

## **NON-TIMBER FOREST PRODUCTS IN GUYANA'S NORTHWEST DISTRICT: POTENTIALS AND PITFALLS**

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### **1. INTRODUCTION**

Although various researchers and NGOs have advised Guyana to diversify the forest-based portion of the national economy (Sizer, 1996; Ziegler and Zago, 1993; Iwokrama, 1998), NTFPs still remain a neglected resource in Guyana. The lack of information on export volumes and domestic consumption makes it difficult for the government to include NTFPs in its land-use and economic planning. The absence of effective entities monitoring harvested quantities and the impact of NTFP extraction on the forest obstructs the development of sustainable harvesting policies. The Guyanese government, under pressure from the economic recovery programmes of the IMF and World Bank, is desperately looking for ways to increase its revenues in the short term, sometimes losing sight of long-term sustainability.

Together with the Rupununi savannahs in southern Guyana, the other major Amerindian region of the country, the Northwest District is an important area for commercial NTFP extraction. The region's 20,117 square kilometres are inhabited by some 20,000 people, of whom 75% are Amerindians, belonging to the Arawak, Carib or Warao tribes (Forte, 1997). NTFP extraction offers an attractive additional income, relatively easy to combine with subsistence activities such as fishing, hunting and shifting cultivation. With approximately 88% of the Guyanese Amerindians living below the poverty line, some inherent contradictions in Guyana's society seem to impede the potential role of NTFPs in the improvement of people's livelihoods. Indigenous harvesters seem to perform a job that most other Guyanese are not willing to do (Hoffman, 1997).

The commercial exploitation of the interior forests is regulated by the Guyana Forestry Commission (GFC). Inadequate facilities, finance and personnel have forced the GFC to limit its activities to the allocation of harvesting rights, control of timber exports and revenue collection. Forest service extension into rural areas is weak and national forest policy is often unclear to local communities (Sizer, 1996). It is only recently, under the influence of international donor agencies and NGOs, that Guyana has begun to consider its Amerindian inhabitants as stakeholders in the decision-making process in forestry issues (Government of Guyana, 1996a; 1996b). To support this process, various studies in the Tropenbos-Guyana Programme aim to obtain more insight into the economy, ecology and floristic diversity of NTFPs, and the social and cultural factors influencing their trade and use (van Andel *et al.*,

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<sup>3</sup>The study being carried out by Tinde van Andel receives financial support from the EU (DG VIII); Marileen Reinders' study is jointly financed by Tropenbos and Utrecht University.

1998; Forte, 1997; Sullivan, 1998; Verheij and Reinders, 1997). In this paper we present some integrated results from two PhD studies on the ecological and social aspects of NTFP extraction in the Northwest District, focussing on NTFPs with substantial commercial value. We also make some recommendations that might help to ensure their sustainable extraction.

## **2. METHODOLOGY**

The first PhD project, 'Non-Timber Forest Products of the Northwest District and the Pomeroon region of Guyana', is being carried out by van Andel and has the following objectives:

- to make a complete survey of plants harvested as NTFPs and of their uses;
- to study the harvesting and processing methods used by local communities;
- to understand the role of these plants in the local economy;
- To assess the abundance and diversity of NTFPs in different forest types.

Figure 1 Commercial extraction of NTFP in Guyana's North-West District

The major part of the fieldwork was done in Kariako (Barama River) and Santa Rosa (Moruca River). One-hectare plots were made in seven different forest types. Market surveys were held in Santa Rosa, Charity, Mabaruma and Georgetown (see Figure 1). Additional research on palm heart harvesting was done in the coastal swamp region (van Andel *et al.*, 1998). Export figures of NTFPs were calculated from commercial export invoices in the archives of the Guyana Forestry Commission. Extensive interviews were conducted with NTFP harvesters and processors. Data on plant use by three Amerindian tribes in several vegetation types have been

published (van Andel, 1998; van Andel *et al.*, 1998) or presented in MSc reports (de Jagher and Smeets, 1997; Groenewegen and Smedema, 1998; Bröker and Huyskens, 1998). The PhD thesis will consist of a guide containing names, botanical descriptions, illustrations, and uses of plants in the Northwest, as well as information on abundance, habitat preference, harvesting and marketing of these NTFPs.

The second PhD project, carried out by Reinders, is entitled: ‘Amerindians as consumers, producers and manipulators in their natural environment: Livelihood strategies and resource use and the influence of mining among the Caribs of the Barama river’. This project looks at the relatively isolated Caribs, who are confronted with mining activities close to their dwelling grounds. The effect of mining on their lives is taken as a central point of departure. Fifteen families were followed throughout the year in order to study the amounts and types of resources used, the areas where the resources were taken from, the activities performed and the trade and sales of the products and purchases from the local shops. In addition, the life histories of people were recorded and the background to their choices for making a livelihood formed the subject of lengthy interviews. Comparisons were made between resource use of the Caribs living in a relatively large community established around a school and church and in the more traditional and smaller settlements of extended families. Complementary MSc studies have been done by van Breugel (1998) on the influence of an agricultural development project on social relationships in an indigenous community, and by Campen (1997), who made an anthropological evaluation of a community farm and agroforestry project in two Amerindian villages. A third MSc study was carried out on ethnicity and the economic integration of Amerindians into the Charity market (Verheij, 1998). If we include the PhD research by Forte (1997), all the anthropological projects are aimed at discovering the socio-economic and cultural factors of forest use, as well as the difficulties encountered by Amerindians in participating in the national economy. The research method of participant observation was combined with interviews, household and market surveys and participatory research methods.

### 3. MAJOR COMMERCIAL NTFPs

In this paper, we will focus on those NTFPs from the Northwest that already have a share in the market. Table 1 lists the region’s main commercial NTFPs in order of importance.

Table 1 Major commercial NTFPs in Guyana’s NW District

Product	Species	Extraction region	End use	Markets	Price/unit (beneficiary)
palm heart	<i>Euterpe oleracea</i>	coastal swamps Barima River	canned delicacy	Georgetown France, USA	\$0.06 / palm heart (harvester)
wildlife	<i>birds, mammals reptiles, fish</i>	Charity, Mabaruma coastal swamps	pets, skins meat, fish	Georgetown USA, Europe	\$2.50-10/ animal (trapper) to \$10,000/ animal (USA)
nibi	<i>Heteropsis flexuosa</i>	Pomeroon	furniture	Charity, Caribbean	\$5-10/ bundle (harvester)
kufa	<i>Clusia spp.</i>	Pomeroon	furniture		\$0.14-0.35/root (harvester)
troolie palm	<i>Manicaria saccifera</i>	Pomeroon, Waini	roofs	Essequibo Pomeroon	\$20-700/ furniture \$0.03-0.11/ leaf (harvester)
mangrove bark	<i>Rhizophora mangle</i>	Mabaruma	tanning	Georgetown	\$127-408/ roof \$0.02/ lbs. (harvester)
tibisiri	<i>Mauritia flexuosa</i>	Pomeroon, Moruca	craft fibre hammocks	Georgetown Caribbean	\$0.06/ lbs. (tannery) \$0.35/basket (craft maker)
mokru	<i>Ischnosiphon arouma</i>	Pomeroon, Moruca	basketry	Georgetown	\$42/ carpet \$0.20-\$7/ basketry

All prices are given in US\$. The exchange rate in 1997 was 1 US\$ = 142 Guyana dollars.

### 3.1 Palm heart

Palm heart from the multi-stemmed *Euterpe oleracea* is the most important NTFP of the Northwest District. The palm occurs in large quantities in the brackish coastal swamps and is capable of regeneration through suckers after its stems have been cut. The French-Guyanese firm of AMCAR started a canning factory on the Barima River in 1987. Ten years later, the factory processed more than 23,000 palm hearts per day, employing some 160 persons in the purchasing and canning activities. Factory workers, of whom 25% are female, are recruited principally from the larger Amerindian towns of Santa Rosa and Mabaruma. The company does not employ people to cut palm hearts, but buys them from local extractors on a freelance basis. About 1000 cutters sell regularly to AMCAR and exchange palm hearts for either cash or food. The canning industry is the main source of income for indigenous communities in the coastal swamps. It also attracts people from adjacent areas in the Northwest, who come to cut on a temporary basis when other means of subsistence fail.

### 3.2 Wildlife

The wildlife trade also generates considerable domestic income. A total of 7,500 licensed trappers are employed in Guyana, 75% of whom are Amerindians (Ziegler and Zago, 1993). It is unclear how many unlicensed trappers and middlemen this trade supports. In the Northwest, live mammals, reptiles, aquarium fish and birds are sold to shopkeepers or wildlife dealers on the regional markets. The large profits, however, stay in the hands of foreign traders. A trapper might receive \$ 10 for a rainbow boa, while the animal is worth \$ 170 in Georgetown (van Breugel, 1998). Nevertheless, wildlife is more lucrative per individual item than any other NTFP. Even if it takes a whole day to catch a macaw, it still pays more than an average day of nibi or palm heart harvesting (Hoffman, 1997; van Andel *et al.*, 1998). Animals are one of the few NTFPs brought from remote areas, as they are worth the transportation costs. Wild meat and fish are the main protein source in the interior and are traded in communities, local markets and gold mines. An increasing number of restaurants in Georgetown offer wild meat on their menu. There is also a significant domestic market for parrots, monkeys and songbirds, but quantitative data are lacking. However, wildlife provides just occasional cash. The trade in living animals is permitted only from July to December, and seasonal variation strongly limits their availability.

### 3.3 Nibi and kufa

The aerial roots of several hemi-epiphytes form another group of commercial NTFPs, used as plaiting material for basketry and furniture. The most important are the roots of 'nibi', *Heteropsis flexuosa* (Araceae), and 'kufa', *Clusia grandiflora* and *C. palmicida* (Guttiferae). The woody kufa roots are used for frames, while the flexible nibi roots are woven around these frames, in designs similar to rattan furniture. The main area for commercial harvesting is the Pomeroon River region, where Amerindian and East Indian craftsmen make cheap furniture in small workshops. Some is sold locally, but the bulk is transported to Georgetown. Small amounts are made in Mabaruma as well, but these workshops can hardly compete with the mass production in the Pomeroon area. The more elaborate furniture is made in Georgetown factories, which purchase their raw material from middlemen in Charity. Liana Cane Interiors Ltd., one of the largest enterprises of this kind, used some 60,000 nibi and 20,000 kufa roots in 1997, employing 56 persons on the work floor.

The furniture business benefits a large number of people. Nibi harvesting is the most important income for families in the lower Pomeroon basin. Amerindian collectors may stay in the forest for weeks, combining root collection with hunting and fishing. A person can cut one or two bundles of 100 root pieces per day (Hoffman, 1997). Nibi is sold per bundle and kufa per root to middlemen from the Charity market. Extractors generally consider the price they receive to be

too low in relation to the hard work and the long distance to harvesting sites. Tense relationships exist between Amerindian extractors and the middlemen. The latter are mainly of East Indian origin and have better access to traders, markets and credit (Verheij 1998). They may take advantage, where possible, but no extreme abusive relations were observed (Hoffman, 1997). Caribbean traders sometimes travel directly to the Pomeroun to place their orders. They are willing to pay higher prices and advances to the collectors, but complaints were heard about the reliability of the orders (Verheij, 1998).

### **3.4 Troolie**

The large leaves of the troolie palm are widely used for roof thatch in the coastal region. Troolie grows in the same swamps as *Euterpe oleracea*, but occurs in narrow patches rather than in solid belts (Fanshawe, 1952). Leaves are traditionally used for the roofs and walls of Amerindian dwellings, but thatched roofs are gaining popularity for tourist accommodation and poultry farms. A well-made roof could last 4 to 8 years and is much cooler than corrugated iron. Even though this forest product hardly ever reaches Georgetown, it provides an income for quite a number of Amerindians. They are hired to construct roofs or paddle with boats full of leaves from remote swamps to the populated areas. Most extraction takes place in the upper Pomeroun and bundles of leaves are sold at the Charity market. Several troolie trucks leave Charity every week for the Essequibo and Demerara Coast. The main clients are commercial farmers, who keep their animals cool under troolie roofs.

### **3.5 Mangrove bark**

The bark of the red mangrove, commonly used for tanning leather, is harvested by Amerindians around the Waini River mouth. Entire trees are cut down and skinned, the bark is sliced into manageable pieces and sold to middlemen in Mabaruma. The produce is shipped with the fortnightly ferry to the capital, where the actual leather production takes place in small tanneries. Mangrove bark has lost economic importance since the 1970s, probably as a result of the decline in cattle production in the Rupununi. In the 1960s over 250 tons were harvested annually for the domestic market. Production dropped to 8 tons in 1991, but increased again to 53 tons in 1996 (GFC, unpublished data). The bark is not exported. According to the GFC, some tanners prefer mangrove to synthetic substitutes.

## **4. EXPORTS**

Even for products that have been traded for years, there is little information on the number of people employed in collecting, processing and trading them. From the limited documentation from GFC tax forms, the New Guyana Market Cooperation (NGMC) and unpublished production figures, it proved possible to calculate only the total export figures of NTFPs for 1996 (Table 2). The sum of \$ 4,2 million might be a conservative estimate, as exporters often give low product values for reasons of tax evasion, while wildlife is smuggled out of the country in substantial quantities. Nevertheless, these figures do provide some insight into commercial NTFP extraction in Guyana.

Canned palm hearts are exported principally to France. Until recently, production was still rising, but since 1996 exports seem to have stabilised (van Andel *et al.*, 1998). According to the factory management, rusting cans and a dip on the world market caused this decline, but it might as well be the result of resource depletion. Guyana's wildlife exports are significant on a global scale. In 1992, the country was the fifth largest exporter of birds in the world (Thomas *et al.*, 1996; World Bank, 1995). In fact, real export figures might be much higher, as profits generated by illegal trade would add significantly to these revenues. Guyana signed the CITES

agreement in 1973, but souvenir shops in the capital are still selling jaguar and puma skins. These animals are listed in Appendix I and thus officially banned from international trade (CITES, 1973)<sup>4</sup>. For species listed in Appendix II (toucans, monkeys, parakeets and macaws), trade is permitted only if it does not threaten their continued survival. Guyana exports these animals in large quantities, regardless of the fact that no research has ever been done into the effects of harvesting on their populations.

No more than 30% of the nibi and kufa crafts are sold on the domestic market. In 1996, over 30 enterprises in Georgetown exported furniture and crafts (van Anandel, 1998). Although craft shop owners predicted a growing market, export figures seem to be dropping (Table 2). This may be caused by the fierce competition among producers, a shortage of raw material or by a declining demand. The craft business seems to be triggered more by the tourist industry in the Caribbean than by tourism in the country itself. Total export revenues are probably higher than given here, because exporters tend to report low values to avoid taxes. On the Caribbean islands furniture is used in tourist accommodation and crafts are sold again for fairly high prices in souvenir shops. The prices paid by tourists for Guyanese handicraft products have much to do with an idealised romantic view of Amerindians, a group now largely extinct on most islands (Verheij, 1998). Other NTFP fibres used in handicrafts are *tibisiri* for carpets, hammocks and car seats and *mokru*, plaited into baskets and other souvenirs (Table 1). It is not known what percentage of the exported crafts in Table 2 was produced in the Northwest. These NTFPs might have a limited export value, but they do contribute to the local household economy in Amerindian reserves, and offer initiatives for empowerment on a small, but manageable scale.

Table 2 Export values in US\$/year of major NTFPs in Guyana

Product	1992	1993	1994	1995	1996	1997
Wildlife	1,871,828	banned	banned	-	2,100,000	-
Palm heart *	-	-	1,500,000	2,071,162	1,965,978	-
Nibi & kufa *	-	-	-	190,133	137,120	125,165
Tibisiri	-	-	-	11,209	10,401	4,850
Medicinal plants	-	-	-	5,361	6,213	-
Mokru	-	-	-	1,823	131	75
<b>Total</b>	-	-	-	<b>2,279,688</b>	<b>4,219,843</b>	-

- = Data not available

\* = Harvested only in the Northwest District

A wide variety of medicinal plants are sold on the city markets. Although modern medicine is widely available, people prefer to treat some diseases with herbal medicines (Reinders, 1993). Plants are harvested in nearby forested areas. Prices are too low to make extraction from remote areas economically viable. Fresh and dried herbs are exported in small quantities to countries with many Guyanese immigrants. Export documents mention the products as 'tea bush' or 'medicinal herbs', without any reference to the species, to avoid customs problems (NGMC, 1996; 1997). The great diversity of medicinal plants could have a much larger export potential, if processed in a more sophisticated manner and sold as 'rain forest medicines' (van Anandel, 1998).

## 5. ECOLOGICAL AND MANAGEMENT ASPECTS OF NTFP EXTRACTION

<sup>4</sup> The Convention on International Trade in Endangered Species of Wild Fauna and Flora is a global treaty in effect since 1975 to protect plant and animal species from unregulated trade. Appendix I of CITES protects threatened species from all international trade. Appendix II regulates the trade in species not threatened with extinction, but which may become threatened if trade goes unregulated. Appendix III gives countries the option of listing native species already protected within their own borders.

NTFPs are often viewed as a promising forest use, as the impact of their extraction is minimal compared to logging, mining or cattle ranching (Nepsted and Schwartzman, 1992). The long-term potential value of NTFPs, including plants, animals, ecotourism and pharmaceutical prospecting, could outstrip the value of the timber itself (Sizer, 1996). The challenge is to identify conditions for successful NTFP extraction, which contribute to the conservation of forests, offer an increased income to forest-dwelling people and stimulate the economic development of the country (Ros-Tonen *et al.*, 1995). Only the commercial extraction of NTFPs, in contrast to extraction for subsistence, has the potential to contribute to the economic development of forest-dependent people (Boot, 1997). To be economically successful, an NTFP must have a lasting market appeal. Distributors must be guaranteed a consistent supply of the product, which calls for a sustainable harvesting of the resource. This means that extraction should not have any long-term deleterious effect on regeneration or on ecosystem structures and functions (Pollak *et al.*, 1995). The ecological impact of NTFP extraction depends on the nature of the harvested product. It makes a difference whether entire individuals are harvested or only parts (e.g. leaves, fruits, or eggs). The latter might not kill the species, but could slow down its growth or reproduction. The different effects of extraction on individual species affect the size and structure of the population, which ultimately determines the availability of the resource (Boot, 1997). What this means for the ecological and management aspects of extraction of the main commercial NTFPs in Guyana's North West District is discussed below.

### **5.1 Palm heart**

AMCAR operates under the assumption that *Euterpe* populations of which all mature stems are felled, will permit a second harvest in about five years (Johnson, 1995). Results of the study by van Andel *et al.* (1998) point out that nowhere in the Northwest are harvest cycles that long. After several years of exploitation, *Euterpe* populations steadily decline in stem size, clump vitality, reproduction and yield. In several areas, the neglect of traditional farming has led to a total dependency on the palm heart industry and high pressure on the *Euterpe* swamps. This results in very short fallow periods (7 months to 1 year), overharvesting and socio-economic problems. Where people combine extraction with subsistence farming, less damage is done to the vegetation and rotation cycles are longer (2 years). Although the present palm heart harvesting cannot be considered as sustainable, it is much less environmentally destructive than the gold and timber industry. No heavy machinery or polluting chemicals are used, soils stay intact and nutrient cycles do not seem to be much disturbed. When flying over the Northwest District, one immediately notices the large holes in the forest cover caused by logging or mining operations. In the palm heart exploitation areas the canopy looks fairly intact from the air.

It is of vital importance to the socio-economic wellbeing of the Northwest that AMCAR should continue its activities in the region. The company should develop a management plan to guarantee the continuous supply of palm hearts, while ensuring the recovery of overharvested areas. A long-term rotation system should be designed, with harvest cycles of at least 4 to 5 years. Extraction might be intensified in undisturbed areas. The following silvicultural practices should be included:

- Leaving at least one mature stem per cluster to enhance growth;
- Protection of suckers and young stems when felling large stems;
- Selective clearing of lianas and shrubs inhibiting growth of saplings;
- Effective control over harvested areas.

Maintaining a minimum diameter for palm heart is a powerful method of preventing the extraction of immature stems. The price for palm hearts could be raised a little, to ensure a fair benefit for the extractors and measures should be taken to prevent accidents happening during harvesting. A public management plan would create a better image of the company and allay the suspicions of social and environmental organisations. *Euterpe* swamps represent a concentrated resource that is potentially simple to manage compared with more species-rich heterogeneous forests. The abundance and rapid growth of the species offers good opportunities for sustainable extraction (Anderson, 1988).

## **5.2 Wildlife**

The exploitation of wildlife may be currently sustainable in remote communities, but increasing human population, greater road access and commercial markets are likely to change this situation. This is especially relevant in southern Guyana (Iwokrama, 1998), but also in the Northwest, complaints of declining animal populations were heard. The use of land dredges and river dredges seems to be diminishing the fish resources in gold mining areas. Changing settlement patterns, resulting in densely populated towns like Santa Rosa and Mabaruma, have increased the local demand for fresh meat and fish. As wildlife resources around these villages are almost depleted, people now depend heavily on salted fish. The breeding of wild animals for consumption could be considered as an alternative food source.

It is currently not possible to estimate the impact of the wildlife trade on animal populations, because there is no information available on extraction rates, mortality and population dynamics of target species (Iwokrama, 1998). The Wildlife Division of the Office of the President monitors wildlife exports and maintains a quota system for all species legally exported from Guyana. Exports were banned in 1993 in order to establish a better quota system and improve administration and control procedures. After a diagnostic assessment of wild species by the IUCN (1994), the trade was reopened in November 1995. But there are still no estimates of sustainable harvesting levels for the majority of the wild animals. A closed season for trapping was set from January to June, but it is not known if this period relates to breeding seasons (de Souza, 1997). According to Ziegler and Zago (1993), the export of wildlife from Guyana could be a profitable and sustainable use of renewable natural resources, if properly regulated. Problems of wastage and cruelty, which are characteristic of this trade, should be addressed and resolved. Sizer (1996) argues that trapping does lasting damage to the forest and is thus inherently unsustainable. It may provide significant short-term employment for collectors, and certainly generates large profits for exporters and retailers abroad, but unless it can be adequately regulated and monitored, with quotas based on scientific research, it should be prohibited again.

In response to the concerns of local communities in southern Guyana, Iwokrama has organised several workshops to discuss wildlife management problems with all relevant stakeholders (Iwokrama, 1998). Similar workshops in the Northwest would be a first step towards the conservation and sustainable management of wildlife in the region. A project in Shell Beach, which involves Amerindians in the protection of sea turtles, could be seen as an example. Turtle eggs have always been a favourite dish for the local residents. Through environmental education and rearing pigs as alternative protein source, the pressure on this endangered species has decreased. More surveys of commercial animals are needed to assess population sizes, spatial distribution and breeding seasons. Only with these data can sustainable extraction models be designed. Harvesting rules may be difficult to implement in remote areas, but since the trade is concentrated on regional markets, the control of illegal practices should start there. More effort should be taken to raise public awareness of the need to protect endangered species.



### **5.3 Nibi and Kufa**

The majority of nibi and kufa roots either wrap around the tree trunk or contain many knots, which makes them unsuitable for plaiting. The preferred roots for craft production drop straight from the tree branches to the ground. If less than 50% of its roots are removed, an individual epiphyte will survive. According to Hoffman (1997), present harvesting techniques of nibi and kufa roots are unlikely to decimate populations, because people harvest far fewer roots than they leave behind. He considered the ecological sustainability of nibi and kufa to be promising, because plants occur in relatively high abundance, roots can be removed without killing the plant, and there is a year-round availability. Because it takes decades before these epiphytes have settled in treetops, nibi and kufa roots are found only in primary forest. The maintenance of this forest is thus essential for the future supply of these products. Unfortunately, most primary forest along the Pomeroon has been given out as timber concessions. Logs are even felled in Amerindian reserves and sold to sawmills. Companies sometimes offer extractors to harvest all suitable nibi and kufa before they start logging. But since a tree full of nibi or kufa can be worth more in aerial roots over a few years than being felled once for timber, it would be better to spare host trees. Extractors should be careful not to destroy young roots.

Liana Cane Interiors plans to increase production and is willing to cooperate in sustainable harvesting. In 1998, a workshop for local extractors was organised with the help of Conservation International. To prevent the harvesting of immature kufa roots, the company offered to pay a higher price for large roots. Local craft making for the export market was also encouraged. This triples the original value for the nibi in the villages (Hoffman, 1997). The export of nibi and kufa furniture is likely to become more important in the future, since rattan resources in Asia are declining through overharvesting and deforestation (de Beer and McDermott, 1996). Extractors could get a larger share of the profits by forming an organisation that sells directly to Georgetown factories. The Charity market bond should play a role in monitoring the volumes of raw material put up for sale. A storage place for roots should be created, so that harvesters could wait for a better price, instead of having to choose between taking a middleman's first offer or paddling back home with their harvest (Verheij, 1998). Given the economic importance of nibi and kufa, the possibilities for sustainable harvesting and the increasing international demand, there is an urgent need to develop adequate management plans for these species.

### **5.4 Troolie**

Because of the patchy distribution of troolie, leaves are not always widely available. Troolie does not occur around Santa Rosa and Mabaruma, so leaves have to be brought from elsewhere to meet the large demand in these towns. In the dry season, when transport is difficult, the price of troolie rises. People in Santa Rosa grumbled that troolie had become as expensive as corrugated iron. Palm heart cutters were blamed for damaging troolie trees, causing a shortage of the product. But these accusations are false, as troolie trees are seldom damaged during palm heart harvesting. Troolie is still present in large quantities along the Waini and Barima Rivers and no signs of overharvesting have been observed.

### **5.5 Mangrove bark**

Requests for permission to harvest mangroves on a larger scale have been submitted recently, but the GFC does not want to hand out permits before a proper management plan is developed. Although the species occurs in near mono-specific stands along the coast, the felling of trees could have certain risks. Mangrove forests play an essential role in protecting the seashore and river banks against damage by the tides. The dense aerial roots form a natural barrier against the waves and prevent the soil from being washed away.

To minimise the damage, the GFC has advised harvesters to fell only trees growing further away from the waterfront. No studies have been done on the impact of harvesting on mangrove ecosystems in Guyana.

## **6. SOCIAL ASPECTS OF COMMERCIAL NTFP EXTRACTION**

### **6.1 Social benefits**

The great social advantage of commercial NTFP extraction is that it allows most harvesters to return home every day. People involved in hunting, fishing, palm heart, troolie, nibi or kufa harvesting spend considerably more time with their families than those working in logging or mining concessions. Harvesters, who stay away for weeks in forest camps, mostly move with their wives and children. In fact, spending weeks in camps for fishing or hunting has always been part of Amerindian life. The NTFP trade allows harvesters to combine their work with farming and to maintain their indigenous culture, a trend also noted by Hoffman (1997) and Sullivan (1998). The NTFP trade greatly accords with the individual lifestyle of Guyanese Amerindians (Rivière, 1984). The decision to harvest NTFPs can be made on an ad-hoc basis, whenever a family is in need of cash. NTFP extraction minimises the contact with ethnic groups outside their own social sphere, so there is less risk of abuse or discrimination. Despite the stressful relations between extractors and buyers, most Amerindians prefer independent NTFP harvesting to the monotony of wage labour (Forte, 1995; Hoffman, 1997). Daily earnings may be variable, ranging from \$ 2.5 (nibi) to \$ 11 (palm heart and wildlife), but are regularly higher than those offered by the few other employment opportunities in the region.

### **6.2 Gender division of labour**

In traditional indigenous households there is a crucial gender division of labour. Men are responsible for burning a piece of forest for agriculture, while women do the planting, weeding and harvesting. Women process the staple food of cassava, while men bring in game, fish and most other NTFPs. This traditional way of life is under threat from the long periods of absence of able-bodied males. If household heads are working in cities, mines or logging concessions, farms tend to be neglected (Forte, 1995). Women are now performing male activities, such as plaiting cassava processing equipment from mokru, burning off forest for farming and even hunting (van Breugel, 1998). Their workload has increased even more now that children are attending school. When their men return, their earnings rarely suffice to feed the family until the next pay cheque. This trend can be reversed only if job opportunities become available within the Amerindian reservations (Forte, 1995). Because of the greater dependency on manufactured goods, the need for cash in Amerindian villages has increased. In the Pomeroon region, the income from logging has decreased to such a degree that women now bring in the major amount of cash. They have taken advantage of the opportunity offered by a tibusiri craft shop, where orders are shared and knowledge is exchanged among participants. Men are reluctant to join their wives in their tibusiri work, as it is traditionally associated with women's work. They continue to focus on commercial NTFP extraction and logging, while some have taken up the position of middlemen on the Charity market (Verheij, 1998). The need for women to have their own income is important, since alcoholism is a widespread problem among Amerindian males.

### **6.3 NTFP extraction: development or underdevelopment?**

NTFPs are often said to increase the income of forest-dwelling people and to stimulate the economic development of the region (Vasquez and Gentry, 1989). One wonders therefore why so often only the poorest indigenous families are involved in commercial NTFP extraction. For most urban Guyanese, the interior forests are an unknown and dangerous place, which should be 'developed' as soon as possible. Amerindians are on the lowest step of the social ladder in

Guyanese society. They are looked down upon socially, economically and politically (Sanders, 1972). Amerindians encounter many obstacles to equal participation in the regional markets. They are unfamiliar with prices and transport costs, and do not have access to credit or storage facilities. The distrust and unfamiliarity between the different ethnic groups operating in the market prevent the development of durable trade relations (Verheij and Reinders, 1998). The lack of functioning Amerindian organisations or market cooperatives inhibits their independence in trade. Handicapped by a failing educational system, precarious health conditions and poverty, the economic potential of the forest to indigenous peoples will not be realised if the families involved are simply not able to make full use of it. The conservation and sustainable use of forest resources in this region can be realised only if development projects include the support of basic human needs (Forte, 1995). Unless it is acknowledged in Guyana that Amerindians over the centuries have built up an integrated knowledge of the forest environment and that their management techniques can play a crucial role in sustainable harvest systems, NTFPs will not play their attributed key role in improving people's livelihoods.

#### **6.4 Regional administration of forestry**

A little over half of the forested area of Guyana falls under the control of the GFC. Amerindian reserves represent some 5% of these State Forests, and are controlled by village captains and councils. The GFC has no jurisdiction over resources within titled Amerindian lands or over arrangements made between village councils and private companies. Most State Forests have already been leased to timber and mining companies. Because of the inefficient forest laws, Amerindian reserves are an easy option for new enterprises looking for remaining land. Cases are known where traditional dwelling grounds have been allocated for commercial forest exploitation. Private businessmen and logging companies hand out free chain saws and buy the logs without any legal contract. Royalties are seldom paid for products harvested from indigenous lands and reservation boundaries are not clearly marked. Amerindians often lack the know-how and financial means to effect binding contracts or seek legal recourse when agreements break down. Amerindians cannot request the GFC for legal advice, but have to deal with the Regional Democratic Council, whose bureaucracy scares off many people from lodging complaints. Unfortunate deals are usually announced too late for any practical intervention to be effective (Forte, 1995).

By law, any such agreement should be approved by the Minister (Toppin-Allahar, 1995), but the law does not specify which person or department should be addressed. A motion for review of the Amerindian Act was accepted by Parliament in 1993, but the process seems to be moving at a snail's pace (LaRose, 1995). It is thus not surprising that, in practice, agreements are made without official approval (Forte, 1995). The extent of lands allocated to Amerindian communities under the Amerindian Act was not based on sustainability studies of their subsistence patterns (Toppin-Allahar, 1995). Twenty years after the publication of the Act in 1977, many communities have grown to such an extent that agricultural land has become scarce. The Act contains no provisions for the protection of wildlife or vulnerable habitats (Iwokrama, 1998). Apart from those communities living within reservation boundaries, many Amerindian villages have not been granted title as yet. They are clearly in the weakest position, and have no other option than to move away when mining or logging companies come in, just as they have done for centuries.

#### **6.5 Participatory forest management**

Since Guyana lacks a credible institutional and legal base for the management of Amerindian reserves and each community has its unique natural, socio-economic and ethnic setting, villages must design their own management plans. Small-scale rotation systems for NTFPs should be designed, with some areas designated for harvest and others for regeneration. Strict agreements

among villagers are needed to avoid harvesting in recovering areas. But communal systems are fragile in the face of strong commercial markets and the lure of large profits is causing a breakdown in social cohesion and management rules within the community (Freese, 1998). Participatory forest management therefore depends on cooperation among all stakeholders: extractors, village councils, traders and exporters.

No association of NTFP extractors has ever existed in the Northwest; every harvester is a direct competitor of his neighbour. No clear agreements are made among villagers on the division of working space. Differences in tribal background and church affiliation also obstruct successful organisation. The 'Tragedy of the Commons' is still a topical phenomenon among Guyana's rural poor. Communal ownership should be arranged for those lacking land rights, as control of resources is a prerequisite for sustainable management (Freese, 1998). Community-based management would allow people to continue NTFP extraction without having to move their homes. Subsistence agriculture should definitely be stimulated to guarantee food security and relieve pressure on NTFP resources. Yet some people are so dependent on the cash provided by NTFPs that they cannot afford to slow down harvesting and start farming. In order to bridge the shortfall of income, self-help days could be organised, during which villagers work together in exchange for food. SIMAP successfully implemented these programs in other rural communities. However, a strong dependence on food aid should be avoided (van Breugel, 1998).

Village administration is essential to control the amounts of NTFPs marketed by the community. Extractors must be registered and harvest quotas should be set for vulnerable populations. Training is needed in administration, law, marketing, farming techniques and designing village-based management plans. The government, Amerindian organisations and other NGOs concerned with rural welfare should stimulate these activities. Sizer (1996) suggested a Community Forest Conservation and Development programme, providing basic technical assistance to communities interested in developing forest-based enterprises. The programme would include training in community strengthening, contract negotiation and finance. Access to small loans is needed to start small enterprises. Ideally, transportation and stock should be in the hands of the Amerindians themselves (Corry, 1993). Priority should be given to the establishment of relationships of mutual trust. Over the years, Amerindians have seen many failed projects and have become sceptical of outside interventions. Guidelines for communities on how to proceed and who to contact could contribute to the development of local initiatives.

## **6.6 The contribution of NTFPs to forest conservation**

Export revenues of NTFPs in Guyana are dwarfed by countries like Indonesia (\$ 238 million in 1987) or Brazil, which exported \$ 53 million in 1990 (de Beer and McDermott, 1996; Broekhoven, 1995). But when the figures are recalculated for population size, Guyana exports more NTFPs per capita than Indonesia or Brazil (van Andel, 1998). Since NTFPs contribute significantly to the economy of the Northwest, they deserve a place in the regional land-use planning. The main gold and timber producing areas are located far away from the market towns (see Figure 1). Here, NTFP extraction seems to have little chance of competing with the large-scale forest exploitation by multinational companies, but in the coastal swamplands, NTFP harvesting appears to be the most viable form of land use. The potential for commercial farming, mining or logging is minimal here, due to waterlogged soils and the absence of valuable timber species or minerals. But even though the extraction of NTFPs from forests dominated by one or few species (palm heart, troolie, mangrove) may be biologically sustainable and provide substantial income for local people, it does not help to conserve the biodiversity of these forests (Boot, 1997). This can be achieved only if NTFP extraction is able to prevent or reduce deforestation and when NTFPs yield more revenue than other land uses. The extraction of nibi and kufa, in which primary forest is essential for gathering the products required, could indeed contribute to forest preservation. But if prices for the raw material are low, the products are either overharvested or extractors may shift back to timber cutting.

## **7. PROPOSALS FOR FURTHER RESEARCH**

More research is needed on the growth rates, population sizes and optimum harvest levels of those NTFPs that have already proved to be economically viable. Tropenbos-Guyana has preliminary plans for further research on the sustainable extraction of palm heart. Similar projects should be launched for wildlife, nibi, kufa, troolie and mangrove bark. But diversification of the market reduces the risk of commercial failure and there are several 'new' NTFPs from the extensive Northwest forests with a potential for commercial extraction. Researchers have suggested the breeding of wildlife for consumption and export (Sullivan, 1998), bee keeping (Forte, 1995), collection and reproduction of orchids (abundant in brackish swamps), processing of *Euterpe* fruit juice (van Andel *et al.*, 1998), characteristic tribal crafts (as opposed to mainstream tourist items) and prospecting for medicinal plants (Sizer, 1996). The scientific identification of plants and animals is essential, as similar local names may be given to a variety of species. Preliminary investigation should be carried out on the potential for increasing the supply of these products. Communities should be directly involved in the marketing and transport of NTFPs. Consumers are willing to pay a premium for products from well-managed forests, where environmental and social impacts are reduced to a minimum, laws are respected and employment conditions are fair. Producers should consider 'eco-certification', to distinguish their products from others and to improve their market share. Good management often results in long-term savings, compared to the costs of purchasing wild products from independent extractors (Anderson, 1988).

## **8. CONCLUSIONS**

Commercial NTFPs provide an important source of income for Amerindians in the Northwest of Guyana, although they do not fully enjoy the profits made in the NTFP business. Some communities depend heavily on NTFPs for their survival, as in the case of palm heart harvesting. Neglect of traditional farming and a complete dependency on the palm heart industry has led to overharvesting of the resource.

All major commercial NTFPs have an ecological potential for commercial extraction, but there is a lack of information on population densities, growth rates, and sustainable harvesting levels. The absence of land-use planning and government control has prevented the development of management plans for these NTFPs. The main problem associated with the commercialisation of NTFPs in the Northwest are the low prices paid for the raw material, the lack of storage facilities, lack of organisation among harvesters and high transport costs. Most commercial products are harvested close to regional markets, which would be the main areas for the monitoring of harvested volumes, price regulation and control of illegal trade.

NTFPs can play an important role in participatory forest management. Particularly where the scope for conflicting land uses is minimal, NTFP extraction seems the most viable form of land use, but the present forest laws make it difficult for indigenous peoples to manage their reserves sustainably. There are signs that the governmental bodies are willing to incorporate NTFPs and Amerindians into their mandate, but much still needs to be done at all levels.

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