Win-wins in forest product value chains? How governance impacts the sustainability of livelihoods based on non-timber forest products from Cameroon

Ingram, V.J.

Citation for published version (APA):
Ingram, V. J. (2014). Win-wins in forest product value chains? How governance impacts the sustainability of livelihoods based on non-timber forest products from Cameroon.

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Cola, Irvingia, Raphia, bamboo and Acacia value chains

Introduction
This chapter summarises the analysis of five additional NTFP chains in Cameroon: Cola nuts (Cola spp.), bush mango (Irvingia spp.), raffia products (Raphia spp.), bamboo (Yushania alpina and Oxytenanthera abyssinica) and gum arabic (Acacia spp.). The findings are based on interviews, literature, observation, resource assessments, value chain analysis, market surveys and trade data (see Chapter 3). The values provided have been verified and triangulated with literature and in workshops with stakeholders and are believed to be valid for the specific chain, its geographic locations and population sample for the time period of the data collection. These products and chains originate from the same three ecoregion study areas. They provide both complementary and contrasting views to the three previous chapters of how NTFP chains are configured (the products, location, actors, activities and values), their governance arrangements and sustainable livelihood outcomes. Compared to the extremes of governance arrangements, plurality and voids illustrated in the eru (Gnetum spp.), apiculture and pygeum (Prunus africana) chains, these five chains provide a broader view of products and chains in Cameroon. They reflect the wide range of non-timber forest products shown in Chapter 4.

Cola chain
C(k)ola (Cola acuminata, C. nitida and C. anomala) trees produce red, pink and white coloured nuts in mast years, which are high in caffeine, chewed as a stimulant and hunger suppressant. The bark is occasionally used as a remedy for ring worm. The nuts are a symbol of hospitality across Western and Central Africa and used in traditional ceremonies particularly in the montane ecoregions of the West, Northwest and Southwest. The rituals surrounding cola are elaborate and deeply ingrained in most aspects and levels of society, and include planting trees at a first son’s birth. All species are found in the wild, but most trees harvested are cultivated, located near homesteads

1 Included data published in peer-reviewed articles written or contributed to by the author (Awono et al. 2013; Wiersum et al. 2013), Ingram et al. 2010 (Colfer), Ingram and Tieguhong 2012, and peer reviewed reports in Annex 1.
and in managed forests, with tree size and interviews indicating some planted specimens of around 200 years old, confirmed by studies (Kaberry 1952; Goormans et al. 1955; Chilver 1961). Cameroonian cola was traded through Hausa trade caravans to the Nigerian caliphates and entered into the intra-African trade, which dates back to at least the 7th Century. *Cola nitida* was introduced from the Gold Coast and exported since around 1910 from colonial plantations in Cameroon to the main centres in Western Africa, and to the UK and US in the mid-19th century (Morgan 1959; Lovejoy 1980). In 1886 the American druggist John S. Pemberton invented Coca-Cola, combining coca and cola extracts as a headache and hangover cure (Kiple et al. 2001), sourced from West and Central African cola. Although shrouded in secrecy, it is highly likely that only synthetic extracts are now used (D’Amato et al. 2011). *Cola nitida* is preferred in Northern Cameroon, the subject of long distance and export trade. *Cola acuminata* is the preferred species in the West and Northwest. *Cola anomala* (known as *Bamenda cola, ehbe* in Oku and *ebii* in Kom) is the least traded, and found wild in Kilum-Ijim Forest. An estimated 90% of harvest in the Northwest and West originated from cultivated trees, found near households, on customarily owned farms and fallows, in managed forest and coffee and raffia agroforests. Around 10% originates from secondary forested areas, gallery forests and community forests.

The trade is reportedly not as lucrative or large as 30 years ago. A result is that old cola trees are not being replaced, continuing a trend identified in the West region in the early 1980s (Nguifo 1982), despite the then higher demand than supply. However, the product is still valuable: the Northwest and West chains are estimated to be worth 1.8 million US$ annually, with around 1,000 people, mainly men and children participating in harvesting during the season. Trade in the 1000 nut, 20 kg baskets extends to North Africa and the diaspora in Europe, with cola found in African shops in the Netherlands, Belgium and UK. This is confirmed by other studies (Duru 2005; Kendo et al. 2007).

Harvesting techniques are largely sustainable, as ripe nuts are gathered once fallen or by children climbing and shaking the tree, or hooked using a bamboo pole. The nuts are then extracted from the pods using a sharp knife, and transported to the harvester’s home, where the white mesocarp is removed, often by family members of the harvester. Nuts are then graded by size and quality and stored in plantation leaves, sand or using pesticide, allowing storage for around three months. Perishability is a problem, with up to 5% loss reported by harvesters and higher for wholesalers. Cola harvests are seasonal and so often form only a supplementary source of income for harvesters, with 85% of harvest sold, providing on average 81,000 FCFA, (SD 62,000) (171 US$, SD 131), around 25% of household income. Alongside cola harvesting, on average five other income sources were noted. Cola harvesting for trade is generally long established, the average harvester has been active for nine years. Traders tend to specialise in cola and earn more, on average 153,000 FCFA (SD 42,000) (324 US$, SD 88 US$) annually, frequently specialising in it and complementary crops (such as coffee and potatoes) and condiments with similar trade routes. These follow the ancient trade routes in cotton,
cloth, palm oil and salt. Nuts are commonly retailed by women (85%) in markets and by male youths roving along roadsides and toll gates. Sold individually, the nuts cost from 5 to 50 FCFA (0.01 to 0.10 US$). The majority of consumers were men and women of all ages, and around 10% in the Northwest were semi-nomadic herdsmen.

Illustrated in Figure 10.1, customary arrangements govern the chain, arising from the product’s long history of high economic and cultural value. In the Highlands, traditionally male clan lineage heads owned all tree crops and controlled the trade (Goheen 1996, Chilver 1961). This system of access to resources continues in largely the same way today, supporting a system of male wealth and power, which ultimately, in combination with surpluses from women’s farm labour and material capital, is transferred to ‘symbolic power’. Trees on private land are male owned and passed down patrilineally and may only be harvested with express permission of the owner. Traditional chiefs in the Northwest control access to wild or actively managed trees, normally receiving nuts and gifts in exchange for permission for large-scale harvesting. Rules to guard against unsustainable practices include prohibitions on climbing trees and plucking unripe fruit but allowing open access for community members to fallen fruits. Well-known management techniques may also be instigated if cola nut trees are not producing enough. Reported practices include marking the tree with ropes to avoid damage, fertilising with wood ash and slightly incising the bark to induce fruiting. Whilst there are no statutory regulations, at roadblocks and border crossings along the common regional trade routes trade is subject to corruption. No instances of collective action were found, however strong ethnic ties link traders from the Northwest and Extreme North. Informal, trust-based market-based arrangements dominate between traders, and sometime harvesters, enabling long distance, trans-national economic exchanges, dispute settlement, financial support and information sharing.

Figure 10.1 Intensity of governance arrangements in the Cola spp. chain
Bush mango chain

Bush mango is the term for two tree species producing oil-rich seed kernels. Originating in the humid forest ecoregion, *Irvingia gabonensis* is a tree bearing fruits with fragrant, juicy flesh, sweet juice. *Irvingia wombulu* (‘dry season mango’) has smaller, bitter fruit. Both are found wild (Leakey *et al.*, 2004). *Irvingia gabonensis* is semi-cultivated in some areas, left and or nurtured in farm fallows, small plantations in Akwaya, and regenerates spontaneously among well-used forest to farm routes (Ingram *et al.* 2011). In the Southwest, *Irvingia wombulu* is also widely found in farm fallows. The ground kernels, extracted from the hard fruit using a machete, are used as a condiment and sauce thickener. Cooking oil is extracted from the seed, the juice is used in cooking and wine, the pulp as a dye, the bark and kernels have multiple medicinal uses and the timber is used for construction. The kernels are increasingly processed in the USA and Europe as the main ingredient in weight-loss aids, health supplements and cosmetics.

Over 6,387 tons valued at 8 million US$ were harvested on average annually from five major harvest areas in the Centre, South, Southwest, Littoral and Eastern regions in the study period, with around 3,800 people active. An estimated 4,220 tons were exported annually to Nigeria, Equatorial Guinea and Gabon. Between to 31 to 58% of harvest is consumed by the harvester’s household, between 11 to 27% of harvest is exchanged and 31 to 58% is sold. Bush mango contributes on average 28 to 44% of household incomes. Average annual household income from bush mango in Cameroon was 145,960 CFA (SD 59,756) (324 US$) (132 SD), varying form 98,950 (219 US$) in the Southwest to 213,206 CFA (473 US$) in the Centre, South and Littoral and 125,723 CFA (279 US$) in the East. The price varies from 0.9 to 1.8 US$ per kg (producer) to 2.5 to 4.6 US$ (consumer). Near borders the price is strongly influenced by demand and supply. Ebolowa and Mblamayo markets respectively control 71% and 19% of the Cameroonian trade. In the Southwest, five main markets are the focus of a flourishing trade to Nigeria, where Nigerian agents work seasonally to store, distribute and set buying prices. Harvesters receive between 30 to 50% of the consumer buying price, with value increasing with transformation into cake and powder. Price-setting buyers cartels were opened up with the ‘Market Information System’ in 2008 which enabled new entrants and higher selling prices, especially at remote locations. Consistently slightly higher margins were earned by individual dealers, although average production per person is higher in groups. Over 90% of actors belong to marketing and processing associations. NGOs and research organisations are been supporting domestication trials of *Irvingia wombulu*. 

*Photo 10.2 Irvingia gabonensis* flowers, fruits and dried kernels, Yaoundé, March 2009
Exploitation is generally regarded by harvesters as sustainable, as only fallen fruits are harvested and as bush mango is usually left or actively managed in fallows. However increasing forest clearance may pose a risk to ecoregion level populations. Fruiting is highly variable from year to year and demand is generally higher than supply. Losses of 5 to 8% have led to 11 different storage methods being used (including pesticides) with different levels of effectiveness. On average 41% is harvested from farm-fallows in all the regions, varying from 37% in the East where it is not domesticated but left in fallows, to 65% in the Southwest where harvesters have planted or maintain it in agroforestry, fallow systems.

Shown in Figure 10.2, customary tenure and ownership rules dominate governance arrangements. Irvingia trees within forests are not owned by individuals or families and access is generally on a first-come, first-served basis. About 99% of harvesters indicated they did not require prior authorisation from any authority before harvesting. However, families tend to harvest in the same area each year, constructing ‘bush houses’ for the harvest season, indicating tacit acknowledgements of ‘ownership’ within most communities. Trees planted or maintained on farmland are owned by the landowner, with access restricted without permission. As Irvingia spp. has increased in value, some people have begun to clear land around these trees in the forest. This extension of tenure through clearance usually relates to farmland, but resources from retained trees are also considered to be owned by the family that cleared the land. ‘Outsiders’ and large scale buyers are required to register before purchasing from community members, with fee payable to traditional authorities. Rates differ from US $7 for indigenes to US $4.7 plus an unspecified amount of palm wine in Mbilishi to US $11 for the whole season in Kajifu. These fees have increased since 2001 (Sunderland et al., 2002) by up to 50%. Encroachment of customary forest areas by Nigerian communities is a considerable cause of conflict, for example in Obonyi I, Basho, Matene and Mobilise villages. Because of such conflicts, Mbilishe people began planting both Irvingia species. Other traditional controls include prohibitions on felling individual Irvingia spp. trees under any circumstances, climbing trees and harvesting unripe fruit. The fruit may be harvested only after it is ripe and has fallen to the ground.

Bush mango is not classed as a Special Forestry Product but has been the subject of mutual agreements (gré à gré) with a quota for 100 tons from the Centre granted to one permit holder in 2009. The majority of traders interviewed did not have permits but operated illegally or purchased way bills. Despite having a way bill, corruption at checkpoints and border crossings by police officers, forestry officials, customs, council, trade and quarantine officers is prevalent, amounting to 24% of costs. Market-based arrangements are most common, with conditions for its exchange and trade negotiated on the basis of market prices, and little exchange of information, learning from others during transactions and no consideration of resource sustainability. The Technical Operations Units set up for Takamanda landscape (see Chapter 6) to decentralise decision-making established partnerships with local populations through rural forestry or village committees. However financial and administrative power and authority have not been transferred in practice. Projects, such as PSMNR-SWP set up development committees in the Technical Operations Unit to provide an interface between the population and other natural resource users and guardians. The village management committees and community forests (adjoining the park) introduced new co-management arrangements, aiming to strengthen governance arrangements and devolve power and authority, but also increasing complexity, causing coordination problems and creating new opportunities for (mis)appropriation of power, authority and resources, both
financial and forest assets. In the study period emerging rules aroused harvesters’ fears that they would be prohibited from harvesting bush mango in the newly-gazetted Takamanda National Park, which would negatively impact their livelihoods.

Figure 10.2 Intensity of governance arrangements in *Irvingia* spp. chain

Raffia chain

Raffia palms (*Raphia farinifera, vinifera* and *hookeri*) have long been domesticated in the Northwest region in the montane forest ecoregion. Most palms are located in riverine, gallery forest patches and some in swampier semi-flooded plans. Six parts of the palm are used to create over 30 products of *Raphia* spp. palms. Stems are sold individually as poles, at the roadside in or domestic timber markets, used by beekeepers to make beehives and transformed by artisanal craftspersons into over 20 items such as mats, baskets, furniture and artefacts. These items are sold in stalls, markets and crafts shops, by the roadside and from the craftsperson’s home. The sap is fermented into *mimbo* (wine) and *aforfor* (liquor) by local tappers and sold in specialised palm wine markets, in food markets, by the roadside, directly to bars by individual tappers and from tapper’s homes. The cooked bitter yellow fruits are sold in markets and by children at cultural events. Seeds are sold to craftsmen for transformation into rattles and curtains and sold in craft markets. Leaves are woven into decorations, mats and baskets. The stem is used to create archways during funerals, traditional ceremonies and religious events, harvested directly by users. The fronds are used as roofing material. Items such as baskets and mats are traditionally not sold, but exchanged between families and craftspersons. *Raphia* spp. items such as wine and spears are traditional gifts, used to pay chiefs and customary authorities.
Many of these products have strong cultural significance, being used to decorate palaces, signify cultural events and in traditional musical instruments. The rituals associated with serving palm wine are core social and communal acts associated with hospitality, traditions captured by storytellers such as Chinua Achebe. Whilst most are also traded on a small scale (Box 4.1), palm wine, the fermenting sap tapped from the stems, also known as mimbo or raffia (from R. farinifera) or mbu (from R. hookeri and R. vinifera), is the most commercially valuable product from the species. The estimated market value of palm wine from the study area is 6,762,475 US$ annually. On average, 72% of production is sold, 12% consumed, and 8% exchanged or given as gifts. This low-cost popular drink, averaging 65 FCFA (0.13 US$) for mimbo and 75 FCFA (0.15 US$) per litre at the farm gate, is used in traditional ceremonies, often with cola nuts. It was the main alcoholic beverage prior to beer (400 to 500 FCFA (0.81 to 1.02 US$) becoming increasingly widely and cheaply available over the last fifty years. Palm wine is produced year round, although production is higher in the rainy season, and holidays and festivities increase demand for the 20 litre recycled oil containers of wine which are the common unit of sale. After around two days the openly fermented wine turns to vinegar. This short shelf life restricts the distances it is marketed. An increase of 20% a litre upon farm-gate prices was found in village markets, rising to 67% in village bars, 100% in town markets and 167% in town bars. Palm wine contributes on average 36% of average annual household income (190,444 FCFA, 388 US$) of ‘tappers’ (harvesters), supporting on average their household of seven. Tappers have up to seven other sources of income including five other NTFPs. Palm wine was rated by 52% of harvesters as their primary source of income. Men dominate harvesting (99%) due to cultural norms, the heavy work and distances involved. They walk or cycle once or twice daily (travelling on average 10 km), tending the palms, tapping the stem to obtain the sap and bringing the wine to the market mostly individually. Men dominate bulk sales in markets (95%) and women (95%) running bars. Average wholesaler and retailer income is 143,208 FCFA (292 US$) annually. Palm wine is consumed by all ages and both sexes. It has cultural significance, offered as a gift to chiefs and used in traditional ceremonies. In the main production areas around Bamenda, Tuba, Ndop, Babessi, Mbengwi and Batibo in the Northwest, an estimated 1,347 people are involved in the trade.

An estimated 95% of raffia-based products originate from once wild, riverine gallery forests that have been cultivated for many years, often at least a century. Most raffia (70%) was harvested from customarily owned family land and 10% from land granted to men following traditions of tenure and use dictated by traditional authorities, with 20% on privately owned land. These palm groves are actively managed, with customary best practice norms relating to grove management and vegetation clearance, water management and harvesting periods and techniques for the different products that aim to ensure the long-term, sustainable flow of different products on a year round basis. Whilst access to raffia is governed by customary arrangements, access to markets is not officially regulated and subject to market rules.

Photo 10.3 Wine tapping (Raphia farinifera), Bafut, July 2010
Figure 10.3 Intensity of governance arrangements in the Raphia spp. chain

Bamboo chain

An estimated 1,200 to 5,400 actors are active in the bamboo chain originating from the montane and humid forests ecoregions of Cameroon, catering for local rural and urban markets. This is largely based on colonially introduced ‘Chinese bamboo’ (*Bambusa vulgaris*) now semi-cultivated. African indigenous bamboo species in the Northwest include the alpine *Yushania alpina* (known locally as *intomtom* (Oku), *ebotom* (Kom), *tomtom* (Lamnso) and *kehweh* (Fulfulde) and Indian bamboo) and *Oxytenanthera abyssinica* (*mentomtom* in Oku and *mbasetutuy* in Kom), and in the savannah *Oxytenanthera abyssinica*, known as Kok-ko (Gbaya). The stems are short lived, but rhizome clumps can survive for at least forty years (Indada and Hall 2008). Both species are mainly gathered from the wild with low levels of cultivation found near homesteads, and are extensively used in their localities. The chain consists of individual, micro and small enterprises of owners, collectors and harvesters; craftspersons, traders and retailers. Only 13% belonged to a bamboo-related association. Regulatory, support and control actors, such as local and central government ministries and development or support organisations are absent, although some traditional councils and chiefs regulate use locally.

Bamboo is harvested for own use by 77% of harvesters, typically middle-aged, married family men from the collection area. A few high volume, professional harvesters collect up to 6,000 stems a year (earning around 4,000 US$) but most are small scale, collecting around 500 stems annually, earning on average 364 US$. The market is estimated annually at 2,367,673 US$. Access and control differs across
regions, with the Northwest and West regions more traditionally regulated. Most bamboo, however, is freely available with open access: one-third is either owned or permission is needed for harvest, and in 33% of these cases, payment is required to traditional or village authorities. The majority (57%) harvested is naturally regenerating; 6% has been planted and 37% is a combination of natural generation and planting. Resource availability and sustainability were not seen as issues except in Adamaoua where decreasing resources were indicated. Craftspeople are typically married, middle-aged men, a third of who classified bamboo crafting as their major occupation. Prices reflect demand, quantity of raw material used and product quality. Their average annual revenue was 236,208 CFA (524 US$) (SD 467,712 CFA, 1,039 US$). Bamboo is consumed raw and after a series of basic primary and secondary processing, resulting in 14 major product types with over 43 different products, with 50% of the products used for construction, 30% as furniture, 22% in agriculture and the remainder as tools and utensils and as fuel. Afromontane bamboo (*Yushania alpina*), is used to create over 45 products, classified into 13 product groupings, all using the stem: furniture, fencing and hedges, construction material, utensils, baskets and containers, hunting implements, agricultural supports, water pipes, musical instruments, ornamental planting, fuelwood and paper. These different products are sold in different markets and to different consumers. Some, such as poles, are often exchanged. The leaves are used as fodder for animals and the flowers provide bee forage. The products are perceived by consumers as an affordable ‘local’ material producing a high quality product.

Illustrated in Figure 10.4, there is no specific statutory regulation addressing bamboo. It is not listed as a Special Forestry Product nor has it ever been included in the annual lists. It has been subject to a 1993 prefectural order in Oku division forbidding, among other activities, the ‘cutting of young alpine bamboo’. Customary practices governing *Yushania alpina* in Kilum Ijim include a prohibition on grazing in the forest. Rule number 16 of the Fondom-Agreed Wide Rules introduced by the Bamenda Highlands Forest Project (see Chapter 6) stipulates that only mature or dry Indian bamboo should be cut. In cases where fresh young bamboos are needed, the community must be consulted. Enforcement has generally been via traditional councils. Around Bafut, where ‘wild’ and planted bamboo exists, strict control and regulations for harvesting are enforced by the Fon. In most cases, these result in monetary fines and payments for rights to harvest. Around Ngaoundal in Adamaoua, there are no customary rules for small-scale harvesting and most bamboo is located in ‘open access’ forests. In only one village, where there are no beekeepers but several large clumps of bamboo, have beekeepers from neighbouring Wendoka made arrangements with the village chief to harvest and collect cuttings for transplant to riverine areas nearer their village, to ensure security of their resource. Apiculture organisations indicate that the declining quantity of bamboo and increasing distances to harvest it have encouraged protection of bamboo groves by beekeepers (Michael Tchanal and Paul Mboui, Guiding Hope, pers. comm. 2007). This has led to assisted regeneration since 2010 in four villages around Ngaoundal, with bamboo and raffia palms planted and protected by order of the local chief – with agreement of villagers – on land demarcated as community regeneration zones.
**Gum arabic chain**

Gum arabic is resin collected from *Acacia senegal* (producing a high quality resin), *Acacia seyal* and *Acacia polyacantha* trees in the savannah ecoregion. *Acacia senegal* plantations were first established in Cameroon in 1985. The latter two species are found wild around Waza National Park and around Maroua and Mokolo, producing a lower quality and quantity of gum. Around 96% originates from open access savannah forest and the national park and 4% from enriched forest plantations by state development projects between 1990 and 2006, now no longer actively managed. Acacia trees have multiple uses. The resin is used locally to manufacture ink and as a fabric stiffener and internationally in the food sector (known as E414), in pharmaceuticals, textiles and paints; the leaves provide forage and flowers bee forage; its timber provides firewood and poles; the tree is used to counter soil erosion, improve fertility and the bark is used medicinally.

Around 1,900 people are active in the chain including 1,250 seasonal, mainly unschooled, women and child gum pickers in wild stands; middle-aged, wealthy male plantation owners; 60 plant nursery labourers; 550 growers; 125 wholesaler intermediaries; state, private and cooperative plantations; and one processor and exporter, CEXPRO. Collective action is low with around 3% of harvesters belonging to a group. In 2006, SNV supported the creation of a chain-wide interprofession to address problems in the chain. All the export companies are members of the Syndicate for Special Forestry Products (STIEPFS). Permits and official exports in the last six years
have been dominated by four companies. Limited support to improve production and processing is provided by three local and three international NGOs, one chain platform and two government agencies (IRAD and ANAFOR). Gum contributes on average 162 US$ or 37% of a harvester’s household income, alongside farming, livestock, commerce and woodfuel. Around 80 to 90% is sold; the remainder is auto-consumed, exchanged or perishes. Harvesters earn on average 210,000 FCFA (SD 66,468) (424 US$ SD 140 US$). Plantation owners earn higher values for the better quality Senegal gum on average 283,000 FCFA (SD 115,966) (598 US$ SD 245US$). Cameroonian and Nigerian traders buy at between 175 to 200 FCFA (0.37-0.43 US$) per kg and export at 455 FCFA (0.92 US$) on average. An estimated 2,050 to 3,050 tons is harvested annually; 50 tons of A. senegal, 500 tons of A. polyacantha and 1,500 to 2,500 tons of A. seyal. Permit data indicates that on average 200 tons were exported annually by CEXPRO (see Appendix 10), mainly to the EU and USA. Trade data for gum arabic is not listed in COMCAM, making actual quantities officially exported uncertain. An estimated 400 to 2,800 tons annually is exported illegally via Kousséri to Chad and Nigeria. The total market value is estimated as at between 716,816 and 1,990,733 US$ annually. The SFP taxes, permits and high levels of corruption (between 1 to 10% of selling price) make illegal exports more competitive, leading to decreased sales and abandoned plantations. Threats reported to the trade include the destructive harvesting techniques, low productivity of wild stands, harvesting of the trees for fuelwood, the degradation of wild stands due to grazing and burning for pasture and increasing desertification threatening its existence in this ecoregion.

The chain is not highly governed, shown in Figure 10.5. Although gum arabic is listed as special forestry product, harvesters wishing to trade and traders complain that the process to obtain a permit or grè à grè is difficult and costly and that conditions are unfavourable for business, with four larger companies dominating the market. The legal situation regarding the status of the now unmanaged, degraded plantations is ambiguous. Many exporters thus work illegally and cross the border to Nigeria and Chad unrecorded and informally for processing and further export. As collecting in the national park is illegal, an agreement with MINFOF to make this customary activity legal and to create a community forest adjacent to the park have been sought, supported by SNV. These had not been implemented to date. Guidelines for harvest and management of wild strands have been proposed, given the high levels of unsustainable harvesting and lack of customary norms, but have not been adopted as legal instruments (Ofaken 2008).

Photo 10.5 Gum arabic (Acacia senegal and Acacia seyal), Maroua, January 2006
Conclusions

The analysis of the cola nut, bush mango, raffia, bamboo and gum arabic chains originating from the montane, savannah and humid forest ecoregions of Cameroon indicates that multiple configurations of governance arrangements exist, influencing how the chains are configured in terms of values. Alongside product characteristics, these arrangements also influence how the products are sourced, harvested and traded. This section draws conclusions, responding to research questions two to five on the governance arrangements in place; how these impact the livelihoods of actors and their sustainability; and how these impact chain and product sustainability.

These products have high economic, socio-economic and cultural values. Mirroring exactly the top ten uses of NTFPs in Cameroon presented in Chapter 4, the multiple products from these species are used as medicine, food, tools, construction, cultural, wood, fuel, condiments, oil and forage. They have subsistence use and their trade satisfies highly diverse rural and urban consumers in local, national, regional and international markets.

The governance arrangements of the five chains provide a stark contrast to the configurations found in the *Gnetum*, apiculture and *Prunus africana* chains. Not only are the arrangements governing all five chains of a less intense nature, but they are also all less plural, reflecting more the reality of governance arrangements for most NTFPs in Cameroon. Customary arrangements predominate, the de-facto system for most products, with highly local institutions and arrangements controlling mainly access to natural resources. These are strongest and most well developed for species producing products of high cultural value species, such as cola and raffia, and for high economic value products, such as bush mango. They are weaker for products with more everyday
uses and lower economic and social values, such as bamboo. The gum arabic chain, with three species – indigenous and imported – creating products of differing values, illustrates how this characteristic has resulted in plural arrangements, which have been contradictory and temporal. These arrangements have been mildly tempered and altered by the gum arabic and bamboo chains by some limited interventions by projects. Market-based arrangements, typically the result of collective action by unions and associations of traders, affect access to markets. Statutory regulations are of limited intensity, mainly due to the high levels of illegality as enforcement is arbitrary or weak and permits systems are easily side-lined or avoided. Corruption casts form a persistent shadow over high-value products with longer distance, international chains.

The different impacts of these governance arrangements on livelihoods can be seen. Customary rules regarding tenure and access to the resources, which enshrine long-established management and harvesting techniques, such as in the cola and raffia chains, enable long-term sustainable livelihoods. Rights and responsibilities are well defined and create clear, well-enforced boundaries to manage these resources. For raffia this is more exclusionary and akin to a private property regime, and for Cola a common pool regime. The analyses show that this works when the product is valuable. When products are of lower value, such as bamboo in Adamaoua until recently, the effort required to create and enforce such governance results in a void of arrangements. However, when livelihoods are negatively affected by resource scarcity or degradation, often combined with increasing product value, governance arrangements are crafted. Market-led and collective actions – often drawing on customary authority – are used to maintain or enhance livelihood resilience. These chains provide good examples of how critical the time scale is between which actors become conscious of threats to livelihoods, act to introduce changes and arrangements, and the time before these bear fruit (sometimes literally). The different ratios of cultivation as a reaction to livelihoods demonstrate the alternative strategies used by actors in the chains (and sometimes indirect actors, such as governments, research, conservation and development actors): where tenure and access to resources is difficult, such as the inability to own Acacia spp. trees in protected areas and on former state plantations, efforts have been directed to access to markets (collective action – the interprofession and illegal exports). The inconsistency and complexity of statutory arrangements has encouraged corruption, to the detriment of livelihoods as costs increase.

The impacts of governance arrangements on product and chain sustainability have been manifold. Strong customary arrangements have created systems to restrict access to selected actors, generally men indigenous to the ruling authority, and to enable species to be managed in order to repeatedly generate products over long periods of time. Statutory arrangements, despite also promoting cultivation, have had no such impact. By focusing on access to markets and the generation of state revenues and ignoring access to the resource and the specific characteristics of the species and local communities, they not provided systems that encourage sustainability, but instead extraction, as illustrated by the gum arabic chain. Market-based, collective action has not had an explicit focus on product sustainability, although the interprofession of gum arabic actors and bush mango-processing and marketing associations show that they are interested in chain sustainability.