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Perspective, part of a Special Feature on [The Science and Practice of Ecology and Society](#)
Sweet, Sticky, and Sustainable Social Business

[Verina Ingram](#)^{1,2} and [Justin Njikeu](#)^{3,4}

ABSTRACT. African forest-based beekeeping has a long tradition, has been practiced in Cameroon for centuries, and contributes on average to 52% of household incomes of beekeepers in the Adamaoua savannah and Northwest montane forests. Livelihoods, regulatory and policy framework, business environment, and forest management are intricately linked in the chain from beekeeper to consumer. However, it has not been a route out of poverty; despite support, the majority of beekeepers subsist on \$2 a day. An energetic, innovative, and entrepreneurial group named Guiding Hope is leading a new wave of indigenous social entrepreneurs revitalizing the apiculture sector with the aim of improving this situation. The story of how they developed, the challenges faced, and how they have translated multidisciplinary scientific findings into action is recounted. The combination of participatory action research, a value chain approach, monitoring, and learning from traditional knowledge has led to positive societal and ecological benefits that extend from Cameroon to an international level.

Key Words: *apiculture; Cameroon; nontimber forest products (NTFPs); poverty; value chain*

INTRODUCTION

"Beekeepers of Cameroon, let's rise and build together" were the welcoming words uttered by Ousmanou Bardé, a beekeeper and new honorary president of the first National Gathering of the Beekeepers of Cameroon in August 2010. His surprise and delight at seeing nearly 100 beekeepers from all the regions of Cameroon gathered in the red earth and savannah fringed town of Ngaoundal was visible. Some beekeepers had traveled for nearly two days, on hot trains and packed into overcrowded vans amidst chickens and children, dodging roadblocks and muddy potholes to attend the meeting organized by apiculture enterprise Guiding Hope. The gathering aimed to kick-start a platform of all actors in the chain from beekeeper, processor to harvester, retailer and exporter, focusing on developing the Cameroonian beekeeping sector, solving problems, and creating opportunities.

Guiding Hope is an organization linking several parts of the apiculture chain in Cameroon: a young, energetic, innovative, and entrepreneurial group that is at the forefront of a new wave of indigenous

social entrepreneurs revitalizing the sector. Their aim is to improve the livelihoods of beekeepers, the management of the forests upon which they depend, and the institutional and regulatory framework in which beekeeping in Cameroon is framed. The story of how they developed, the challenges faced, and how they have translated multidisciplinary scientific findings, ranging from anthropology, business, development, forestry, agroforestry, botany, and apiculture, into practice is recounted here. This has led to positive benefits for both society and ecology in Cameroon, with far-reaching international implications.

THE APICULTURE SECTOR IN CAMEROON

Apiculture products such as honey, wax, and propolis are all nontimber forest products (NTFPs) of animal origin. In Cameroon, honey is predominately used as a high energy food. It is valued as a treatment for coughs, skin infections, and burns, and if sold provides an important source of cash income. It also has a cultural value in traditional ceremonies and as a gift in the West,

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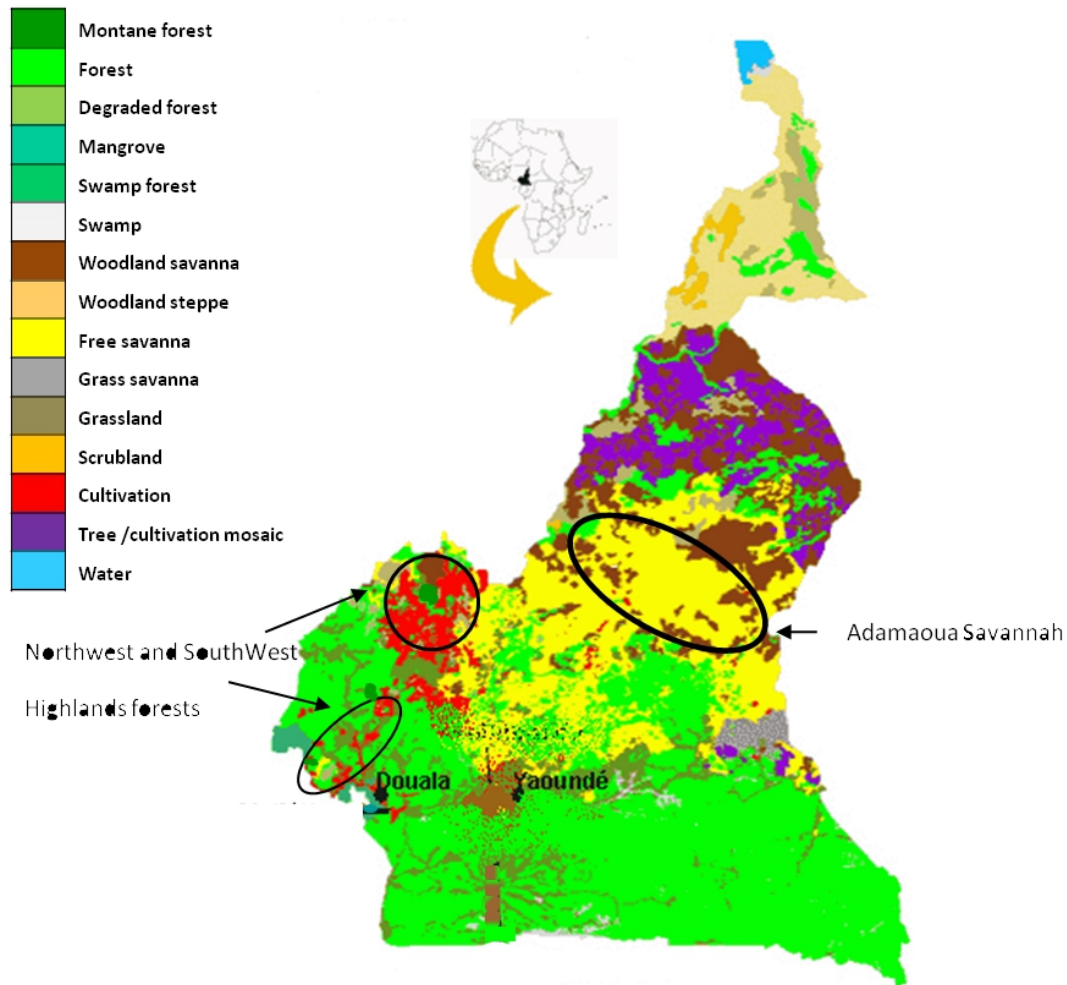
Southwest, and Northwest regions, and the humid forest zone for the Baka ethnic group. Wax is used to manufacture candles and in cosmetics and pharmaceuticals, particularly for its hydrating and emulsifying properties. Traditional craftspeople and metalworkers also use wax to create moulds. Propolis has high medicinal value, is used in traditional medicines, and is increasingly in demand by European and American pharmaceutical companies. These multiple use hive products, both in their raw and processed state, are traded locally, nationally, and internationally with export and national markets opening up and changing dramatically in the last five years. Beekeeping can contribute to environmental integrity because some beekeepers protect the forest to ensure their harvests, meaning that beekeeping can and has been used to support forest conservation initiatives. This has led to the promotion of bee farming as a conservation positive activity in Cameroon as elsewhere; it is supposed to inhibit forest clearance, protect and aid the management of forests, and provide vital pollination services for forest ecosystems and agriculture (Nurse et al. 1995, Hausser and Mpuya 2004, Timmer and Juma 2005, Brown 2006, Biovision 2007, Russell 2008).

In Cameroon, the principal production zones are Adamaoua, producing more than 3.3 million liters annually, valued at around 2 billion Central African Francs (FCFA). At least 92,843 liters originate from the English speaking Northwest Region, and 48,900 liters are produced in the West Region (Fig. 1). About 235 tons of wax was produced in 2006, primarily for export within Central Africa, with an estimated value of 530 million FCFA. The largest wax production zone is in the francophone Adamaoua region, concentrated in Djerem division; it is also produced in smaller quantities in the Northwest around Bui, Belo, and Mezam divisions, in the Southwest in Kupe division, and in the West in Mifi division. Other apiculture products added about 1.5 million FCFA to total revenues per year. In the humid forest zone, honey is mostly harvested from the wild, with little beekeeping practiced. On average a beekeeper has at least 5 years of experience, up to the most experienced at 40 years. It is estimated that there were at least 20,000 beekeepers in Cameroon in 2009 (Republic of Cameroon 2008). More than 8600 beekeepers were known to be members of 639 Common Initiative Groups, cooperatives, or nongovernmental organizations in 2008. There is, however, a great variation in the level of collective action, with most groups located

in the Anglophone zone. These organized groups have existed on average for 5 years, indicating that the sector is stable and established but also growing. The numbers of hives per beekeeper also varies widely per region: the average is 11, ranging from 45 in Adamaoua, 16 in the Northwest, to 3 in the Southwest and West. Average annual honey production per hive in 2009 was 12.5 liters in the Northwest and 10.5 liters in Adamaoua. This could provide an income per hive, if all by-products are sold, of about 26,250 FCFA annually, based on an average honey production of 12.5 liters at a retail price of 1500 FCFA per liter for earnings of 18,750 FCFA, 2 kg of wax worth 5000 FCFA, and 0.5 kg of propolis worth 2500 FCFA. The majority of beekeepers, however, harvest only the honey and throw away other hive products. An average Oku and Belo beekeeper's annual income from apiculture was 281,000 FCFA in 2007. Calculating all associated costs, the average profit was 29,760 FCFA. In Ngaoundal, average annual income from apiculture in 2007 was 207,000 FCFA, representing 43% of total household income. A liter of honey from a producer in Adamaoua sells for at least 250 FCFA and is resold for between 1500 FCFA and 2500 FCFA in the cities. The producer selling price in the Northwest is higher, about 1000 to 1500 FCFA, because of the lower quantities, larger customer base, and higher market demand. This appears to be a major inflation of price and profit, however, margins include transport, storage, packing, and sales costs, with intermediaries bearing the risks of storing and selling honey. A small proportion of the harvest (2% to 10% in the Northwest and less than 2% in Adamaoua) is consumed by beekeepers; most honey produced in Cameroon until the present is sold in local markets. An unknown quantity of honey is exported from Adamaoua to adjacent countries in Central Africa and the Middle East. In 2010, for the first time, 22 tons of certified organic and ethical trade honey was exported to Europe. The higher quality yellow wax, as opposed to black and smoky wax that is cheaper and easier to make in large quantities, sells for about 2500 FCFA per kilo. Propolis prices range between 4500 and 10,000 FCFA a kilo, but this is often only available in small quantities and used mainly by traditional medicine healers. Less than 30 kg is exported annually.

Cameroon is a lower middle income, poor country with an extremely difficult business context in which to operate, illustrated by its consistent ranking as one of the most corrupt countries in the

Fig. 1. Map of main production zones



world (141 out of 180) in 2008 (Transparency International 2009a) with high levels of bribery and corruption in public institutions (Transparency International 2009b). Cameroon has limited financial infrastructure, lengthy and long-winded procedures for opening bank accounts and creating companies, and extortionate taxes on imports and exports. It performs poorly in creating an enabling environment for business, rating 171 out of 181 countries (World Bank 2009), highlighting how complicated it is to start and maintain a business. There were no regulations at all concerning apiculture or hive product standards or quality, production and processing, imports or exports up to 2007.

PARTICIPATORY ACTION RESEARCH

Guiding Hope and their partners have used a combination of participatory action research, a value chain approach (Appendix 1), and monitoring as their main analytical concepts, combined with learning from indigenous and traditional beekeeping practices. These form the basis of their, and many of their partners', actions and interventions in the apiculture sector.

Participatory action research (PAR) is an eclectic and dynamic field with deep, multidisciplinary roots but with new, evolving developments (Sithole 2002). It is based on a continuous cycle of

systematic planning, taking action, observing, evaluating, including self-evaluation, and reflecting prior to commencing the next cycle (Greenwood and Morten 1998, Wadsworth 1998). It is a collaborative method to test new ideas and implement action for change and involves direct participation in a dynamic research process, while monitoring and evaluating the effects of the researcher's actions with the aim of improving practice. The core of PAR is to increase understanding of how change in actions or practices can mutually benefit a community of practitioners (Carr and Kemmis 1986, Reason and Bradbury 2001). The research aspect of PAR attempts to avoid traditional extractive research where so-called experts go to a community, study their subjects, and take away their data to write findings, often giving little back, having little impact and even less accountability to the research subjects (Shanley 2009, Shanley and López 2009). Research in the PAR method is, therefore, ideally by and for the local people, designed to address specific issues identified by these local people, with the results directly applied to the problems. Outcomes are difficult to predict initially, challenges can be sizeable, and achievements depend on the commitment, creativity, and imagination of the researchers and the target community, in this case the beekeepers under the umbrella of Guiding Hope and stakeholders in the value chains. The actions taken aim to address identified problems. In Cameroon, problems were first identified in 1989 (Paterson 1989) for the Northwest honey sector, and then from 2006 to 2008 were addressed as part of local, regional, and national problem solving workshops and situation analysis meetings, largely lead or supported by the nongovernmental Netherlands Development Organisation (SNV) in collaboration with local beekeeping and apiculture producer organizations (Erasmus et al. 2006, Anembom Consulting 2008, Cohen 2008, Niba Fon 2009). These analyses were then used to develop interventions, feed discussions, stimulate actions, and act as intervention pathways for multiple actors in the chain to stimulate change, provide benchmarks to aid monitoring and reflection, and seek support of other partners for the chosen pathways. A PAR approach that combines both science and capacity building was also adopted when the author, a former SNV adviser, joined Guiding Hope to pursue her doctorate, agreeing with the team that PAR represented a valuable learning framework for their collaboration.

Guiding Hope's philosophy of ongoing monitoring is founded in their experience of observation, monitoring, and reflection from two disciplines: anthropology (Bernard 2006) and management sciences (Gasper 2000, de Boer 2001). Monitoring is a systematic, continuous assessment of data related to a project or activity in relation to an agreed schedule, including the targets, inputs, infrastructure, services, and outputs of a project or activity, by beneficiaries or the organization itself. It is a management tool whose objective is to provide continuous feedback on implementation and to identify actual or potential successes and problems as early as possible to facilitate timely adjustments to the activity. Tools include logical framework analysis, which sets criteria and indicators, and baseline states. Case studies, surveys, and questionnaires can be used to collect data.

A monitoring framework approach was first stimulated when Guiding Hope became one of the 2008 SEED Initiative 'Supporting Entrepreneurs in Sustainable Development' winners, which promotes and supports an assessment of development through partnership monitoring. This is a tool that oversees and considers the dynamics of partnerships through different stages and strategically supports the initiation, design, implementation, and further development of partnerships. Ultimately it reflects the progress of a partnership toward achieving its economic, social, and environmental goals. SEED's approach draws on their experience in actively supporting entrepreneurial partnership projects for sustainability, providing guidelines to enable better overall planning, ignite potential advocacy, and provide internal and external motivation to promote more effective implementation. Partnership monitoring is understood as the ability of stakeholders to self monitor different areas of performance and internal processes, encouraging transparency and accountability, defining inputs, outputs, and outcomes and evaluating results. This enhances the partners' ability to (re)define new problems, tackle new issues, revise assumptions, and further develop their strategies. Eight critical success factors are used to assess four key performance areas of sustainability (SEED 2010a, SEED 2010b). Two further grants, from the World Bank and United Nations Development Program Global Environmental Facility, also used both technical and financial logical frameworks to measure the progress of reaching objectives, and although not always easy to do, further internalized the value of monitoring for Guiding Hope.

Another tenet of Guiding Hope is to use and learn from indigenous knowledge and traditional practices. This springs from the long history of traditional beekeepers, compared with the short-lived results observed after the implementation of “modern beekeeping” practices. This observation is supported by academic research that has demonstrated the strengths and often efficacy of indigenous and traditional knowledge-based forest practices that have sustained livelihoods, cultures, forest, and agricultural resources of local and indigenous communities throughout Africa for millennia. Such knowledge is tightly interwoven with traditional religious beliefs, customs, folklore, land use practices, and local decision making processes that have historically been dynamic, responding to changing environmental, social, economic, and political conditions to ensure the continued provision of tangible and intangible forest resources. Despite their importance and contribution to rural and urban livelihoods, traditional forest related knowledge and practices are under pressure in most African countries, as elsewhere worldwide. Reasons include imbalanced power relations between the state, local, and indigenous communities whose governance systems are often conflicting or contradictory, and the erosion and decline of traditional knowledge and practices and interest in them, particularly among younger generations. The negative effect of this loss of traditional and indigenous knowledge on livelihoods, cultural and biological diversity, and the capacity of forested landscapes to provide environmental goods and services remains poorly understood, largely unappreciated, and undervalued by policy makers and the general public in most countries (Parrotta et al. 2008, Mala 2009). In apiculture specifically, it is also increasingly understood that Western or European beekeeping practices introduced to developing and tropical countries may not be either the most efficient, effective, or economically sound approach (Paterson 2000, Lowore and Bradbear 2009, Husselman et al. 2010) and that traditional practices can have many tried and tested benefits (Wainwright 1991, Endalamaw and Wiersum 2008).

RESULTS

The sweet and sticky story that became Guiding Hope begins in 2003, when Rebecca Howard, a young and innocent British anthropology student,

headed to Cameroon for an internship with a coalition of human rights and capacity building nongovernmental organizations. Through them she met beekeepers in Ngaoundal, Adamaoua, the sparsely populated central savannah region of Cameroon, which she adopted as the subject for her master’s thesis (Howard 2005). She learned how cultures and collective action work in practice and about the factors that influence success and failure when nonindigenous and external cultures meet. One influential person she met was Adamaoua’s biggest honey and beeswax trader, Paul Mboui, a native of Djerem. He had been slowly but surely trading tons of honey and beeswax to buyers in ever increasing quantities to neighboring countries Nigeria and the Central African Republic for the last decade. His ambition is concrete and local, to export directly and profitably to international markets and feed his growing family.

On returning back to Britain, full of enthusiasm for the honey business, Howard started working with Tropical Forest Products, the only British importer of African honey. As marketing officer, she learned the trade and gained hands-on experience.

A business opportunity

In 2005, SNV in Cameroon started taking an interest in developing the honey sector following a poll with local forest conservation and development organizations, a group called the Western Highlands Conservation Network (WHINCONET). This identified honey as one of the top forest products in the Northwest of Cameroon and led SNV to commission a market study of the sector because little data could be found on the value chain. The anthropologist joined with like-minded friends from Ngaoundal and Yaoundé to produce the winning bid for this study: Yves Soukontoua, a PhD candidate in nutrition at the University of Ngaoundéré, providing a professional and scientific rigor to the team; Hermann Tchamba, who had been selling honey in Yaoundé and had practical experience in selling and logistics; and a young Cameroonian entrepreneur Michael Tchana, who was keen to put his Master of Arts in Peace and Development Studies into practice as well as finance his studies.

Guiding Hope was excited by the gap it noticed while doing the market study; it saw an opportunity to channel the huge stockpiles of beeswax

discovered in remote corners of the Northwest, to improve the quantity of the hundreds of tons of smoky, black wax produced in Adamaoua, and to sell the thousands of tons of honey produced annually there to new markets far from the saturated ones about which the beekeepers in the main production areas complain. Potential European markets also appeared to be begging for pure and organic apiculture products. This conflux of factors captured the attention of Michael, who decided to make Guiding Hope the subject of his final thesis on how beekeeping organizations in Cameroon react to the problems of ethics, fair trade, and sustainable development (Tchana 2010). In doing so, he initiated studies on the socioeconomic and health aspects of the beekeeping communities, which are also instrumental in setting a baseline to measure and monitor the progress and impacts of Guiding Hope's activities.

The birth of Guiding Hope

By September 2006, the anthropologist was drawn back to Cameroon armed with rapidly gained experience in the international honey market, the importers expression of interest in new African honey sources, and a strong conviction that something different and more sustainable could be done to improve the lives of the beekeeping community and their environment. She started volunteering for the Voluntary Service Overseas (VSO) that was supporting the Djerem Honey Union in Ngaoundal to develop the honey value chain and strengthen the beekeeper associations. She was excited to be VSO beekeeping 'missionary', spreading the beekeeping development modernization mantra of new hives resulting in better lives. This was an (in)famous mission in the beekeeping world, to try to transform beekeepers, who have learned apiculture skills from their grandparents' grandparents and can produce hundreds of hives from only local materials at little cost, into 'modern' and 'professional' beekeepers, requiring heavy financial investment and a new set of skills, and transforming needs to be externally focused and driven. She learned that this inevitably resulted in beekeepers hoping and expecting that all solutions come from 'outside' and not being locally driven or determined. One such apparent solution seemed to turn up in the form of aid from a donor partner to develop the Djerem Union. However, unfortunately 60% of the funds were pocketed by the 'partner', dashing the beekeepers hopes and creating skepticism about external support.

The local connections and knowledge of the team, international links, shared vision, and collaboration that emerged during the market study were enough to fuel the launch of Guiding Hope. The group was legalized in April 2007 with four members: Michael, Rebecca, Hermann, and Yves. The aim was to create a marketing structure linking beekeeping producer communities to sell to the international market. Initially Guiding Hope worked in partnership with Paul, the local honey and beeswax trader, and as trust was built up, he became the fifth member as production director. The sixth and final member had a different and special status. Verina Ingram had been working in an advisory and capacity-building role in natural resource management with SNV in Cameroon from 2004 to 2008. In June 2008, inspired by this dynamic starter enterprise, she began collaborating with Guiding Hope as environment and marketing director, while starting her doctorate with the Centre for International Forest Research (CIFOR) and the University of Amsterdam, on the sustainability and governance of nontimber forest chains in the Congo Basin. They agreed that she take an advisory role as part of active participatory research for her PhD. The idea that Guiding Hope could learn from a value chain approach excited the team, because they saw their enterprise as one key actor in African apiculture chains. Thus, drawn together by friendship, fortuitous meetings, academic ambitions, the desire to innovate, and to be a positive example, the team was complete.

From vision to action

Guiding Hope's vision solidified and enlarged in the next year. Their aim was to sell to regional markets; to diversify products, which is critical to diversify beekeeper incomes and iron out wide price fluctuations; to involve marginalized groups in the communities such as women and youths who have fewer opportunities to earn cash and develop businesses; to increase awareness of the environmental aspects of apiculture and work with the communities on forest protection, regeneration, and sustainable methods of production; and to combine this with a much needed community-led and determined development approach so that beekeeping families guide their own development, and address pressing problems of the lack of potable water, health care, and education (Soukontana et al. 2007). Focusing on more profitable markets means that prices can reflect the true value of forest and products, and stresses the need to protect this source

of the value chain. These forests, however, are threatened by a combination of climate change, i.e., increasing desertification and unpredictable climatic events with resulting pests, and human factors, including bush fires created by grazers, agricultural expansion, and felling trees for fuel wood, which is increasingly used to melt beeswax. Ironically the species most valued for fuel, Kofia (*Lophira lanceolata*) and Kea (*Daniella oliveri*), are also most prized for bee forage. Kofia also produces a rich medicinal and cosmetic oil which can be used in honey/wax-based soaps and cosmetics. Local resources used to build hives such as raffia (*Raphia mambilenses* and other *Raphia* spp.), bamboo (*Oxytenanthera abyssinica*), and rattan (*Laccosperma laeve* and *L. Secundiflorum*) are all multiple-use species in high demand and decreasing availability, leading to a vicious circle of long-term degrading of resources and livelihoods. Verina and Michael's science-based approaches to developing a sustainable business and value chain meant that the first step was an environmental and social impact assessment of Guiding Hope's current and proposed operations to determine how this circle could be broken, and then work with groups to verify this and promote local knowledge of forest regeneration and community environmental awareness. Partners in the Northwest such as Belo Rural Development Project (BERUDEP), the Apiary and Nature Conservation Organisation (ANCO), North West Honey Cooperative (HONCO), and Oku Honey Cooperative already had experience in managing similar environmental concerns, and so were linked to the Ngaoundal beekeepers to exchange traditional knowledge and practice. Scientific institutions such as CIFOR and the World Agroforestry Centre, and development organizations such as SNV, were also used to gain knowledge of agroforestry, regeneration techniques, and forest regeneration approaches. This resulted in projects awarded by UNDP and the World Bank to address these issues and assessments of the botanic sources of hive products, supported by pollen analysis, which provided a unique angle that Guiding Hope can use to market honey and propolis. This is particularly important because many Cameroonian consumers are unaware that the vast range of different colors, flavors, and consistencies of honey and propolis and their medicinal properties are determined by the origin of bee forage. These data have subsequently been channeled back into scientific articles (Fohou et al. 2010) through conferences (Kosalec et al. 2010; V. Ingram, M. Zovko Koncic, I. Kosalec, *unpublished manuscript*), public information such

as a profile of Cameroon honeys, and a business orientated technical data sheet. A national marketing campaign, using both this indigenous and scientific knowledge, is currently being prepared to inform, educate, and titillate consumers on the qualities, benefits, and uses of apiculture products. Yves' biochemical scientific background is put to good use as he introduces the concept of testing all the groups' apiculture products so that the physical, chemical, microbiological, and nutritional qualities can also be used as unique selling points in marketing and to assure consumers, buyers, and government authorities and inspectors of quality.

Challenging and sticky beginnings

When Guiding Hope started to inquire about the regulatory and political framework for apiculture, it soon became clear this was a void which offered both potential but also frustrations. The gap meant the group was open to the vagaries of government officials, international development organizations, and donors who all knew best how to complete the framework but often not based on any experience or taking a value chain perspective, keeping beekeepers livelihoods in mind. These actors at times proposed unsustainable notions for developing the sector, incompatible with local conditions, despite increasing calls from both the scientific and apiculture sector that a 'modern' beekeeping and production orientated approach is unnecessary or even detrimental (Bradbear 2004, Bees for Development 2006, Bees for Development 2008, Lowore and Bradbear 2009). However, backed by supportive partners who did share their philosophy, Guiding Hope surmounted business administrative, regulatory, and logistical hurdles and cultural barriers one by one, and by October 2007 the first container of beeswax was exported. This marked an important milestone in the consolidation of relations between Guiding Hope and the British importer. Until then, relations had been held together by the anthropologist, exchanging the problems and fears of the start-up Guiding Hope enterprise with advice from the 20-year-old small company. This relationship also allowed Tropical Forest Product's long experience with the organic and fair trade honey market in Zambia (Wainwright 1991) to be optimized in Cameroon. Partners also shared what they had learned from other African countries; SNV was also active in capacity development of the Zambian honey sector and CIFOR was researching apiculture

chains there, ensuring a fruitful four-way exchange of research results, practical experiences, and trading tips. Although the business and cultural environment make the Cameroonian situation very different from the importers' experiences in Zambia and elsewhere in Africa, similar problems emerge, such as organizing beekeepers but maintaining their cultural practices and values.

Producer foundations

Meanwhile, the foundations were being laid with 1200 or so beekeepers around the major honey producing area of Djerem. These groups were selected by Guiding Hope because they are dynamic and hardworking, and ready to believe that the young enterprise will turn its words into action. That is, Guiding Hope provides training, builds appropriate honey storage centers, and buys honey, wax, and propolis at stable and higher-than-market prices. A socioeconomic study carried out by Guiding Hope's partner Support Programme for Local Experiences of Self Employment (PAELLA-E) had determined that the major problem with the existing market was unreliability of buyers and prices that change roughly every two weeks during the honey season (Soukontoua et al. 2007). A value chain analysis further uncovered a widespread spider's web of beekeepers with hives dotted most of the way across the 63,000 km² region of Adamaoua. Also discovered were hundreds of 'buyam sellam' (the pidgin term for buyers, sellers, wholesalers, and intermediary traders) out on the attack to gain a small margin on honey bought from the village and delivered to the town by a set of clandestine transporters carrying sacks of honey in over-laden cars, barely fit for the bumpy roads, communicating either by very patchy phone network coverage, or otherwise simply by word of mouth. The analysis enabled intervention areas, value addition opportunities, and inefficiencies to be identified.

While starting with the Adamaoua beekeepers, Guiding Hope maintained their contacts with the Northwest beekeepers who had originally stimulated their vision. Because it takes over two days via atrocious roads to go from one area to the other, with costs, language, and transport issues presenting barriers initially more insurmountable than the mountains crossed, upscaling activities in both regions at the same time was not possible. Instead, the route taken was to exchange

experiences from the high volume Ngaoundal production zone and forest management techniques from the highly biodiverse and threatened montane forests during two exchange visits to the Northwest, along with knowledge gained from the doctorate study and links with SNV. Learning from the Northwest practices such as high quality, low volume processing, their emerging and larger range of by-products, and higher levels of organized groups for production and marketing has been highly educative. Also important has been the sharing of problems faced by both areas. For example, the Northwest has much higher rates of deforestation and conflicting land use, and more experience with research, conservation, and development organizations proposing solutions to these problems. A scientifically based analysis of how the value chains in the two regions work and comparisons with chains in Zambia and Congo (F. Paumgarten and V. Ingram, *unpublished manuscript*) provided a good basis to solidify links and develop a relationship between three producer cooperatives in the Bamenda Highlands with Guiding Hope and beekeepers from the Ngaoundal villages. It has also led to links with support and network organizations like Apitrade Africa, which also works in Zambia.

Weighty bits of paper

Although the goal to export honey to the European Union had been set and initial contracts discussed, this remained theoretical until October 2009 (European Commission 2009) because Cameroon first needed to join the list of eligible countries recognized by the European Commission to export honey free of contaminants. Getting on the list required a concerted effort by the government and Guiding Hope. Normally in countries where apiculture is a minority industry tucked away in the corner with no one in particular responsible for it and little or no budget to develop it, this can take a very long time to happen. In Cameroon, things were pushed forward by an impatient Guiding Hope, supported from the sidelines by United Nations Food and Agriculture Organization (FAO) and SNV. Eventually the government took up the challenge and appointed a qualified official to supervise the dossier, be responsible for beekeeping in Cameroon, and generally develop the sector. By November 2009 Cameroon had its own functioning EU approved Honey Residue Monitoring Scheme and in 2010 was also authorized to export wax for hive frames. Guiding Hope to date is the only

registered Cameroonian enterprise and only exporter, but is likely to be followed by two more enterprises in 2011, because it has been instrumental in setting up and leading the Cameroon Union of Apiculture Exporters, and the network of organizations known as the Inter-Profession (a chain wide platform organization), many of who attended the 2010 National Gathering. This network covers the whole value chain and, critically, given the business environment, is supported by the government; regulations are now being created.

Similarly, the potential high-value markets identified by Guiding Hope require organic certification of products, producers, and processors. A bright yellow wax is also required instead of the traditionally produced smoky, black wax (Fig. 2). Logically, there is no risk of contamination by pesticides, fertilizers, or other chemical products in the vast expanses of sparsely populated savannah and montane forests. Bee husbandry is also at the opposite end of the scale from the highly commercial beekeeping carried out in Europe and high volume exporters such as China and Argentina, where the bees are regularly fed with sugar and treated with medicines, which is the reason the residue monitoring standards of the European Commission were developed. However, the challenge is to prove this and to introduce product traceability and internal control in a predominantly illiterate context where almost all commercial transactions are carried out using mental arithmetic and where the 'client' and 'supplier' are known as Grand frère (big brother) and Petit frère (little brother), an informal and trust-based relationship that mistrusts formalization. The sustainable business philosophy of Guiding Hope also requires changing wax production methods to a more environmentally friendly, low impact system, not based on fuel wood, with the double aim of producing the cleaner yellow wax (Fig. 3) on a large scale. Despite the tropical climate, solar energy is currently too expensive and hi-tech an option to use as an energy source, and yet low-tech methods are inefficient in melting and processing combs. Therefore, a year long investigation and practical trial was started by Guiding Hope on fuel and water efficient production methods, using a scientific approach to evaluate results and compare with practices in other countries. This has been accompanied by a two year program of environmental education, tree planting, regeneration, and community protection of the sources of energy and hive materials.

To gain the economies of scale needed to make this social-ethical model of apiculture production profitable, an unprecedented level of organization, collective action, and quality control is needed. Guiding Hope, therefore, introduced a system of registering beekeepers and wax suppliers, providing training and signing contracts (a novel concept), building collection centers designed to ensure safe and appropriate storage of hive products managed by staff selected from the beekeeping groups. The system is controlled primarily by Mami Congossa (Mami is a term of respect for a mother, Congossa is a Cameroonian term for gossip), also known as Aminatou Hamoa. She is a single mother and head of her large family since the death of her beekeeper father, who is entranced by the vision of Guiding Hope and who has developed an attachment to the group. Her job it is to turn up by surprise in the village collection centers, listen to and observe everything going on, and then report it to Guiding Hope. Women are usually shushed by their husbands and expected to sit either outside the meeting room, listening through the walls, or to sit at the very back of the room and keep quiet unless they're spoken to, but Mami Congossa is an outstandingly courageous young woman who is confident enough to sit with the male beekeepers, and discover the truths that a formal inspector would not uncover. She also engages with the women, showing and encouraging them to try producing candles, body creams, and wax-based soaps to diversify their income sources and add value to the hive products. At the same time, she learns from their local knowledge of the forest and plants and their needs and opportunities, and feeds this back to the group.

Making real progress

In 2010, Guiding Hope secured its third year running of organic certification by the UK Soil Association, has expanded from the European to also the North American organic system, and has been certified under its Ethical Trade Scheme for the first time. The Body Shop International, a huge international, ethical trade producer of consumer products, after a long and sometimes difficult process of introducing procedures, sometimes with mutual misunderstanding, has successfully registered Guiding Hope to its own rigorous standard as 'Community Trade Supplier.' This means their honey and wax can now be found in Body Shop shampoos, creams, and cosmetics worldwide. Up to 22 people are employed part-time and over 1200

Fig. 2. Smoky black wax



beekeepers are affiliated in 32 villages around Ngaoundal, with three cooperatives being “preferred suppliers” in the Northwest. To date, over 100 tons of wax and about 20 tons of honey have been exported and twice that amount is sold locally in Cameroon, at prices up to 50% higher than normal market prices for the Ngaoundal beekeepers. Propolis is now being bought at a price double that for a kilo of honey, with first year orders for over 100 kg from Europe and the USA. It used to be thrown away. The beekeeping families are now experimenting more and producing apiculture-based products such as candles, soaps, creams, and honey wines (Fig. 4). Yves and Verina’s scientific backgrounds are again being used as they research product recipes and advise on marketing and business development models to see what products can be used and adapted locally to initiate new value chains. Examples of the increases in beekeeper incomes are now apparent in the communities; they range from purchasing a zinc roof for the house, to a motorbike to take products to market, more children are going to school, and women can afford

to pay to give birth in hospitals rather than the bush. Six nurseries have been established and plots of raphia, native bamboo, and rattan are now established, acting as demonstration and pilot sites. Guiding Hope’s aim, to use sustainable but profitable trading in apicultural products as a catalyst for improving quality of life of the producer communities, has started to be met. By providing the missing link in the commercial chain, it is bringing hope to producers by engaging transparently with them while providing the rigor and quality control required in accessing international high value markets and returning profits to the community.

The contribution of apiculture to livelihoods is gradually increasing; in the Northwest beekeeping is largely not a principal source of revenue but an important secondary source. Incomes from beekeeping contribute from 10% to 70% of total annual income (average 30%), with more than 80% of beekeepers deriving 30% to 60% of their annual income from apiculture. In Adamaoua, where

Fig. 3. Yellow wax



beekeeping is traditionally done by individuals or families and not as a collective activity, on average 68% of households in Djerem are involved in beekeeping. For 55% of these families it is their primary income source, providing up to 48% of total household income. Seasonal botanic variations allow for two harvests in some years and wide flowering variations in alternating years, leading to highs and lows of production in the savannah and mountain forests annually. Weather changes also strongly influence the quality and quantity of production, resulting in extremely variable incomes. A second survey is planned for 2011 to assess and monitor the socioeconomic impact in detail and see through the natural trends to assess the effect on livelihoods of Guiding Hope's actions.

DEVELOPING A GUIDING PHILOSOPHY: CONNECTING SCIENCE AND SOCIETY

Michael's master's thesis on ethical and sustainable trade (Tchana 2010), Verina's doctoral study on sustainable value chains (Ingram 2009, Ingram 2010; V. Ingram, *unpublished manuscript*; V. Ingram, M. Zovko Koncic, I. Kosalec, *unpublished manuscript*), Rebecca's anthropological work (Howard 2005) on beekeeping groups' cultures, and Yves' ongoing biochemistry and nutrition research all combined to strongly influence Guiding Hope's

business philosophy and strategy. The group first produced an ambitious business strategy in 2008 that drew heavily on theoretical concepts such as sustainable supply chains, value adding, sustainable development community participation, and empowerment. Their internal yearly evaluations, projects, and annual audits by the UK Soil Association, an inspection visit by The Body Shop and by venture capital organization Root Capital, together with winning the SEED Award 'Supporting Entrepreneurs in Sustainable Development' in 2008 are critical in testing the transition from scientific theory to results in practice and initiating a culture of monitoring, evaluation, learning, and action. Sometimes the group needed to go slow and to use an armory of arguments and justifications to explain to partners and certifiers why their concepts were either inapplicable or impractical given the local context and used monitoring results as evidence. For example, a classical development mantra is that collective action brings multiple benefits. However, the highly individualistic culture of the Gbaya, the major ethnic group of the beekeepers in the Djerem area, makes forming effective groups a challenge. In contrast, the Northwest producers are highly organized, stemming from their traditional, hierarchical and intricate ruler and clan system. Working out ways to respect and retain the strengths of the predominant culture, such as the authority of traditional chiefs and the traditional grouping in

Fig. 4. Women lead soap making



tontines in the face of partners, buyers, and financiers was not always easy. A tontine is a small, informal, social grouping based around mutual support of members, usually involving a regular, shared savings and loan or credit facility for group members, and is one of the main grassroots types of financing systems in rural and urban areas in Cameroon and Central Africa. Encouraging women to join and create apiculture tontines resulted in their empowerment and has therefore met with mixed reception in different villages, until social innovators and Mami Congossa created change and acceptance. This approach was reinforced by the legalization of Guiding Hope and centered around two common themes that were sufficient to motivate group formation: setting up and managing the microcredit savings groups and creating beekeeper-based football teams for a planned intervillage celebration of both football and beekeeping in 2011! These groups reinforce beekeeper adhesion to Guiding Hope and act as an entry point for providing training, information dissemination, and introducing quality and traceability procedures.

CONCLUSIONS

The story of Guiding Hope shows how only when economic, environmental, and social values are internalized by the value chain, combined with ongoing profits accruing over a sustained period, do beekeepers make changes that positively affect both ecology and society. These range from the practice of actively managing their forests, to changing the way they perceive, use, and process apiculture. Without the economic incentive, the majority of beekeepers take a short-term view to exploiting their seemingly abundant natural forest and environmental resources, threatening the very resource upon which they are dependent. Guiding Hope's interventions aim to secure long-term product, process, and market sustainability, laying the foundations for 'wins' in both livelihoods and conservation. Ethical business orientated interventions that have a multistakeholder and multidimensional focus on market arrangements and encompass the entire value chain (see Appendix 1) with a holistic and ethically based environmental-economic-socio-institutional perspective, appear to have had a greater success in moving toward both livelihood and conservation objectives than the traditional producer, conservation focused development projects.

The amalgamation of a new focus on quality and marketing, adding value by locally processing an increasing range of hive products for the local and national market, and high value, niche export markets both regionally and internationally, plus the attention to ensuring growth in production and sustainability, sets a positive foundation for the continued development of the sector. Small and medium enterprises such as Guiding Hope are driving this, setting their own and their affiliated beekeepers agenda themselves and providing a positive, guiding model for sustainable, small-scale, forest-based businesses. The contribution of apiculture to livelihoods of those in the main production zones is gradually increasing as opportunities grow. However, based on observations and reports on the apiculture chains from 2006 to date (*unpublished report* of the National Gathering of the Beekeepers of Cameroon held 5 to 7 August 2010 in Ngaoundal, Adamaoua; *unpublished report* of the Netherlands Development Organisation held June 1-2 2010 in Foumban, Cameroon), a number of outstanding actions remain to be completed to ensure a sustainable apiculture chain and continued progress, which include:

1. Creating a database and market information system using media such as local radios, newspapers, and mobile phones to understand, support, and monitor the apiculture market across the country and over time.
2. Professionalizing the chain and developing business skills.
3. Researching the already noted impacts of climatic change and its effects on beekeeping, the effects of using different hive types, and alternative management, harvest methods to increase profits and decrease workloads.
4. Ensuring dissemination of information on designs and production of key beekeeping equipment, e.g., hives, harvesting clothes, smokers, filters, solar melters for wax, etc., to support local adaptation of technology and enable access to equipment.
5. Research and action on apiculture development and enhancing the apiculture market chain, particularly access to markets with a focus on packaging, labeling and branding, financing, and exploring the potential in neighboring countries, i.e., Gabon, Equatorial Guinea, Democratic Republic of Congo, and Nigeria.

6. Creating dedicated training centers for beekeeping and processing.
7. Establishing processing activities for honey and its by-products in the production zones that can help combat unemployment of youth, women, and rural people.
8. Maintain geographic and chain-wide representatives, multistakeholder, nationwide, and regional exchanges of information, and platforms to enable effective responses to the difficulties and opportunities within the sector.
9. Profiling of products and the sector.
10. Development of legal/institutional frameworks including initiatives for exporting hive products and the development of national quality standards.

Responses to this article can be read online at:
<http://www.ecologyandsociety.org/vol16/iss1/art37/responses/>

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Fig. 5. Guiding the hope of beefarmers in Ngoundal. Collection center inauguration with village suppliers, March 2009



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APPENDIX 1. Forest value chains

The term value chain is useful to understand the activities that bring a product from the forest, to production and processing, through final delivery to consumers, and ultimately, disposal (Kaplinsky and Morris 2000). Value chain analysis is a conceptual framework for mapping and categorizing the economic, social, and also environmental processes, understanding how and where enterprises and institutions are positioned in them, and identifying opportunities and possible leverage points for improvement. It encompasses the organization, coordination, equity, power relationships, linkages, and governance between organizations and actors.
