the dramatic increase in Namibian export figures of dried Devil's Claw from approximately 300 tonnes in 1996/7 to over 600 tonnes in 1998/9, as well as reports of unsustainable harvesting practices and exploitative prices being paid to harvesters, prompted the Government of Namibia to re-introduce a permit system for the harvesting of Devil's Claw in 1999. Initial statistics suggest that exports were significantly lower in 2000, and exporter stocks correspondingly higher - this is attributed to the negative message sent to the market by the proposed CITES listing (see below).

Endangered species?

At this stage it is impossible to say for sure whether Devil's Claw as a species is threatened or not, due to a lack of scientific evidence. Over the entire range, significant populations are protected in the vast Central Kalahari Game Reserve (Botswana) and transboundary Kgalagadi Park (Botswana/South Africa), while other populations in Botswana and Namibia are probably protected by their remoteness and inaccessibility.

In Namibia a comprehensive population survey would need to investigate and clarify, and a balanced assessment of the population would need to weigh and reconcile, at least the following perceptions raised by various stakeholders:

- The heaviest resource pressure occurs in the immediate vicinity of some harvesting communities on communal land and resettlement farms, where a combination of unsustainable poverty-driven harvesting and severe over-grazing threatens local populations - local extinction would be an economic blow to these communities, but not a threat to the species except as a form of genetic erosion.

- On most commercial farms in the southern and western parts of the plant's range, farmers do not have enough labour to harvest much for their own account and are reluctant to allow "strangers" onto their land due to problems with farm security, stock theft and poaching. However, it is important that sustainable harvesting techniques be extended to these areas to mitigate potential adverse effects if and when harvesting increases.

- In the largely waterless area between the Rietfontein Block and Gam, intensive opportunistic harvesting takes place, but total resource pressure is low due to the absence of permanent populations, limited grazing and few access roads. Nevertheless, much of the harvesting in this area is done by lowly paid and inexperienced hired labourers working for freebooting entrepreneurs, who more often employ unsustainable techniques (harvesting whole plants, not filling holes). There is an urgent need to extend the message about sustainable harvesting techniques to harvesters operating here (this is currently the main target area for the expansion of SHDC).

- There is a general under-reporting of harvesting rates due to undeclared exports to South Africa. The actual off-take might be much higher than that suggested by official figures, with the resource being decimated by stealth.

What is clear from these (sometimes conflicting) perceptions is that Devil's Claw population dynamics in Namibia are not uniform in all areas. The comprehensive survey must distinguish between populations under various forms of tenure, management and consequently pressure.

2b) Physical environment

Devil's Claw grows in areas with sandy soils, a low unreliable rainfall, a short rainy season and high evapotranspiration rates.

While it is beyond the scope of the present paper to present a detailed analysis of the Kalahari environment, the following brief points are directly relevant:

- The overall human population density is low in the distribution area, but unusually high on the resettlement farms targeted by SHDC (e.g. at Vergenoeg farm some 1 500 people share about 10 000 ha of marginal land).

- The area is suitable for livestock (cattle and goat) production but very marginal for cropping.

- Where reliable underground water sources have been made available by drilling they tend to be weak and very deep (>200 m), limiting the potential for irrigation.

- Because the spatial distribution of livestock in the region is determined by the limited and highly localised availability of water, areas around water points tend to be over-grazed.

- A number of wild foods occur, but they tend to be inaccessible to the people who would use them because they grow on commercial cattle ranches where traditional users are no longer allowed to harvest, or else they are over-subscribed because of the population pressure and desperate nutritional situation on resettlement farms.

- Road and communication infrastructure is very thinly distributed in the region, leaving many people effectively cut off from the outside world and its services (transport, education, health care etc.)

These physical and material limitations add up to very restricted livelihood options for rural people who do not own large herds of livestock (including most residents of resettlement farms, and most Devil's Claw harvesters). The cash income earned from Devil's Claw harvesting therefore plays a crucial role in food security and in allowing people to access transport, health care and education.

2c) Socio-economic context

The people

The majority of the SHDC participants are ethnic San (Ju/'hoansi and Nharo, to be exact) who have lived in this area for many centuries. Contrary to the popular perception of San as nomadic hunter-gatherers, the Omaheke San were – prior to conquest by the Herero and/or colonisation by Germany and South Africa – organised into relatively stable social groups firmly attached to particular areas known as *n!ores* (averaging about 6000 ha in size, which is remarkably similar to the average size of the present commercial farms in the area)[16]. To a significant extent this attachment to particular places, and the detailed expert knowledge of local resource availability and management that results from such a sense of place, was preserved for some time after colonisation by the practice of allowing large bands of San to stay on commercial farms as a source of cheap labour. In the past 20 years this pattern has been deeply disrupted by socio-economic and political developments that led to a marked reduction in farm employment.

While acknowledging the historic ties of the San to the region, the SHDC project is not organised according to an ethnic model and includes many people from other ethnic groups, especially Damara. The best socio-economic description of the communities on resettlement farms is probably that of "displaced generational farm workers". These are people who have been deprived – through a process of colonisation, absorption into the colonial economy as farm labour for several generations, and subsequent unemployment – of any land rights they might once have had in other parts of the country.

In recent years these generational farm workers have been the victims of a general reduction in farm employment in the region, due to a complicated interaction of economic and political factors, including the conversion of stock farms into game ranches and tourist lodges, concerns about farm security, pressure on farm incomes, and new labour and social security legislation seen by some farmers as bureaucratically too onerous and cumbersome to comply with on behalf of large numbers of employees.

Having been dismissed from their places of employment, generational farm workers had nowhere else to go and literally found themselves "on the road" – living in road reserves and other scraps of state

[16] see Suzman 2000 and 2001

land, or squatting in informal settlements on the verges of urban centres, where they struggle to survive due to a lack of the skills needed to secure non-agricultural employment. Many of these people have been resettled under very difficult conditions on Government-owned farms in the Omaheke Region. From their ranks come the SHDC harvesters.

"Community" organisation

While the majority of resettlement farm residents share a recent history of colonial dispossession, economic exploitation, occupational redundancy, homelessness and resettlement under adverse conditions, they have been thrown together by fortune only in the past decade or two and are therefore as yet only superficially united by their shared experiences. To the extent that they are a "community" at all, they are a community hamstrung by weak institutions and underdeveloped internal decision-making bodies.

This lack of social cohesion is further complicated by power relations that result from more or less external discourses. So, for example, the people who live on a resettlement farm have to contend simultaneously with loci of power and/or authority rooted in, amongst others:

- Preserved or re-established traditional authority structures, which have certain powers over land allocation and resource use rights
- Community Development Committees which have some powers over economic activities and opportunities to take part in community activities
- Water Point Committees which have a responsibility to manage local water supply, and consequently powers over sharing out water use rights
- The relevant Government Ministry (usually the Ministry of Lands, Resettlement and Rehabilitation, but in the case of the Tjaka Ben-Hur farms the MAWRD) formally administering the farm.

Adding to the institutional brew are:

- Various NGOs and the project committees they generate
- Various Government institutions involved in regulating resource use or delivering services (e.g. Directorate of Forestry, Ministry of Health and Social Services, Ministry of Basic Education)
- Class divisions (e.g. between people who have external sources of income to invest in transport and/or small businesses, and those who have nothing)
- Conflicting resource-use patterns and priorities (e.g. between Devil's Claw harvesters and livestock owners)

Under these conditions simplistic notions of "community" are not helpful. The SHDC approach has been to register the existing harvesters of Devil's Claw and help them to organise themselves into groups, each with a co-ordinator responsible for weighing, storage and record-keeping. Through capacity-building (e.g. training in conducting good meetings) and empowerment (e.g. respect for traditional knowledge and a real say in resource-use decisions) SHDC has contributed to the overall institutional capacity of the emergent communities on resettlement farms. It is expected that such empowerment of harvesters will also contribute to Devil's Claw issues being better represented at, and considered by, other power loci.

Traditional knowledge

The indigenous San and Khoi peoples of southern Africa have used Devil's Claw medicinally for centuries, if not millennia. It has also been adopted into the traditional knowledge systems of in-migrating Bantu-speakers who arrived in the area between 1 500 and 500 years ago (the modalities of this integration are not known, but it seems very likely to have been learned from the San). In addition to general anti-inflamatory and analgesic use, ethno-medicinal uses have been recorded for

dyspepsia, fever, blood diseases, urinary-tract complaints, post-partum pain, sprains, sores, ulcers and boils[17].

Although the plants were first collected and described by European scientists in 1820, the medicinal properties of the Devil's Claw were only "discovered" in Namibia in 1907 by a German colonist called G.H. Mehnert, as a result of his direct reference to the indigenous knowledge of the Khoi and San people[18]. A family anecdote suggests that this transfer of knowledge might not have been so readily forthcoming, and that Mehnert eventually had to do some "low-profile fieldwork" to learn the identity of the medicinal plant so widely used by the people living on his farm[19].

This early bio-prospector exported some dried Devil's Claw tubers to Germany, where they were first studied by Zorn at the University of Jena in the 1950s. By 1962 the company Harpago (Pty) Ltd started exporting the tubers in larger quantities to the German company Erwin Hagen Naturheilmittel GmbH[20]. At that stage the dried roots were used to make a bitter tea used mostly against dyspepsia and as a general "blood cleanser". An early (undated) advertisement for Harpago Tea puts it very succinctly:

> *"Through the ages the black witch doctors have been familiar with the health-giving effects of Harpago Tea. Their secrets have now been discovered by Science."*

This appropriation of indigenous knowledge about botanical resources would have been a clear case of "biopiracy" if it had occurred after 1992. It is relevant to the CBD because of the questions it raises about retrospective benefit-sharing as a way to encourage conservation, sustainable use and equity.

Specifically, the case of Devil's Claw raises issues about the goodwill of the pharmaceutical industry towards those traditional users who had their indigenous knowledge appropriated before it was protected by international law, and the ways in which such traditional users can be helped to translate best-practice resource management into a share of the benefits. Unfortunately the industry seems intent on supporting cultivation, which will benefit colonial farmers at the expense of the owners of traditional knowledge about the resource.

Commercialisation and trade - the Namibian-German connection

The international Devil's Claw trade grew from small samples in the 1950s to around 700 tons annually by the turn of the century. As the first - and by far the largest - producer of Devil's Claw, Namibia played a crucial role in the development of this market.

In this regard it is relevant to recall the highly exploitative labour policies of the South African colonial administration in Namibia during the period when this market was being developed. Put simply, there was enough Devil's Claw harvesting going on to build a market because colonial and apartheid policies had made significant numbers of people so poor that they had no other option. The modern Devil's Claw industry did not spring into existence fully grown - it is the result of a long process of appropriating the indigenous knowledge of Namibians and exploiting their colonial disenfranchisement and desperate poverty.

Namibia's key role in the commercialisation of the plant is also reflected (through the colonial link) in the dominance of German pharmaceutical companies in the Devil's Claw market[21]. German consumers were among the "early adopters" of natural medicine in Europe and created an early demand for Devil's Claw. The fortuitous coincidence of colonial supply and domestic demand encouraged German pharmaceutical companies to invest in laboratory analyses, clinical trials, product R&D, processing technology and advertising. It also resulted in most of the Namibian export trade being controlled by Namibians of German descent.

[17] Wegener 2000
[18] Wegener 1998; U. Fechter, telefax
[19] R. Wynberg, pers. comm.
[20] U. Fechter, telefax
[21] This is more pervasive than it appears, since some companies operating from other European countries are also German-owned.

The regional trade situation

On the back of the pioneering work outlined above, commercial exports from Botswana started through South Africa in the 1970s. Botswana's production is estimated at less than 100 tons a year. Stakeholders from Botswana complain that their efforts to secure better prices for harvesters are being frustrated by buyers who play them off against Namibian suppliers[22].

South Africa has in recent years become both a major export destination and exporter, with imported material from Namibia and Botswana being re-exported by entrepreneurs in that country. This is seen as a strategy to develop secure markets as part of their plans to domesticate and cultivate the plant[23]. South Africa's own production of wild-harvested Devil's Claw is around 30 tons a year. Current production from cultivation is not known, but is believed to be low.

Stakeholders from all three range states have expressed a need for regional cooperation and policy coordination to strengthen the bargaining position of primary producers, and efforts are being made to organise such cooperation. The major issue that would need to be addressed is how to keep poor harvesters in the industry and prevent rich settler farmers in South Africa and Namibia from taking over the market completely.

From traditional remedy to modern phyto-medicine

Applying the Western medical paradigm to Devil's Claw resulted in a focus on the concentration of specific active ingredients (with harpagoside most often used as marker), standard extracts and dosage, and delivery in pill or capsule form - all essential features of "legitimising" a herbal remedy in the world market. This is nowadays the general trend in herbal medicines worldwide. It is also the key to transforming raw materials into high-value products and thus - potentially - to delivering more benefits to the owners of traditional knowledge and/or primary producers of the raw materials.

Disregarding for the moment the inadequate and unequal benefit-sharing arrangements between Devil's Claw harvesters and end users, it must be acknowledged that without the initial investment of pharmaceutical companies, without the skills that the investment paid for, and without sustained research and marketing efforts, the Devil's Claw industry would not have been anywhere near its current size. It is this investment that companies try to protect through various intellectual property rights (IPRs) such as patents, brand names and trade secrets. It can be argued that without the added value derived from such IPRs the benefits available to share would be rather measly. Without prior traditional knowledge, however, there likely would have been no industry at all.

In their concern about IPRs derived from traditional knowledge, developing countries sometimes under-appreciate the fact that the proprietary knowledge of industry is also imperfectly protected. Over the years specific pharmaceutical companies paid for the basic research and regulatory compliance that made Devil's Claw into the widely accepted treatment it has become. This knowledge is now in the public domain and represents a huge "saving" for new entrants to the market. Such a situation does not encourage investment in the development of new products from genetic resources.

Finding effective and equitable ways for commercial partners to turn an up-front investment in the development of new products into a competitive advantage is obviously a key issue in the development of new products from genetic resources, and in the successful implementation of the benefit-sharing envisaged in the CBD. Namibia's draft *sui generis* legislation on access to genetic resource and traditional knowledge seeks to address this problem by proposing a tripartite contractual arrangement (including suppliers, users and Government).

Who adds value and who benefits, how much?

It has been estimated that more than 10 000 harvesters in Namibia rely on the harvesting and sale of Devil's Claw to generate a significant proportion of their cash income. This money is doubly valuable because it is distributed in remote areas where few other sources of income are available. Nevertheless, a typical Devil's Claw harvester only earns somewhere between US$10 and US$50 a year from harvesting - a clear demonstration of the extreme poverty of harvesters.

[22] T. Matlhare pers. comm.
[23] C. Lombard pers. comm.

Namibian exports of Devil's Claw are estimated to be worth more than N$10 million - and possibly as much as N$15 million - in foreign exchange earnings per annum[24]. This represents a significant contribution to the economy. More than 50% of this income accrues to a handful of exporters and other middlemen. Apart from the initial post-harvest slicing and drying, the only valorisation effected in Namibia consists of milling and packaging, but the volumes processed are insignificant. An aqueous-alcoholic extract from South Africa is, ironically, imported into Namibia.

Over the last 25 years the Deutschmark price of Devil's Claw has dropped by 85%, with Namibian harvesters and exporters kept in the trade by the continued weakening of the local currency[25]. Even so, the current price of dried Devil's Claw tuber on the international market (around US$3.00/kg, FOB in a European port) is not a reflection of the value of the raw material, or of the inputs by harvesters in terms of labour and management.

Most Devil's Claw is exported to Germany, France, the United Kingdom and Switzerland in an unrefined state for further processing. Other markets, notably in the Far East and the USA, are also opening up. The marketing chain comprises a few companies producing extracts of Devil's Claw, and several more firms that buy these extracts and include them in proprietary formulations. Strict commercial secrecy prevents an analysis of the profits made at the various stages.

When the retail value of Devil's Claw preparations in Northern markets is calculated on an dry-weight equivalent basis, prices range from US$300[26] to US$700[27] per kilogram dry tubers. The bottom line is that Namibia captures at most 1% of the value of the trade in Devil's Claw extracts, and harvesters no more than 0.5%. Even when the retail mark-ups, packaging, marketing and processing costs are deducted, it seems obvious that the processors and formulators are making outrageous profits at the expense of extremely poor people. Crushed tuber intended for use in herbal tea sell for about 20 times its import price (40 times what harvesters get) in German pharmacies[28].

Since the dried tuber slices are in any case milled before processing, SHDC has proposed that a simple way to add a little more value locally and save on shipping costs (by allowing more cost-effective containerisation) would be to do the milling before export. However, repeated request to European processors for information about their requirements in this regard have simply been ignored, again raising questions about the willingness of the pharmaceutical industry to share even the simplest of benefits with primary producers.

In an aging world the prospects are good for a natural anti-rheumatic medicine of proven efficacy and with no side effects. Many stakeholders have therefore suggested the possibility of producing Devil's Claw extract in Namibia. While this would be desirable from the viewpoint of value adding and employment creation, several major questions remain unanswered:

- Would it be economically feasible – in terms of volumes and economies of scale – to establish an extraction facility for only one resource? (The European facilities processing Devil's Claw typically process a wide range of other plants as well.) In the alternative, can a Namibian facility secure sufficient quantities of other marketable resources to sustain a multi-purpose extraction facility?

- Would European and other formulators accept an extract produced in Africa as being of equal quality to one produced in Europe?

- Would processing truly increase returns to Namibia, or would the owners of established brands simply conduct their unfair trade one step higher up the value ladder?

- Would a Namibian processing facility really be able to pay higher prices to harvesters, or will they continue to be exploited, this time in the "national interest"?

[24] N$1 = ±US$0.13
[25] M. Kraftt, cited in Du Plessis 1999
[26] B. Bennett pers. comm
[27] Hammond et al 2000
[28] P. Siegfried pers. comm.

Impacts of the CITES proposal

Because of international concerns regarding the increased level of trade, Germany proposed in 1999 that both species of *Harpagophytum* be listed on Appendix II of the Convention on International Trade in Endangered Species (CITES). Appendix II of CITES allows "controlled trade" in the listed species, but this distinction is not very clear in the public eye, where CITES is predominantly associated with pandas, whales, elephants, rhinos, tigers and other highly-endangered animals.

Namibia and other southern African range states did not support the listing, citing inadequate range-state consultation, lack of data, on-going national efforts to regulate resource use, and the effects on the livelihoods of extremely poor harvesters. The proposal was later withdrawn, partly as a result of protests by NGOs. In terms of a CITES resolution adopted at the eleventh Conference of Parties (CoP11) in Nairobi in March 2000, Namibia and other range states that export Devil's Claw are required "to submit to the Secretariat all available information concerning the trade, management, regulatory measures and biological status of *Harpagophytum* species." This information is to be submitted before the next CoP, which is expected towards the end of 2002. The proposal to list has nevertheless had severe negative consequences in the international market, and by implication for the livelihoods of the extremely poor people who rely on wild-harvesting for an income.

The CITES proposal caused an immediate, and probably temporary, dip in market demand, but its most worrying effect has been the renewed impetus it has given to domestication and cultivation efforts, especially in South Africa. Due to the support given to white farmers by the apartheid state, South Africa has the most developed and efficient agriculture in Africa, and might conceivably produce Devil's Claw at prices and in quantities that would make wild harvesting redundant. This would destroy thousands of rural livelihoods in Namibia and Botswana. The South African *Farmer's Weekly* misrepresented the CITES proposal (emphasis added) thus:

> A motion to **ban** the international trade in harvested wild Devil's Claw put forward at the ... CITES conference in Nairobi in April was withdrawn ... temporarily - **on condition that agricultural production supersedes the harvesting of wild Devil's Claw by ... 2004**. (August 11, 2000)

While there is probably nothing that Namibia or anyone else can do to stop South African researchers, farmers and entrepreneurs from developing a cultivated Devil's Claw industry, it is a telling example of the inherent contradictions in international development and co-operation that this research has been funded by USAID and GTZ[29] - large development agencies also active in Namibia and Botswana - with the aim of developing alternative crops for emergent small-scale farmers, and yet there has been no consideration of, or discussions with Namibians or Batswana about, the potentially disastrous effects on the livelihoods of marginalised people, or about how the benefits of such work can also be shared with Namibian owners of indigenous knowledge, or even about what levels of agro-technology would be suitable to agro-ecological conditions in other range states. As one commentator observed, this looks like a clear case of "robbing Peter to pay Paul".

It would seem that the sentiment in certain sectors of the pharmaceutical industry is also shifting against wild-harvesting, no matter how sustainable or socio-economically beneficial, and towards cultivation, even if it takes place in the highly exploitative agricultural environment engineered by apartheid. As an example, the only large German pharmaceutical company that ever got so far as to propose a (fundamentally flawed) contractual benefit-sharing arrangement with Namibian harvesters has shifted its marketing hedge bet to cultivation on a white commercial farm in South Africa, with no apparent concern even for the few traditional harvesters who still survive in that country, never mind their counterparts in Namibia and Botswana.

To add insult to injury, genetic material from Namibia and Botswana has been collected without the necessary permits (or even prior informed consent) and is being used in cultivation trials to select high-yielding strains. This is one aspect of Devil's Claw in which the letter and spirit of CBD is clearly being disregarded, notwithstanding the absence of national legislation on access to genetic resources (which is still being drafted).

Domestication and cultivation, and the sustainable development opportunities they encompass, are the last substantial benefits available for sharing with traditional users, who face severe agro-

[29] Von Willert & Schneider 2001

ecological, institutional and technical constraints in using such opportunities. If the cultivation methods that are currently being developed can succeed under South Africa's more favourable climatic, human resources and institutional/infrastructural circumstances, but cannot be replicated under the much less developed conditions prevailing in traditional use areas, the expropriation of the original providers of traditional knowledge about Devil's Claw will be completed, and the only winners will be the (South African and Namibian colonial) commercial farming and (European) pharmaceutical sectors.

3) Purpose and objectives of SHDC

3a) Primary motivations

The real motivation for starting SHDC can be traced to the expanding ecological awareness among Northern consumers and their concomitant interest in ethical trade as a tool for conservation. This fast-growing market niche (especially in the UK), combined with reports about the dismal situation of Devil's Claw harvesters, prompted a British trader of herbal products (Mike Brook of Hambleden Herbs/The Organic Herb Trading Company) to commission a botanical resources researcher (Cyril Lombard of CRIAA SA-DC) to investigate the possibility of securing a long-term supply of Devil's Claw that had most or all of the features desired by ethical consumers, including sustainable resource use, environment-friendly (organic) production and socio-economic justice.

Initial investigations revealed that there was no such supply in Namibia or elsewhere, because the harvesters were disorganised and exploited, which in turn led to the widespread use of unsustainable harvesting techniques. Lombard contacted the Oxfams in Namibia - the largest NGO presence in the Omaheke Region - about the situation and obtained funding from them and from the Namdeb Social Fund to start working with harvesters to meet the requirements of the market. This was the start of SHDC, which has subsequently been supported by the stakeholders detailed in Section 1a above. The response from harvesters would suggest that there is a definite role for "honest broker" NGOs to engage in top-down activation of benefit-sharing arrangements to stimulate sustainable use, especially in cases where the traditional resource users are institutionally weak and disorganised.

The primary motivations of the harvesters for participating in SHDC were economic. They were (and outside the project still are) being exploited most horribly by relatively affluent "middlemen" who have access to transport and working capital (usually through employment in Government or the private sector). Because of the spatial isolation and socio-economic marginalisation of Devil's Claw harvesters they are especially vulnerable to an exploitative in-kind trade, with payment made in food and drink at highly inflated prices. The first thing harvesters therefore wanted was a fair cash price. Secondly they wanted a reliable market for their production, so that they could plan ahead and manage their resource. Thirdly they wanted assistance with building their own capacity to manage their harvesting and trade, both in the form of organisational support and with such simple physical things as scales, record books, knives, drying frames and bags.

Harvesters also had other motivations:

- Exchanging information on sustainable harvesting techniques
- Learning and meeting the quality requirements of the market
- Collaborating in efforts to devise appropriate cultivation techniques
- Representing their own interests at policy level
- Securing access to processing technology or other profit centres (e.g. brand names, product image) in the marketing chain

The motivations of private sector partners have been of two types:

- The Namibian exporters were motivated on the one hand by a desire to support more equitable trade in order to encourage resource sustainability (which is after all in their own long-term economic interest as much as in that of the harvester), and on the other hand by an opportunity to secure a reliable supply of high-quality, fair-traded material

- Prospective European business partners have generally been interested in the potential of the project to address consumer concerns about traceability, ethical supply and sustainable resource use (and the costs of addressing such concerns), but there has been a marked difference between those prepared to walk the long road required to make such arrangements genuine, and those who were only looking for an any-African-will-do quick fix to the marketing image of their products

3b) Contribution to longer-term objectives

SHDC contributes to more general long-term objectives in the following way:

- To *social development* by boosting the overall organisational and institutional capacity of marginalised rural communities to manage their own resources and trade

- To *economic development* by increasing the earnings of harvesters, distributing cash in a region with few other sources of income, and conserving an important natural resource for use by future generations

- To *sustainable development* in a harsh agro-ecological environment through sustainable use of a hardy perennial desert plant
- To *livelihood security and well-being* through cash incomes and by encouraging sustainable resource management

- To *food security* through expanded income options and cash earnings (and – to an un-quantified extent – through the creation of "paid" opportunities to collect other wild foods that might not themselves warrant a dedicated collection effort)

- To *trade* through resource conservation, a more equitable distribution of profits, and lower collation and collection costs

- To *environmental protection* through increased incomes and an economic incentive to manage and harvest resources sustainably

3c) Links with CBD

The objectives and motivations of the various participants in SHDC are entirely in line with the CBD objectives of conservation, sustainable use and equity. The provisions of the CBD regarding access to genetic resources and traditional knowledge are also directly relevant to the project. However, there was no explicit reference to the CBD at the outset - the "close fit" between the project and the Convention can therefore best be attributed to the fact that the CBD codifies sound development and resource-use principles that had been articulated in other fora long before the CBD was agreed in 1992.

4) Establishing benefit-sharing arrangements

The Devil's Claw harvesters who participate in SHDC are among the most marginalised and powerless people in Namibia. They have limited skills in negotiating and bargaining. While concerted efforts were made to secure their input and to incorporate it into the design of the project, the initial benefit-sharing arrangements had to be made on behalf of harvesters by service NGOs. However, the arrangements contained in SHDC are fluid and evolving, and it is envisaged that harvesters will increasingly articulate their own priorities and expectations as they develop their organisational capacity and become more confident about their rights and powers as resource users.

5) Implementation of SHDC

Devil's Claw has been established in world market for decades, but before SHDC very little thought had gone into sharing benefits with harvesters. In fact, as discussed above, the growth of the industry had been based on extremely exploitative relations of production and trade. Into this situation SHDC introduced a simple model for benefit-sharing arrangements, based on the insight that there is a growing congruence of interests linking ethical consumerism in the North to sustainable resource use

and socio-economic equity in the South, and that the proper role of the trade under these circumstances is to link producers to consumers in a way that gives everyone what they want. Essentially this is a question of how to translate the principles of the CBD into a workable business model.

A simple description of SHDC would be:
Donors (EU, Oxfams, ...) fund a service NGO (CRIAA SA-DC) to activate and organise groups of registered harvesters. Harvesters engage in an exchange of knowledge about sustainable resource use and voluntarily adopt sustainable resource management practices that they have helped to formulate. Harvesters are assisted by pre- and post-harvest ecological surveys to set sustainable harvesting quotas, and to monitor compliance with sustainable harvesting techniques. They elect a co-ordinator and/or record-keeper and are assisted with knives, drying racks, scales, record-books, clean new bags, storage facilities, extension/liaison services and in securing group harvesting permits. The product is certified "Organic" by the Soil Association (UK). When a group of harvesters have a full load of dried tubers, they contact the exporter (Gamagu) directly or through the SHDC extension worker. The exporter collects the load and pays cash on the spot (for practical reasons collection and payment are sometimes done by project staff on behalf of the exporters, but only when this coincides with other fieldwork and space is available). In return for pre-financing, collating and transporting, the exporter makes a fair profit - negotiations are underway about ways to share this profit with harvesters, and in 2001 a pro-rata bonus was paid on the 2000 harvest. The next step in the process, which would be to link the "eco-friendly" product directly to a market segment in Europe, is currently being pursued, but has not been achieved yet.

Scope and scale

In 1999, SHDC covered an area of some 307 415 ha. To lower the cost of organic certification, 88 households from 35 commercial farms in the Dordabis district were taught sustainable harvesting and included in the Soil Association's annual inspection, but without any organisational or ecological support (due to financial, logistic and political constraints). In total the project worked with 328 harvesters and households, and produced 10 210.4 kg of Certified Organic Devil's Claw, which generated N$122 524.80. Excluding the Dordabis farms, 240 harvesters from "SHDC proper" participated, earning N$67 108.80 for 5 592.4 kg of Devil's Claw, or about N$280 each on average.

In 2000, 162 harvesters from the resettlement farms sold 4 740.6 kg through the project, earning N$55 971.70 (the slight discrepancy in payment resulted from weight lost to drying while in storage, while the lower number of harvesters was due to one major producer group voluntarily deciding not to harvest at all, to give the resource a chance to grow). The implementation of sustainable harvesting techniques by harvesters resulted in higher quotas being set, and average earnings increased to about N$345 per harvester. A bonus of N$1/kg was paid on this production in 2001, bringing total income to N$60 711.10, or about N$375 per harvester. During the 2000 season 54 "associate" harvesters from 19 commercial farms in the Dordabis district sold a further 3 326 kg of certified organic Devil's Claw for N$39 912.00.

Before and after

Prior to the establishment of SHDC:

- Harvesters received from around N$1.00 (or even lower!) to an upper and exceptional N$8.00 per kg for their dried sliced Devil's Claw. Poverty played a major role in forcing harvesters to sell at whatever price they could get as they could not bargain from any position of strength.
- Harvesters often supplied stock under dubious credit arrangements and were often "paid" in alcohol or other consumer goods at highly inflated values.
- Harvesters had very poor links to exporters, usually through a series of middlemen.
- Harvesters did not know from season to season if buyers would turn up to purchase their stock, and had limited choices or options regarding buyers.
- Harvesters only sold very limited amounts.

- Harvesters had no idea of the actual weight of the material they sold nor the price they received per kg.
- Harvesters had no idea what the product was being used for, outside of their own local utilisation, or even where it was going when it had been sold.
- Harvesters had no opportunity to link better quality to better prices.
- Harvesters had no assistance regarding ecological and sustainability issues.
- Harvesters had no voice in the industry and no opportunity to take up issues with wider stakeholders.

These conditions are similar to those experienced by the majority of Devil's Claw harvesters in Namibia and as such are not specific or exclusive to the primary producers with whom SHDC works. Subsequent to the implementation of SHDC however:

- SHDC harvesters obtain a minimum of N$12.00 per kg for their dried, sliced Devil's Claw (and earned a bonus of N$1.00/kg in 2000).
- Comments from other exporters suggest that media coverage of SHDC has encouraged harvesters outside the project to demand higher prices.
- Harvesters are paid cash at strategic stages during the harvesting season.
- Harvesters deal directly with the exporter, with whom they are developing a practical and operational relationship. In some areas it may become prudent to utilise "functional" middlemen from the rural areas to link with the exporters, but when this is done it will be from a more equitable footing because of the empowerment of harvesters. Harvesters also have access, if necessary, to other important exporters/traders.
- Harvesters can plan their harvesting level and can sell all their stock every season.
- Harvesters can and usually do sell significantly larger quantities than before.
- Harvesters have scales at community storage facilities, which allows them to know how much they produce and sell, and the group to know how much they are selling to the exporter.
- Harvesters have an improved understanding of what the product is used for in the export market, and in some case have even met the importers of their product.
- Harvesters understand and exploit the link between good quality material and the higher prices realised by clean material of known origin with organic certification.
- Harvesters are assisted annually with ecological surveys for quota setting, post-harvest surveys, and organic certification.
- Harvesters and their concerns have since been well represented at various national and international stakeholder fora.
- Harvesters are saving and re-investing some of their earning to buy equipment (e.g. drying racks).

The SHDC project has demonstrated that ensuring good prices, making information available, creating options, strengthening their bargaining position and providing general support can encourage harvesters to take (and make them want to take) responsibility for the management of the resource. Compliance with sustainable harvesting techniques, i.e. leaving the taproot undisturbed and refilling holes, for example, has increased to between 80 and 85 percent. This is generally not the case in other areas where Devil's Claw is harvested in Namibia.

SHDC has also in conjunction with harvesters embarked on research specifically directed at improving the position of harvesters, e.g. the impact of harvesting on regeneration and growth rates. In this regard the input of the harvesters' expert knowledge and experience is crucial. Without encouraging the combination of traditional knowledge and applied science, research would not result in a holistic understanding of the ecology and biology of Devil's Claw.

During 2001, CRIAA SA-DC will be facilitating a formal partnership agreement between SHDC harvesters and the exporter, who have further committed themselves to sharing profits. In 2001 harvesters received an additional income from the sales of 2000 - an effective way to guarantee minimum prices in a fluctuating market and share windfall profits, but also an additional incentive to supply a high quality product and to conserve the resource. The increasingly close two-way relationship being established between harvesters and exporters can only benefit the resource and its users in the long run.

6) Policy, legislative and administrative context

6a) Influence of legislation and policy environment

Namibia has limited institutional capacity to enforce laws and regulations and to turn policy into reality, especially in the remote rural areas where most Devil's Claw harvesting takes place. The result is that harvesters' voluntary adoption, and communal enforcement, of sustainable harvesting techniques and practices remain key aspects in regulating resource use. However, the ability of organised groups of harvesters to ensure good resource management is closely tied to issues of land and resource tenure, which are often outside their control.

6b) Helpful policies and regulations

The Namibian Constitution requires that Government supports conservation and sustainable use of natural resources. Government has furthermore adopted a consultative approach to decision-making, which encourages stakeholder inputs into policy and legislation. This has created an opportunity for Devil's Claw harvesters to raise their particular concerns and defend their interests, as they did when a new permit system was introduced (see below).

At a more general level, Government supports and encourages community empowerment, rural income creation and local value-adding – policies which all played a role in giving Devil's Claw harvesters access to national support structures.

Namibia's current policy on Devil's Claw harvesting

As outlined above, the permitting system for harvesting and transporting Devil's Claw that was introduced in 1977 was abandoned in 1986 due to a lack of compliance and enforcement, and permits were thereafter only required for exports. In August 1999, however, the Ministry of Environment and Tourism reintroduced a permit system in response to concerns about over-utilisation, reports about exploitation of harvesters and complaints from some land-owners about unfilled harvesting holes posing a danger to livestock and vehicles.

In its original format, the new permit system drew strenuous objections from harvesters, who pointed out that it effectively criminalised their participation in an activity that was their main source of income, because most of them were illiterate and could not complete the required paperwork. They also pointed out that complying with the systems would require each harvester to make at least two – and possibly several more – trips a year to an MET office, which – given the spatial remoteness of harvesting areas and lack of transport – could consume up to 50% of their already meagre income from harvesting. To its credit, MET took cognisance of these objections and – with input from a National Stakeholders Workshop held in November 1999 – redesigned the system to address at least the most pressing of problems. The current policy is quoted verbatim below:

> The objective of this policy is to outline a control mechanism, which will allow the Ministry of Environment and Tourism to closely monitor the utilization of *Harpagophytum*, to ensure that sustainable harvesting methods are used and to collect better information on the dynamics of the *Harpagophytum* trade.

It is proposed that:

1 A harvesting season for *Harpagophytum spp.* from March to October, be declared. No permits will be issued outside these seasons.

2 Harvesting will be subject to a permit which:

a. will be valid for the whole harvesting season;
b. will not be transferable;
c. will require the prior permission of the landowner (in case of communal areas, this may be the traditional authority and/or the representative of the regional and local government);
d. may be issued to an individual, or a group, but the number and names of persons who will harvest must be specified on the application, and stamped copies of the permit will be provided for each harvester;
e. permits will be valid for a particular locality only. MET reserves the option to set a quota on any particular permit issued;
f. each person harvesting must be in possession of a valid permit (or valid copy thereof);
g. will stipulate that sustainable harvesting methods be used;
h. each permit holder will be required to submit a report-back on the number of bags or total weight (kg) harvested, and to whom such bags were sold, and on which dates, by the end of November of each year;
i. new permits will only be issued on receipt of the report back from the previous permit, and confirmation that sustainable harvesting techniques were complied with.

3 Persons dealing (purchasing, transporting, selling, exporting, importing) in *Harpagophytum* must be registered annually with MET, and will be required to keep a register of all transactions, including permit numbers of persons from whom material was bought, with clear distinction between the two species of *Harpagophytum*. A dealer will be required to complete the details of transactions with harvesters on the harvesters' report back form, and to sign accordingly.

4 Permits issued by MET will still be required for the export of *Harpagophytum*, and applications for export must be accompanied by copies of the register showing clearly where the material originated. Permits will be issued separately for the two species.

5 Permits will be required for cultivation or research on *Harpagophytum*. In this case, cultivation will be defined as the cultivation of *Harpagophytum* for commercial purposes. Feasibility studies into cultivation will be regarded as research, and applications must therefore be submitted as such. Application forms can be obtained from the Specialist Research component, Division: Specialist Support Services, Windhoek.

6 Phytosanitary certificates will still be required from the MAWRD for export of *Harpagophytum*. These certificates will only be issued upon production of a valid MET export permit and valid import permit / authorization by country of destination/import.

7 Projects involving the value addition of *Harpagophytum* will be supported and encouraged, in the interest of National development.

The two main concessions to harvesters that were agreed at the Stakeholders Workshop were that permits would be valid for the whole season (originally they were to be for one month only) and that permits could be issued to groups (which allowed organised groups of harvesters to share the cost of

obtaining permits and reporting back on their harvesting). SHDC played a key role in securing these essential changes, specifically by helping to organise the national workshop, organising a preparatory workshop for harvesters, and facilitating the attendance of harvesters' representatives at the national workshop. Without the project it is unlikely that the harvesters would have been able to access the proper channels to make themselves heard (they had not been consulted before permits were re-introduced).

The workshop also resulted in the formation of the national Devil's Claw Working Group (see 1a above).

6c) Constraints

Despite the positive results achieved by SHDC, there are still many constraints to securing better benefit-sharing deals for Namibian Devil's Claw harvesters:

- The land tenure situation is not clear in most harvesting areas – in most cases the land belongs to the State and is controlled by civil servants or traditional authorities, making it difficult for harvesters to enforce good management practices

- Legislation to regulate access to genetic resources has been drafted but not enacted – this has left the door open for commercial interests who have been collecting Namibian Devil's Claw to use in propagation trials, without any arrangement to share benefits

- Virtually all harvesters are very poorly educated and therefore unable to follow the convoluted debate about benefit-sharing, or to negotiate a good deal without assistance

- Many harvesters still lack the most basic information about prices and marketing channels for their Devil's Claw, leaving them at the mercy of exploitative middlemen and exporters

- The only IPRs over Devil's Claw that are formally recognised are the patents[30], brand names[31], trade marks and trade secrets held by processors

- Traditional Devil's Claw users have been dispossessed of their resource rights in four distinct phases – firstly through conquest by in-migrating Bantu-speaking groups, secondly by German colonisation, thirdly by South African occupation and apartheid resettlement, and finally by physically and economically more powerful cattle owners who have established themselves in harvesting areas

- Despite a few concessions to marginalised harvesters, administrative procedures continue to favour literate people with access to transport, and many San harvesters complain of informal ethnic discrimination by civil servants who are supposed to help them comply with regulations

- The (mainly European) importers, processors and wholesalers of Devil's Claw are absolutely unwilling to share information about their costs and profits, making it impossible to judge the exact share of benefits accruing to each role player in the production and marketing chain (but giving rise to a general belief in Namibia that foreigners take by far the largest share of the cake and are unwilling to play open cards because they know very well how unfair their profits actually are)

- For most Namibian role players Devil's Claw is their main – or at least a very important additional – source of income, while for most importers it is only one of many resources in which they trade; this obviously puts Namibians in a disadvantageous position in negotiations, and allows importers to dictate the terms of trade

[30] For example WO9744051 by H. Finzelberg's Nachfolger (Germany), US5,888,514 by Bernard Weisman (US), WO9734565 by Willmar Schwabe (Germany), US5,929,038 by Choongwae Pharmaceutical (South Korea), UK Application GB2335919 by Essential Nutrition Ltd (UK)

[31] For example Arthrosetten (Brenner-Efeka, Germany) Algophytum (Herbaxt, France), Jurcurba (Strathmann, Germany), Harpagoforte Asmedic (Dykerhoff, Germany), Harpadol (Arkopharma, France), Fitokey-Arpagophytum (Inkeysa, Spain), Doloteffin (Ardeypharm, Germany) Pagosid (Salus/Duenner, Germany)

- To date (despite some encouraging noises from certain quarters) no foreign processors have been willing to invest in adding value to Devil's Claw inside Namibia, preferring instead to maintain the iniquitous and exploitative trade in raw materials which so typically characterises trade between developed and developing nations

- Poverty forces harvesters to accept bad prices, especially when money is required urgently - diversified livelihood options and alternative sources of income would help to empower them against unscrupulous buyers

7) Impact on conservation

In its project areas SHDC has already had a significant impact on conservation of Devil's Claw, and possibly on the wider conservation of biological diversity. In the first place this was achieved by recognising and legitimising traditional knowledge about sustainable harvesting, and extending a "best practices" message based on traditional knowledge to those harvesters who did not have such TK (because they were too young or were not from a traditional harvesting background). Equally important, by securing a better price for harvesters SHDC has provided them with a long-term incentive to implement sustainable harvesting techniques, and to take control of the management of the resource.

The conservation impact has not only been in the form of improved protection (through sustainable utilisation) of an economically important species at local level, but has also (potentially) prevented, or at least slowed, genetic erosion by increasing the survival of individual plants, which can now or later be included in screening programmes aimed at identifying desirable traits. Ironically, this second type of conservation might ultimately work against the interests of the very people responsible for conserving the genetic diversity of the Devil's Claw population.

There are indications that the improved benefit-sharing, and the local organisational and institutional empowerment of harvesters, achieved by SHDC potentially have a wider impact on the ecosystem in project areas. Specifically, the harvesters' groups have been identified as grassroots focal points for interventions to commercialise other natural products from the area, and for efforts to increase cultivation of semi-wild drought-resistant crops.

The conservation impacts of SHDC on Devil's Claw are assessed on an annual basis through ecological surveys[32], and are also subject to on-going participatory research.

8) Lesson learned and replicability

8a) Lessons learned

The predominant model of benefit-sharing under the CBD is that of a large corporate bio-prospector paying an indigenous community or, more often, a national government in cash or kind for the right to systematically evaluate its biodiversity for new and potentially lucrative uses, usually with a small share of the profit on successful developments, and sometimes some technical capacity-building, thrown in. This approach excludes many communities with valuable biological resources and thus substantially reduces the desired impacts of the Convention in its key objectives of conservation, sustainable use and – especially – equity. No wonder that critics of the CBD have accused it of being little more than an instrument to legitimise the developed world's expropriation of valuable genetic materials occurring in developing countries - "biodiversity for sale"[33].

Despite its limited scale and scope, SHDC demonstrates that it is possible to use benefit-sharing as a tool even in cases where resources have long been commercialised and the market is effectively controlled by outsiders. By providing traditional harvesters with some very simple institutional and organisational assistance, they can be put in a position where they derive substantial additional benefits from their resources, and thus have additional incentives to conserve those resources and use them sustainably.

[32] See Strohbach 1998 & 1999a; Carr 1999
[33] Hammond et al 2000

The case of Devil's Claw further demonstrates that intellectual property rights over innovative and new uses are not the only biodiversity benefits available for sharing. There are very real, and potentially very long-term, benefits to be had from the successful domestication and cultivation of Devil's Claw. That research into this is being funded by large international development agencies without any apparent concern for the holders of traditional knowledge, and is being conducted in a way that is extremely unlikely to benefit those traditional users, further demonstrates that not all biopirates are large corporations, and that even those who should know better actually have scant regard for the provisions of the CBD.

On the other hand, SHDC also demonstrates that the co-operation of commercial partners from the developed world is not an absolute prerequisite for sharing benefits with primary producers. It is possible to achieve more equity at a national level simply by organising rural producers so that they are better able to negotiate a good deal with their richer compatriots who are in control of secondary trade. However, since the final buyers in the North hold most of the cards, such increased benefits are precarious and ultimately any concerted pressure on exporters will be passed on to harvesters, to take it or leave it – and with their limited options they will be forced to take it.

Another lesson that can be learned from SHDC is that the European phyto-pharmaceutical industry in not prepared to reveal how much profit it makes off the backs of extremely poor people, most likely because the companies involved realise how bad this will look to the more progressive sectors of their customer base.

Seen from a contrary angle, this represents a real opportunity for harvesters to secure a better deal, provided that they can present sound, well-founded arguments backed up by solid facts to justify their claims for a better share of the cake. The growth of ethical consumerism in developed countries is therefore a potential negotiating tool for producers in developing countries. More specifically, it should be acknowledged that the main profit centre in the global economy is brand-name recognition and the associated customer loyalty. For this reason it is theoretically in the long-term interests of both harvesters and pharmaceutical companies to create a firm public link between a specific brand and ethical, equitable practices at point of origin. Regarding Devil's Claw there are encouraging signs that at least some of the more progressive buyers are beginning to realise the value of such a partnership, and talks are underway to do turn it into a reality that benefits primary producers.

In the absence of any analyses of the profit chain from the time that Devil's Claw arrives in a European port until it disappears down a consumer's throat, it is hard to be exact about the extent of the inequality prevailing at present. However, for most Devil's Claw harvesters the only things that could be worse would be if consumers were to stop using the product (e.g. as a result of the proposed CITES listing), or if the trade were to be monopolised by commercial growers.

Conversely, the best-case scenario for Namibian Devil's Claw harvesters would be the development of a low-input, semi-wild cultivation method that can be used to increase populations under the severe agricultural constraints imposed by the plant's natural environment, and the consequent development of a viable and profitable local processing industry in which they had an equity interest.

8b) Transferability

This case study on Devil's Claw in Namibia could be considered representative of countless other resources harvested by extremely poor people in developing countries for the benefit of rich processors and consumers in the developed world, especially those that were commercialised before the CBD was negotiated. In most of these cases harvesters can be assisted to obtain a better share of the benefits (and thus be motivated to support conservation and sustainable use) by:

- Helping harvesters to organise themselves at a local level so that they can manage their resources sustainably
- Clarifying land and resource tenure so that harvesters have a firm basis from which to plan and implement sustainable management
- Facilitating more equitable partnerships between primary producers and other stakeholders in the trade and industry, preferably globally, but failing that at a national level

- Providing harvesters with more information on the fair value of their product in the market, to protect them from exploitative trade practices

- Linking specific groups of harvesters to a specific brand that promotes itself on the basis of its fair and equitable treatment of primary producers who use environmentally sound harvesting practices.

The CBD concedes the principle that improved benefit-sharing can foster conservation, sustainable use and equity. It is now up to the primary resource managers of the world (and their service organisations) to convince users that this principle should, in all fairness, be applied in all cases where genetic resources identified through traditional knowledge are commercialised. At the very least, consumers in developed countries should insist that their pharmaceutical industries protect and promote the interests of the people responsible for ensuring the survival of the resource.

8c) Advice for implementation

In conclusion, the authors would like to offer the following recommendations for consideration by policy markers and industry:

- Do help harvesters to get organised at local level – disorganised and isolated harvesters are far more likely to resort to unsustainable harvesting out of desperation

- Do create positive links between sustainable resource management and better prices – use organic certification and/or fair trade practices to access ethical consumers

- Do not look to cultivation as an alternative source of supply without considering the impacts on the livelihoods of extremely poor people; if cultivation is seen as the only option, make sure that it is practical for traditional harvesters, not just for rich farmers, and provide traditional harvesters with technical and financial support so that they can make use of the opportunity

- Do not propose as a mere precautionary measure that resources be protected by listing them on CITES without suggesting viable alternatives for the harvesters who rely on them for an income

- Do not assume that just because a resource naturally occurs in one nation it can be developed without considering the impacts on harvesters in neighbouring countries

- Good policy and/or legislation are not enough – support to marginalised peoples, relevant and useful information, and "honest brokers" are also needed

- The transaction costs of benefit-sharing have to be kept low to allow more spending on actual benefits – this can be achieved by involving the largest possible number of harvesters and spreading the costs over the largest possible number of resources.

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