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NON-WOOD FOREST PRODUCTS IN NAMIBIA

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Acronyms

NWFPS--- Non-Wood Forest Products

4 -O regions -- Four regions in the north central Namibia their names starts with a letter 'O' and form a bigger region used to be known as OWAMBO (Ovamboland).

CRIAA--- Centre for Research Information Africa Action

GRN ---- Government of the Republic of Namibia

FAO --- UN Food and Agricultural Organization

N\$ --- Namibia Dollar (currency)

NGO -- Non Governmental Organisation

SADC ---- Southern Africa Development Community

GTZ ---- Germany Development Agency (in German)

GDS ---- Germany Development Services

KfW --- German Development Bank (in German)

RSA -- Republic of South Africa

FSTCU ---- Forestry Sector Technical Coordination Unit

1 INTRODUCTION

Namibia is located in the south-western part of Africa. It borders Angola and Zambia in the north, Botswana in the east, South Africa in the south and south-east, and the Atlantic Ocean in the west. It covers about 82.4 million ha. It is one of the driest countries in the region. Rains vary from below 50 mm in the south-west to 700 mm in the north-eastern corner of the country.

Namibia's forest resources constitute an important national heritage which provides both economic and environmental benefits. Due to the ecological conditions of forest growth, savannahs and dry woodlands constitute the main forest resources in Namibia. On the basis of the distribution of mean annual rainfall, the country is classified into four distinct ecological zones:

- The desert region receives less than 100 mm of mean annual rainfall and covers 22% of the land area.
- The arid region receives 100-300 mm of mean annual rainfall and covers 33% of the total land area.
- The semi-arid region receives 300-500 mm of mean annual rainfall and covers 37% of the total land area.
- The semi-humid region receives 500-700 mm of mean annual rainfall and covers 8% of the total land area.

The above ecological zones are divided according to rainfall regimes which have produced vegetation zones that have been broadly divided into three major categories; deserts, savannahs and woodlands. They are an important source of:

- **Firewood** used for cooking and lighting in rural areas and low income urban households;
- **Construction timbers** (poles and posts) in rural areas for homesteads. Timber, though not in large quantities, also used to produce highly valuable furniture (mainly from one tree species *Pterocarpus angolensis*);
- **Food** mainly used in the areas (this will be discussed further in detail);
- **Materials** for farm and house implements in rural areas;
- **Crafts and medicine** for subsistence and commercial consumption;
- **Fodder** for livestock;
- **Wildlife habitat** that forms the basis for tourism industry.

Millions of people around the world depend on forests to help meet their basic needs for food and shelter. Yet, all too often, social and economic value of trees are overlooked in development planning, in land management and in international cooperation (FAO, 1991). The Directorate of Forestry in Namibia estimates the current total economic value of forest resources to be N\$ 1058.2 million per annum (see table 1 below).

Table 1 **Estimated annual economic value of forest resources exploitation**

| <i>Product</i> | <i>Main Species</i> | <i>Annual Value (million N\$)</i> |
|-----------------------------|----------------------------|-----------------------------------|
| Construction poles | Mopane | 383 |
| Tourism | Ecosystem | 218 |
| Fence for Crop Protection | Mopane | 175 |
| Firewood | Mopane, Acacia species | 131 |
| Medicine | Various species | 31.5 |
| Kraals | Mopane | 31 |
| Charcoal | Various bush invaders | 22.4 |
| Crafts and implements | Various species | 21 |
| Mahangu baskets | Mopane | 12.4 |
| Goat forage | Various species | 9.5 |
| Fencing poles | Mopane | 6.6 |
| Food | Schelerocaria (Marula oil) | 4.6 |
| Basketry | Hyphaene species | 4 |
| Commercial logging | Pterocarpus, Baikea | 2.4 |
| mortar and pestles | Various hard wood | 1.5 |
| Beverages | Various species | 1.5 |
| Ornamental roots | Mopane | 1.1 |
| Carvings | Various species | 1 |
| Mopane worm forage | Mopane | 0.5 |
| Food | Mungite kernels | 0.2 |
| Total Economic Value | | 1058.2 |

Source: Namibia Forestry Strategic Plan, 1996

Namibia's total population is estimated at 1.7 million and the ethnic mixture ranges from the San People/Bushmen, who are heavily dependent on veld foods, up to the European origin people (whites) who are normally dependent on agricultural products and do not normally use veld food. Usually people with high income hunt for pleasure. In between there are another nine main ethnic groups whose livelihoods depend on the mixture of agricultural, livestock and veld food in different ways.

Non-Wood Forest Products (NWFP's) fall into two broad groups; **Commodities** and **services**. Commodities are subdivided further into three sections according to **nature, kind** and **use** of products. There are NWFP's of plant, animal and mineral origin. Services comprise **tourism, recreation** and **wildlife watching**, among others. Namibia has a significant number of NWFPs in rural areas.

Non-wood forest products play an important role in the local economy of the Namibian people. In the past, NWFPs were not given the importance they deserve in monetary trade. Foresters were mainly trained for timber production. Most of the financially viable forest products, among

others, were saw logs, poles and wood for charcoal production. NWFPs were mainly utilised by several communities for subsistence survival. Recently, the area of NWFP has received considerable interest from different stakeholders. This can be attributable to two aspects. One is that in past years, community members who acknowledge the importance of NWFPs were illiterate, so they had no opportunity to debate and argue the role NWFPs play in rural communities.

The colonial government also ignored or simply did not want to recognise the NWFP as products with economic and nutritious value. Users have been given the opportunity and empowered to reveal and confirm the role of NWFPs utilised by different communities. The fora to discuss and develop NWFPs have initiated through different projects.

On the other hand, it was not necessary to talk about NWFP because these resources were in abundant quantities. There was no need to protect and think of sustainable use of these resources. As populations have increased, other land uses are threatening the resource base of such non-wood forest products. Such resource decreases on one hand, and on the other the demand for those products increases.

The good news for the lovers of NWFPs is that the products are now globally recognised. FAO (1995) reported that a variety of NWFPs contribute to an improved rural livelihood by providing food and nutrition, medicine, helping to generate employment and contribute to foreign exchange earnings these days. By complementing wood-based management, NWFPs offer a basis for managing forest in a more sustainable way and therefore support biodiversity conservation. It is quite good to know what efforts are being made in this area for its further development and to play its rightful role in development of many communities.

It has been noticed that rural communities sometimes, in search of NWFPs cause damage to the wood products that are perceived to be more economically important which result in negative consequences of the environment. The need for cash generating activities necessitates paying more attention on these products. A need for cash in rural communities makes people think of taking the available commodities in their areas, in this case NWFPs, in exchange of cash and other commodities.

The movement of people, who grow up in rural communities, to urban areas for employment has created a market for these rural origin products in urban areas. Hence, it becomes necessary for rural dwellers to collect NWFPs, and bring them to urban areas in exchange of cash from those people who miss these products because they have no time or knowledge on how to collect and prepare them. To most of the indigenous people of Namibia, NWFPs contribute significantly to their livelihood. In fact, one can say NWFP's play a role in day to day life for people more than wood/timber products. A number of non-wood products are being traded in the informal markets. These include products such as fruits and their by-products such as wine, nuts and oil, hot liqueurs, Mopane worms, grass, etc.

Even though not in very large quantities, some NWFPs are traded in formal markets, both local and international. Products, such as marula oils for food and cosmetic and devil's claw for medicine, managed to obtain their place in international markets. These products are discussed individually in chapter 3. Most of the information concerning the NWFPs has not been properly documented and those which have, are quite scattered. Hence, this report attempts to look at NWFPs by:

- identifying and briefly describes the general importance of NWFPs in Namibia;
- highlighting key products found and mostly used by a number of communities;
- predicting future trends and areas of economic potential of some of these products.

2.0 METHODOLOGY

The study used the existing literature on the subject. A number of pamphlets and reports were used to consolidate the information. Interviews with the people who are dealing with or involved in NWFP were also conducted. The information was gathered between 15 February and 30 March 1998. Interviews included both formal and informal discussions with people who the author considered important due to their involvement in similar or related work and the users of the products.

3.0 NON-WOOD FOREST PRODUCTS

The non-wood forest products (NWFPs) and non-timber forest products (NTFPs) are the most widely used terminologies internationally to describe the range of forest resources other than wood or timber. NWFPs are referred to those defined as goods of biological origin, other than wood derived from forests and allied land uses excluding those ones from domesticated plants. It covers a number of well known **plant origin products** as well as **wild animal origin and insect products** in Namibia.

3.1 NWFPs of plant origin and their roles

NWFP of plant origin may be categorised into three parts: food products, medicinal plants and leaves for weaving and decorating.

All plant species which provide NWFP are growing naturally in the veld. Trees such as Manketti, grow in the open to dense savannah to dry forest of the Kalahari sands in the north east of Namibia. Although naturally most of these trees grow in the forest, most of them are now found in the cultivated field for millet because when local communities are opening up the land they do not destroy fruit trees at all. Also because they are using fruits, such as marula and *Berchemia discolor*, seeds happen to be near the human settlement areas. As a result there is a considerable number of these fruit trees. The fact is they are found at both natural forests and fields for millet but not propagated by people intentionally. Either they found them there when they open up the field or they grow after people brought seeds around and by chance they grow on their own.

3.1.1 Plant foods from forests

African people utilize various wild plants. Plant food products are significant components of many rural communities' diet. Erkkila and Siiskonen (1992) reported that the San people are said to know as many as 150 edible plants. They include fruits, leaves, seeds and nuts, tubes and roots among others. Fungi also play a major role during the rainy season. In general, the role of these different categories can be discussed as follows:

3.1.1.1 Fruits

Most of the tree species and their roles are reasonably well documented. Le Roux (1972), DED (1998), Rodin (1985), Kreike (1995), Palgrave, Fox *et al* (1982), Giess (1965/66), indicated a variety of fruit tree species that provide edible fruits. Most importantly, the economical contribution of individual fruit types has not been looked at properly, although it is well-known that wild fruits play a significant role in many peoples' daily diets. Few individual tree species were looked at to determine the nutritional values. Fruits are good sources of vitamins and minerals (Becker, 1986).

With the exception of a few fruit tree species such as Marula, fruits generally ripen at the end of the rains. In most cases they are ready just after people have finished with agricultural harvest. This gives chances for many farmers to be able to collect their fruits. Fruits may be consumed fresh just when they are collected from the trees in raw form. They are also eaten after they are dried. They may be also processed further to produce secondary products. They can be ground into powder or paste which is then cooked and consumed as the main daily meal (see omwandi and eembe below). Dried fruits may be fermented to produce strong liquor known as “Ombike or Katshipembe” (see a number of species below). Fresh fruits may be squeezed and produce different categories of wine or beer (see Marula).

3.1.1.2 Wild leaves

A number of the forests plant species leaves are edible and can be consumed fresh or cooked. These local or natural vegetables are consumed with staple grain dishes. Staple foods, like millet porridge or maize, are eaten with meat, milk or vegetables. The first two are not always available due to the monetary cost involved. It is estimated that about 70% of an average family’s main meal is consumed with these uncultivated vegetables. There are some plants which are very much utilised by the local communities.

3.1.1.3 Seeds and nuts

They are also used in side dishes and sauces. In many cases, they contribute significantly to the nutritional quality of diets, adding calories, oil, protein and minerals (FAO 1989). This is particularly true in northern Namibia where marula oil for example, is mainly reserved for highly respected guests. Some nuts are used to produce oil for ointment, e.g. Oshipeke *Xmelina africana*. It has been noticed that a considerable number of African ladies do use such oil for their hair. The oil is found to be effective as modern factory - made oils. They do not cause any breakage of hair, as a result, hair treated with such oil grows longer like those of “Caucasians”. The same oils are also mixed with red powder made from the heart wood of *Pterocarpus angolensis* used in traditional dresses or body ointment. Other seeds used to produce the oil for the same purpose, are the seeds from wild melons (*Eenhanga*).

3.1.1.4 Roots and tubers

A big variety of plants (climbers) in forests have edible tubers and roots; some of the roots, such as *omambibo*, are used as water containers. In the absence of water, people do eat these roots and may survive for a number of hours, if not days, before they reach a place for drinking water. Many roots and tubers provide energy, carbohydrates and minerals. There are climber plants used as a source of drinking water. During prolonged droughts or in the areas of low and erratic rainfall, it can be difficult to obtain enough drinking water to sustain life, especially when the weather is hot. In such circumstances, the water content of plants can play a most important role (Fox and Norwood Young, 1982). This is particularly true among the Bushman communities.

3.1.1.5 Melons

The Nara plant (*Acanthosicyos horridus*) is a cucurbit plant endemic to the Namib desert. It is an important source of food and water for the San community along the rivers on the coastal side of Namibia. It may not be of economic value at National or International level.

There are other melons which produce oils that are used for both cosmetics and are edible. They can be procured in large volumes, processed with both the Mini 50 screw press and the hydraulic cage and plate press developed by Trial Marula Oil Production Project.

3.1.1.6 Gum and resin-exuding plants

There are few tree species that produce edible gums in Namibia. For example *Combretum imberbe* secretes gum during September, is eaten as a delicacy, especially in Oshangwena/Oshana region where they are found in a large numbers in the seasonal water courses locally known as *oshanas*. *Acacia senegal* and *Terminalia cericea* are among a few well known tree species that produce edible gums. In Namibia, gums are not collected in large quantities; usually they are eaten by livestock headers to sustain them while they are in the veld. There is a potential to collect gums in large quantity for export.

3.1.1.7 Mushrooms and other related fungi

A variety of edible fungi are also found in Namibia. They occur during the rainy season. Termite hill-mushrooms (Species of *Termitomyces*) are the most well-known in Namibia. They occur in large quantities between Oshivelo and Tsumeb in Oshikoto region, to the east of Etoshapan. Farm workers do collect them and bring them to the roadside for sale. Although the price is not a fixed one, it varies between N\$5 - 10 per kg. Another mushroom species found in Namibia is Kalahari truffle. Both of these species are delicious and are served in formal restaurants. In rural areas, people collect these mushrooms which replace meat in many meals.

3.2 Medicinal plants

Medicinal plants are used greatly by rural people. Chikamai (1998) reported that up to 80% of people in Africa are believed to consult traditional medical practitioners for health care. This is true in rural areas where modern medicinal facilities are not available.

In Namibian rural areas, people have to travel from **30 to more than 100 km** to obtain modern doctors' services. In one study, Leger (1998) identified more **than 80 medicinal plant species** used to treat about **30 medical ailments** in the Tsumkwé District (formerly Bushman land) alone of Namibia's Otjozondjupa region. Preparation methods involve pounding and grating as pre-processing followed either by soaking or boiling to make a concoction or decoction respectively. Even though some information is available on traditional medicinal practices, it is believed that a lot more knowledge is still confined to the practitioners themselves.

Under the biodiversity programme at the Ministry of Environment and Tourism, there is a subcommittee on indigenous knowledge of traditional practitioners and plant species used to treat different ailments. Already a number of different plant species have been given by the traditional healers. Usually traditional healers always view other people enquiring about plant species, from which they make medicine for a specific illness, with suspicion. Whether or not they have given the information to the best of their knowledge, is still to be established. It is suspected that as time goes by trust will be built between conventional scientists and the traditional healers so that traditional healers may be able to release necessary information.

With the exception of the Devil's Claw which is discussed below, other medicinal plant species are still to be tested scientifically to determine their chemical contents and their uses. Most medicinal plant species play an economic role in different local communities. People pay a significant price when visiting traditional healers and it can range from a few tens to some thousands of Namibian dollars per visit. Some are only expected to pay in livestock units.

Medicinal plants play an economic role for the practitioners. It also helps patients to save their money on transport to reach conventional doctors.

3.2.1 *Harpagophytum procumbens*, Devils' Claw/Kamaguu/Omakakata

There are two species of Devils' Claw growing in Namibia. In addition to *Harpagophytum procumbens*, the "real" Devils' Claw, there is also *Harpagophytum zeyheri*. The former grows exclusively in the regions bordering the Kalahari, whereas the other one grows in the northern part of the country (Schmidt *et al* 1998). Although it is difficult to distinguish between the two species, it has been established that the real devils' Claw contains good quality chemicals required for the use as a medicinal plant. For this reason in this paper more emphasis is put on the real Devils Claw.

Description: This is a herbaceous, perennial plant of the family of the Pedaliaceae. As it has been said above, the plant is mainly limited to the region bordering the Kalahari, and the main of its repartition area is within Namibia.

Uses: From the pharmacological/therapeutical examinations, it has been established that the plant is effective to treat degenerative rheumatic disorders. Pharmacologically, the secondary roots are used exclusively. According to Schmidt *et al* 1998 (as they refer to different authors such as Carle 1988; Rausa *et al* 1984; Chrubasik & Ziegler 1996) these roots contain irid glycosides in relatively high concentration, with harpagosides as the dominating leading compound.

Economic roles: In the recent past (5-years ago) traders used to **collect 100 - 200 tonnes per year** which brought up to **five hundred thousands of Namibian dollars (N\$500 000)**. In 1998, dried root materials of Devils' Claw were exported from Namibia, which brought an amount of eight to **eleven million Namibian dollars (N\$ 8 - 11 mil)**. Today in Omaheke Region, community members who harvest and sell the dried products to exporters, (community members) receive **N\$12.00 per kilogram**. Sometimes traders are not certain with the market. When the market reaches a good price, they are prepared to harvest as much as possible in order to sell. In the future, a stable market can influence the sustainable harvesting of the product. The plant plays an important role both in local and international markets. Sustainable management will ensure income for poor people living in the areas where the plant grows and they have no other means of getting cash.

From the **ecological** point of view, the plant is an extremely endangered species. It has been reported that as early as 1975 the then government tried to put some measures in place to protect this species in the country. Caused by excessive collections, numbers fell from 1000-2000 plants per ha under favourable circumstances in some areas in 1970s to less than 10 plants per ha in 1986 in other areas. Proper control measures can improve the situation.

Currently, an NGO called CRIAA is undertaking trials at a farm known as Vergenoeg which have indicated that with proper methods of collection and management the plant can easily recover and multiply both vegetatively and from the seeds. At this place, harvesters are given quotas for a year. In 1998 each harvester was given a quota of 1.9 tonnes for a season and this year 1999, each person is given 3.45 tonnes. This is an indication that, with care plants can be harvested sustainably. The plant can also be grown under cultivation which has been done to some extent in Namibia, Botswana and South Africa. While different interested parties are busy with research on the species, an interim action is required to safeguard the plant. This is particularly true in the communal land where traders harvest the quantity they can and collect it in an obviously unsustainable manner. The way forward to save the plant is to clearly define roles of different stake holders and permit systems should be properly implemented.

4. BRIEF DISCUSSIONS ON INDIVIDUAL TREE SPECIES AND FRUITS

According to Jensen's survey, the most important fruit trees in Owambo are for example: *Sclerocarya birrea subsp. Cafra*, *Berchemia discolor*, *Diospyros mespiliformis* and *Hyphaena petersiana*. Other important fruit trees known in Namibia are *Schinziophyton* (formerly *Ricinodendron*) *rautanenii*, *Strychnos cocculoides*, *Strychnos spinosa*, *Adansonia digitata*, *Acanthosicyos horridus* among others. Each species is briefly examined in respect to distribution, general biology, the traditional uses and their products, their nutritional values, socio-economic importance commercial potential, domestication potential and what has been, and could be done in the marketing of these fruits and their derived products.

4.1 *Schinziophyton rautanenii*, *Manketti/Mongongo*

Formerly known as *Ricinedendron rautanenii*. This tree seems to be available all over the Kalahari sands of North Eastern Namibia. Although still found in concentrated areas, it depends on certain biophysical factors such as soil types, temperature and altitude.

Description: The Manketti tree is a large tree, 7 - 20 metres in height, the diameter up to 60 cm. It gets its leaves in mid to end October, flowers and begin to bear fruits end October towards beginning of November. The fruit ripens from February to April. The production varies from season to season. Other factors such as temperatures and rainfall influence tree behaviour (Lombard CRIAA 1998).

Uses: The Manketti fruits are used in the following ways:

- Outer flesh/pulp of the plum shaped fruit is a relish, eaten raw or cooked.
- The peel and flesh for production of hot liquor known as *Ombike* or *Kashipembe*
- The nut finely crushed and added to meat/vegetables to make a tasty soup or gravy.
- The kernel or nuts of the seeds are the most valuable parts of the fruit. The nuts yield a high quality yellow oil of which about 60% is used for food and cosmetics. The protein content of the nut is nearly 30%
- The shell of the nuts are used as fuel
- The leaves are used as fodder

Food security: The Manketti fruit is an important source of food to many rural communities. This is particularly true in the case of Bushmen communities who do not practice agricultural activities. In his studies, Lee (1973) indicated that many people still depend more on Manketti nuts than cultivated food. For those who cultivate crops, Manketti supplements their food requirements during the poor harvesting year. Manketti fruits are also exchanged with other products such as millet (Mahangu).

More economic values of Manketti fruits: In addition to bartering for Mahangu, Manketti plays other economic roles. In some areas, such as Okavango, Manketti is exchanged 1:1 with Mahangu. One drum of Manketti fruit costs one drum of Mahangu (San/Valuja) (1998). One may buy a can indirectly with Manketti fruits. 200 l drum of Mahangu cost N\$ 700.00 which may easily feed 10 people for 5 months. One may collect these three drums of Manketti fruits and will be able to feed the family of 10 over a year.

The production of a hot liqueur locally known as Kashipembe and its economic values: This is hot drink made from the fermented fruits. Manketti is the most famous for this in Kavango Region. How to destrier is demonstrated by Lombard's work paper titled San/Vakwangali (1998).

Kashipembe/Ombike is produced by many people in Namibia, in northern regions of former Owambo and Kavango regions. In Kavango region Kashipembe costs between N\$ 5 - 13.00 per

litter. While in Windhoek the costs between N\$30.00 and 40.00 per litre. Most of the fruits mentioned below are used to make Kashipembe (known as ombike in Oshiwambo).

Oil extraction: Nuts can be removed from seeds after the removal of the flesh. Traditionally, an axe is used to remove nuts. Recently, a manually operated decorticator (removing the inner part or nut from the hard outer shell) for both Marula and Manketti nuts has been developed, making the process quicker, easier and safer. The actual preparation/extraction of oil from nuts is discussed below. The oil extraction is a potential for job creation in local communities. When people were asked to collect the manketti fruits which are deep in the forests, they are prepared to walk as far as 25 km.

4.2 *Sclerocarya birrea* subsp. *Caffra* (*Marula*, *Omwoongo*)

Description: This is a large tree which grows in the veld. A deciduous, single-stemmed tree up to 10 metres in height with a wide spread rounded crown. Leaves are compound, pale green, aggregated at the end of branches. Fruits ovoid, smooth, pale yellow when ripe. The tree has been described in detail by Palgrave (1978), and Fox and Young (1982).

Distribution: The tree species occurs in many countries of Southern Africa. It is mainly found in frost free and relatively warm areas with sandy to loamy soils (Fox and Young, 1982). In Namibia it is found in northern parts of the country. Although it also grows in the veld, it is usually found in the field or near settlement areas. It is commonly found in the Oshana, Omusati, Oshana, Oshikoto, Okavango, Caprivi and part of Otjozondjupa regions.

Uses

Wine: The tree produces an outstanding and famous wine (marula wine). The wine comes about when the juice is squeezed out of the marula fruits. Fermented for a few days (depending on individual trees' taste). Thereafter the wine is properly cleaned by sieving the liquid. It has been reported that this drink has a high content of vitamin C. The alcohol content is quite high. It is estimated to be up to 15% per volume, depending on the individual tree and the period the liquid has been fermented for. It is believed that Marula wine increases people's appetite. This is very famous in northern Namibia (Owambo). So far, extraction of marula wine has been only a woman's job. CRIAA SA-DC Marula Oil Production Project (1998) developed a press to process Marula oil which easily extracts the juice from fresh Marula fruits, being at least twice as quick and with nearly twice the yield as the traditional method.

A second drinking product from marula fruit is a very sweet and almost non alcohol drink. One may compare it with appletizer or other fruit juices from the domestic fruit trees. It is prepared as follows. Immediately when the cover of fruits are removed from the seeds, the seeds are put in a container (normally clay pot), water is added (20 litre for 10 litre container full of seeds) and left for about 12 hours. This becomes a very sweet and non-alcoholic drink. This is usually a drink for children.

Nuts and Oil: Marula seed comprises a hard cover and kernel. It is quite hard to remove nuts from the seed. It is a woman's tasks to remove nuts. They use an axe to open a seed on one side. They use a tool made of iron to remove the nuts. The embryo is really delicious and so highly priced that it is given to special guests. In some parts of South Africa they have been given called 'food for kings' (Junod, in Fox and Young, 1982). These nuts (omaxuku) are mixed with *Mahangu* cake to make a very delicious food. Until very recently, elders have recommended that children should eat such nuts as they say that if a young person makes a habit of eating such nuts he/she will have an uncontrolled appetite for food. So, such a youth may end up stealing other people's food because he/she will feel that the food he/she gets at home will not be enough for him/her.

The embryos are so rich in oil that this can be expressed by squeezing. The nuts are prepared in large quantities of 0.5 kg and more. They are put in the mortar then stamped with pestles. Tactfully, a woman squeezes several times until a considerable amount of oil is separated from the residue known as *edi*. The oil is very highly priced. They are given to special guests with special dishes. In all important feasts, such as a wedding ceremony, marula oil is one of the special foods and the organisers have to see to it that they are available (refer to 4-O regions). Local markets are available for this purpose.

Jam can also be produced from Marula fruits (Ministry of Agriculture, Water and Rural Development, Project on Indigenous Fruits, (1999)).

Economic role: All these products, wine and unprocessed kernels and oil, are now available in open (informal) markets in the country. Marula wine is now sold between N\$5 to N\$10.00 per litre (confirmed at Oshakati Omatala open market, March, 1999). In African restaurants in Windhoek, Marula wine is one of the products preferred by many people. The price of Marula wine at this restaurant is N\$15.00 per litre. The same fruits have been developed in South Africa and mixed with cream to make up a famous liqueur known as Amarula. With regard to kernels, there are nine women's groups in northern Namibia involved in oil production. The total number of women involved in these cooperatives are about 1000 women. It has been noticed that, to a great extent, these women do manage themselves showing that there is good scope for a large and effective economic operation in the near future.

In 1997, about 3500 kg of kernels were collected and sold at N\$ 12.00 per kg. The oils are used for cosmetic production in Europe. For this reason, a Trial Marula Oil Production Project came up with a Marula oil processing tool known as prototype 2 press. The press is robust and made principally from scrap metal and has an excellent chance of performing well in rural setting (CRIAA SA-DC 1998). Such work is taking place at Katutura in Windhoek. Oil is sold at +-N\$ 100.00 per litre. This is exported to Europe for pharmaceutical purposes. The trial marula oil project shows that interest in Marula oil from commercial parties is as strong as ever, and negotiations with premier potential buyers show that the project is on the verge of an important commercial breakthrough. The project also brought to light that Marula oil and kernel contains at least one powerful antioxidant and this is regarded as a major marketing benefit. It is expected that this year more than 20 tonnes will be collected.

It is clear that there is tremendous economic potential from the use of the marula fruits. It is necessary to formalise the extraction of marula wine and expand the mechanical extraction of oil from marula kernels. This will add more value to the tree and will enable many people to protect and increase a number of the tree species.

4.3 *Adansonia digitata (Baobab) - Bombacaceae*

Description: Baobab is one of the famous and well known trees in many parts of the dry zone of Africa. The tree has a very thick stem with a sparse wide spreading round crown. It reaches up to 15 m in height. For a detailed description, see Fox and Young (1982).

Distribution: It is found in the east and southern part of Africa. In Namibia, the tree is found in the north-west, mainly in Omusati region, but also in isolated cases in other northern regions. It also occurs in east Bushman land Leger (1998).

Uses: The pulp around the seed is eaten when dry. The pulp is left in water to soften and mixed with milk and mealie meal to make a very delicious porridge. Wehmyer (1976) reported that the fruit is rich in vitamin C. Although not very commonly used in Namibia, the bark of baobab are used for fastening thatched grass on the roofs. Palgrave notes that white powder from this fruit can be made into a refreshing drink. He further states that fresh leaves are cooked as vegetables in Zimbabwe. However, in Namibia's case, there is no mention of leaves being eaten

in any form. Furthermore, trees are described in full details by Palgrave, Le Roux, Leger and Fox and Young 1982). In Malawi, local communities produce a soft drink from the fruits and lessons can be learnt from this (GTZ funded Community forestry project, 1997-ongoing).

Economic role: They are sold at informal markets where they cost from N\$ 0.50 to 1.00 per fruit. Unless more efforts are made to promote the fruit, it is unlikely that the fruit will play a significant economical role in the near future.

4.4 Ziziphus mucronata (*Buffalo thorn tree*)

Its sourish fruit is used for making a hot liqueur (Ombike). Due to its taste, it is not consumed raw. Like other fruits, this fruit may play an economic role if the hot liqueur is legalised. Apparently, due to excessive and unmeasured amount of alcohol in Ombike, the government does not encourage its production. However, this is the main source of income among many poor families. An acceptable way of distilling? has to be found so that poor people can continue to get income from this hot but liked alcoholic drink.

4.5 Diospyros mespiliformis (*Jackal berries*)

It is also known as African ebony or Omwandi. It is a large tree up to 25 m in height with large stems up to 45 cm in diameter. It grows wild in northern Namibia and stretches from Kunene to Caprivi region. It is found on clay to loamy soils. Fruits are round berries, crowned with the persistent style, yellowish when ripe. The fruit pulp is soft and very sweet. People do collect the fruits during winter. Normally consumed while fresh especially the sweetest ones. The remaining fruits are dried and consumed at a later time. They are either eaten raw with no special preparation or are pounded, powder mixed with boiled water and millet meal to make up a very sweet and delicious porridge (oshihenyandi) which is liked by many people, especially during the dry period. Furthermore, fruits are fermented for the famous hot liqueur - ombike. This is sold at the price of N\$30.00 per litre.

4.6 Hyphaena petersiana (*Makalani palm*)

Description: Trees are quite tall - 10 - 20 metres. This tree species is found in many parts of Namibia. It covers the northern commercial area of Grootfontein, Tsumeb and Outjo. Its main base is the north-central region -formerly known as Owamboland. They grow along seasonal water bodies locally known as 'Oshanas'. These trees are not fond of Kalahari sand. They like clay and salty soil on the cuvelai flow.

Economic role

Leaves: Shredded into thin strips and used for weaving baskets. Baskets are exported mainly to RSA. They also play a role in the tourism industry. It is one of the products that European tourists are looking for in Namibia.

Fruits: The pulp around the seed is edible. It is quite difficult to pick these fruits from trees. Fruits are eaten in raw form or made into a hot liqueur, as explained below.

Wine and brandy: Palm wine is made by cutting the terminal bud of the fan palm. Unfortunately, the process ends in the death of the plant. It is, therefore, formally forbidden in the country. Many people are still violating this regulation. Although the tree grows slowly, it can be planted and purposely grown. Palm fruit is one of many fruits that can be fermented for a few days so as to make a valuable brandy locally known as *Ombike*. The price of a litre of ombike is about N\$25. - 30. 00. The seeds may also be carved into small carvings. In the absence of fuelwood, palm seed is used as fuel for cooking in many parts of Northern Namibia.

4.7 Other tree species that provide fruits in Namibia include:

4.7.1 *Strychnos cocculoides* (Monkey Orange)

The plant occurs in Kalahari sand area of Namibia. The fruit is the size of an orange but the outer cover is relatively hard. Many people eat the fruits especially bushman communities. The fruits are also sold on the road side at about N\$ 0.50 to 1.00 per fruit. Economic role will remain locally based.

4.7.2 *Guibourtia Colesperma* (Large false mopane)

Fruits are edible fresh and used to make hot liqueur.

4.7.3 *Ximema Caffra* (Large sour plum)

Fruits are consumed fresh and also used to make a juice. Nuts can be used to produce oil for body ointments.

5.0 NWFPs OF WILD ANIMAL ORIGIN

5.1 Game meat

In some regions, this is referred to as bush meat. Forests provide habitats for many wildlife species. Forests provide stream habitats for many fresh water species, helping to maintain water temperatures and reduce stream sediments. Before the establishment of the National Parks in Namibia, the consumption of bushmeat was extremely high. Even though game, especially small antelope, is still available here and there, it is protected by the nature conservation law. Hence, the consumption rate of wildlife has significantly decreased in Namibia. It has been unfortunate that commercially rich farmers have been given permission to hunt and make use of the wildlife on their farms (Nature Conservation Act 1974). The recent development of Conservancy is encouraging, because rural communities will have a right to manage and utilize the game in their vicinity.

5.2 Fish from fresh water

The Namibian coasts border the Namib desert. Therefore it is the author's belief that forests and trees, except sea-plants, do not play a role on providing habitats, like in other countries where mangroves provide important habitat for fish breeding. Fish in oceans are mainly fished for a commercial purpose and these are industrialised-based businesses. For this reason, the author feels that the role of forests is mainly restricted to rivers such as Okavango, Chobe, Linyanti and Zambezi river in the north-eastern borders and Kunene river in north-west, as well as seasonal flow in Oshanas in northern Namibia.

Fish play an important role in the daily diet of people who live near or along the rivers. For example, people living in the Caprivi region are able to catch fresh fish throughout the year. Fish do not only provide nutrients to the fishermen and their families but also cash income. Fish are sold in Katima Mulilo and Rundu's open markets. They are also transported to other towns of Namibia such as Oshakati and Windhoek. There is huge potential in the fresh water fishing industry in Namibia. More support is needed by farmers in the fishing areas, for example, proper freezing facilities as well as means of transport.

5.3 Insects as NWFPs

5.3.1 Caterpillars

Mopane worms

Although it was difficult to obtain literature on this product, Mopane worms are well known for their delicacy. These caterpillars produce and lay on *Collophospermum mopane* which forms a large part of the savannah vegetation found in north-west of Namibia and other areas in a southern Africa sub region. It is sold at local markets at about N\$20.00 per kg. The worms have also commercial potential in neighbouring countries. Other related types of caterpillars are consumed locally and play a major role in local people's diets as they are obtained from the following tree species:

- *Burkea africana*,
- *Terminalia cericea*
- Acacia species in Omusati and Oshana regions locally known as *Okanaangole*

5.3.2 Termites

Termites are normally consumed in many parts of Owambo during the rainy season. After heavy rainfalls, termites with wings fly towards the nearest light. People make fires in the open and catch such delicious and fatty insects. They are consumed in local areas in some parts of the country. There is no indication of commercial feasibility at all.

5.3.3 Apiculture

During the ODA-FUNDED project which lasted between 1994 and 1996, the first time attempt was made to record the occurrence of beehives in Namibia. The study revealed that many farmers were interested in bee-keeping and about 10 were trained in beekeeping. The Directorate of Forestry has a policy of promoting beekeeping in the country. Two officials were sent to the United Kingdom for a short course in beekeeping for effective extension in Namibia.

There are different kinds of bees found in the Namibian forests. In addition to the well-known bees, there are also smaller bees which make their nests/colonies either underground or in tree holes. Some of these are locally known (in Oshiwambo) as Owishi, Elonga and Okahaupapuka. They all produce the same honey which is sometimes even sweeter than the ordinary bees.

There are tree species known as a good source of food for bees. These include: *Berchemia discolor*, Baobab, and exotic eucalyptus spp. However, due to the dry climate in Namibia, severe water shortage in many parts of the country for long periods of the year, apiculture was found not to be a promising business, and will be mainly limited to the northern parts of Namibia.

Furthermore, it has been noted that many people regard bees as dangerous insects instead of good friends who are talented at producing honey. The project concluded that beekeeping has a high potential in northern Namibia. It is, therefore, important to intensify the promotion campaign on bee keeping. There is no doubt that honey is good for business in Namibia. More than 90% of honey eaten in the country is currently imported. Farmers need to be educated on harvesting skills. It has been learnt that instead of only removing honey, farmers kill bees in the harvesting process.

6. Ecotourism

It is quite difficult to put a clear-cut between ordinary tourism and ecotourism in Namibia. Tourists are defined as the visitors entering Namibia, stating their intention to stay at least one night and not more than one year, returning Namibian citizens or residents who hold foreign nationalities, and persons stating their intention to stay less than one night are excluded. The tourism industry is one of the fastest growing sectors in Namibia. Namibia has a notable potential for ecotourism.

Given the fact that the country has a variety of both plant and animal species which are found in an unique environment, nature lovers have been attracted to such distinctive ecosystem. Due to the difficulty involved in determining the number of tourists visiting Namibia for mainly ecotourism, the Ministry of Environment and Tourism is not able to differentiate between the two types of tourists coming to Namibia. For this reason, the statistics indicating the tourists who have recently been to Namibia and the focus for the near future, as well as the sources of such tourists, is provided in the appendix.

7. GENERAL DISCUSSIONS

7.1 Availability of NWFPs

The distribution of NWFP's varies from place to place. As with livestock husbandry and cropping, rainfall is the principle limiting factor affecting the abundance of the most important edible NWFP. Soil type/fertility plays an indisputable role in the distribution of the products. Most of the animal origin products are heavily influenced by habitat. Most of the wildlife prefer reasonable forest cover.

Furthermore, human settlements with their livestock have a direct and indirect influence on the distribution and quantity available of these resources. This can be viewed from two perspectives. It can be a negative or positive influence. As is said above products such as those from marula, bird plum (*Berchemia discolor*) are mainly grown where people settled before. In the most inhabited areas of the northern part (Owambo) they grow on farmland.

Some forest products flourish well in the absence of disturbance. The more the areas are being opened up for settlement, the less these forest products are abundant. Examples are good/quality grazing, Mopane worms, game, some fruit trees. This is influenced by a number of factors:

- i) People disturb habitat for wildlife by reducing forest cover. Moths/butterflies which lay eggs on Mopane forests do not like disturbance. Hence they do not lay enough eggs in the disturbed areas.
- ii) Rainfall influences the production of NWFPs. Many people note that resources were insufficient in poor rainfall years, whilst in good rainfall years, the supply exceeds their demand. Some elderly people believe that a good rainfall season is followed by a good productive year. While others noted that some products are uninfluenced by the current rainfall season.
- iii) Fire also affects the production of NWFPs. The San/Vakwangali study (1998) indicated that fire was also a limiting factor to the production of fruits. At first, this can be true, particularly in animal origin products. Tortoise and hedgehog do not survive fires. Hence the population of these spp. may be seriously affected for a number of years after a fire. Fires also contribute to the shortage of grazing, which leads to the death of a big number of many grass dependant game. Fires also open up forests (habitat for game) which expose them to predators which will cause them to disappear at a very fast rate. The positive role of fires

in natural forest products cannot be forgotten at all. Fire opens up ground canopies and allows sun to penetrate through and reach the ground which results in more tuber plants and often seeds regenerating abundantly. Some organisations also prefer to live in dry wood which may be available after fire passed through the forest for several times.

7.2 Ranking of non wood forest products

Non-wood forest products are ranked differently by different communities, for example Oshiwambo speaking people do not rank Manketti as such a very important product as ranked by Okavango people. In the case of Marula, it is quite the opposite in these two communities. Bushman (San) community rank wild fruits and berries as the number one product, in a way that they easily compare with agricultural crops in other communities. For example, there is a story saying *that at one time a Bushman person who was handling Mahangu (millets) in the presence of an Oshiwambo speaking person. A lot of Mahangu spilled out on the floor, the Owambo person got angry and shouted at the busman, "hey, you don't waste Mahangu, do you know it costs a lot of energy to produce Mahangu? In reply the Bushman person said, "it does not cost as much as berries from the veld, so it does not matter because grewia berries, for example, also spill on the floor"*. In this story one can see, the strong bias in value system.

7.3 Utilisation and promotion marketing of NWFP commercially

A number of types of veld food are collected at subsistence level. It is close to impossible to determine the monetary values of many veld food. There are proposals to work out and promote the marketing of wild fruits and other products. To attain this, promotional work in terms of financial input and moral support to the users is a prerequisite. This will end up in two different streams. On one hand, it will increase the financial income of some individual gathers. Many people will realise the monetary values of their products. It is also hoped that owners will take care of their trees which will also encourage people to plant more trees. This is particularly true in the case of those people who possess some land on which they can grow these trees. It will increase income for the tree growers, so that they will be able to meet other needs by using such cash.

In the case of products such as marula nuts/oil, it is clear that they are economically viable. In addition to the fact that they are in high demand at local and national level, they are also found in places outside Namibia. The economic feasibility of Marula oil was discussed earlier. For this reason, it is appropriate to mention that in order to create proper projects for the full benefit of the local poor people, there is a need to support them with infrastructures and equipment so that they process these products to add more value to the product. Eventually, it will add more value and respect to the forestry sector at large.

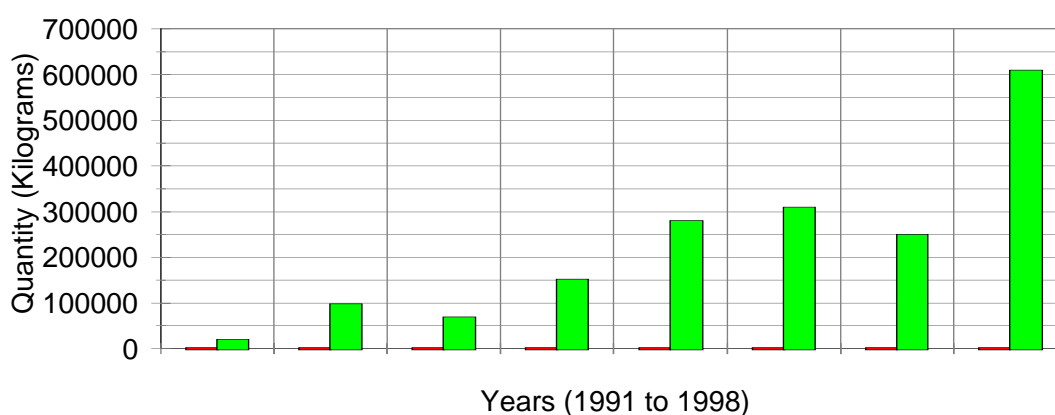
On the other hand this might result in a disastrous situation. As has been discussed earlier, a considerable number of people (e.g. San people) depend on NWFP for their livelihood, especially during the dry period. Most of these foods are found in the veld where the land mainly belongs to all the people living in the given community. When it is clearly established that there is a significant value on trees and other veld products, individuals who are more able to collect such products will do this and only they will gain all benefits which are normally shared by all members of the community. This move will not improve the standard of living of many people instead of only a few individuals. If this happens, it will not only increase starvation to some communities but also increase the unwelcomed skewness of the well fair distribution of the Namibian society. In the area where ownership of the property is well defined, promotion of the NWFP is a move to be taken without hesitation. When the forest products are marketed in the modern market, people who are living in urban areas with money will benefit more. But it may be possible that those in rural areas with little or no alternative to obtain food for a day will be seriously affected. Trees which already grow in the field, such as Marula, Bird plum, plan trees, Jackals berries, should be the first products to be promoted.

It is not well determined if the costs of these veld foods will be adequate to buy other commodities with the same values of veld food in its natural state, which may be used as complementary if not supplementary of forest products. In well established communities other than Bushman, commercialisation of wild food may turn into a positive side of development. One can easily say that in a community which is not well organised, other people (capitalists) who are able to collect and buy these products to take them to the final destination will end up getting a bigger portion of the real value of the products. It is therefore important to move with conscious effort in commercialising some of the NWFPs in different communities.

The official figure on exploitation and exportation of NWFP for the most important products. For the last two years, 100 litres of oil was exported to Germany. This is still on a trial basis. Marula wine is mainly consumed locally in the informal market. As discussed on page 10, this wine is already utilised at commercial level in neighbouring South Africa. The potential of marula wine has been realised beyond doubt that it can be fully utilised at commercial scale. One of the famous liqueurs in South Africa 'Amarula' is related to the marula fruits. country

Harpagophytum exports from Namibia

Export recorded by MET over 8 years



Manketti nuts

These are not yet harvested at commercial level. However, research work has been intensified to come up with a way to utilise the nuts. The first Phase of the Manketti nut project confirms that there is a potential both locally and outside the country to market the oil on a commercial basis. The second phase is about to start for another 2 - 3 years. During this phase the project will look and advertise the product even more forcefully than it did before.

Another product that finds its place in the market outside Namibia is baskets made from makalani palm leaves. These are sold in South Africa. A basket of about 70 cm height and 40 cm in diameter is sold for about N\$100.00 each. Unfortunately, this is sold informally. It is only estimated that about 300 baskets are sent to South Africa. Also individual European tourists like the product.

7.4 Ownership/resource tenure

Generally the San has open access to all natural resources, including both plant/origin and wildlife resources. They regard most of the properties as belonging to all. For other ethnic groups, such as Vakwangali in Okavango region, utilisation of natural resources appeared to be

confined to those areas that fall under a village to which a particular individual belongs. This can be applied sometimes in practice although in theory all people should have direct access to natural resources on public lands.

7.5 Protection/utilization of NWFP's

As it was said earlier, the realisation of tree values will increase the protection of resources. Destructive activities such as tree cutting/harvesting, fire (bush fire), hunting of game and bee/honey harvesting will be properly controlled.

Sometimes it is difficult to enforce the rules and regulations which are put in place through unwritten laws. The traditional authority used to have respect and effective rules, unfortunately, with change, some of these institutions are no longer as effective as they were 20 - 30 years ago. Community bylaws will need to be written down in order to ensure the effectiveness in managing and implementing rules and regulations to control access to, and use of, land and natural resources. The good news is that in many local communities fruit trees are not cut down even when grown on cultivated land. Many people prefer them growing in their field because it increases ownership to the products.

7.6 Preservation and storage of NWFP as food

Local Communities have different ways of preserving their food. Due to the fact that most of veld foods are mainly available during the rainy season, efforts are made to preserve and dry leaves and fruits for later use. Most of them are dried and stored. However, a lot more effort is required to increase the life span and the quality of many NWFP. The idea obtained from informants is that preservation is the key to the promotion of veld food. For example, if there is a way to preserve marula wine, as is happening in South Africa, many people will buy marula wine whenever they want it. Bird plums are dried with a certain level of moisture content being left in the fruit. This can easily be compared with grapes. Packaging will also contribute to the life span of the products.

Furthermore, the common names (local names) of some NWFPs, such as some fruit trees, need to be changed. Among others these tree species are; Monkey orange, Jackals berries, Bird plums. These names imply that the fruits are food for certain animals and not for human beings.

8.0 STATUS AND USE OF FORESTRY STATISTICS IN NAMIBIA

This information was submitted on the occasion of the Mutare workshop in December 1998. As indicated earlier, this paper is also to confirm and complete, if necessary, the information mentioned in FAO working paper on "NWFP Statistics" submitted on the occasion of the Mutare workshop. This chapter therefore provides more details on activities of the Directorate of forestry in the country.

The Colonial policy of forest exploitation, especially in communal areas, Tsumeb and Grootfontein districts that started in 1930's continued unabated until Namibia obtained independence in 1990. Poorly staffed and divided structure of the forestry service in Namibia prior to independence, as well as the country's liberation struggle, prevented the implementation of forestry development activities in large areas of Namibia, particularly in the northern areas where forest resources are naturally available.

The Directorate of Forestry in Namibia was established in 1990. At present, it is still in its early developmental stages. The Directorate produced the first Forestry Strategic plan for Namibia in 1996. In August 1997, the Directorate began implementation of the Strategic Plan of the Namibia-Finland Forestry Programme. The Strategic Plan is based on ecological, environmental,

cultural, and socio-economic considerations and it considers 'production, protection and participation' as the three key issues of forestry development in Namibia.

New forest legislation was completed in 1997 and is awaiting approval by Parliament. At present, the first National Forest Policy of Namibia is under review.

The main challenges being faced by the directorate are manpower development, infrastructure development and forest resource data collection. Several forestry staff are in colleges and universities to obtain Forestry Diplomas and BSc Degrees. The infrastructural development is almost complete. Forestry data collection, compilation, analysis and dissemination is in progress. To date the Directorate of **Forestry has fifteen (15) offices** throughout the country.

8.2. Institutions dealing with forestry data collection

8.2.1. Directorate of Forestry

The Directorate of Forestry is the main institution dealing with forestry data collection in Namibia. These activities are handled by the Directorate's three Divisions, namely, Management, Research and Training & Extension (Planning and Extension). Under the Management Division there are three Regions (North East, north-west and south-central) which are managed by Forestry District Officers. The District Forest Officers are key personnel in direct contact with local communities.

8.3 Projects with outside support

8.3.1 Namibia-Finland Forestry Programme

The Directorate of Forestry is implementing sub-components of a Namibia-Finland Forestry Programme in cooperation with the Government of Finland. The overall programme's objective is to ensure an increased role of forestry in the socio-economic development of Namibia through continuous implementation and development of sustainable forest management practices.

The programme has four components: public sector forestry capacity building, community forestry, integrated fire management and environmental forestry. The public sector forestry capacity building component has three sub-components: institutional development, training at Ogongo Agricultural College and National Forest Inventory.

8.3.2 Community Forestry and Extension Development Project in Northern-Central Namibia

The project is sponsored by both the Namibian and the Danish Government through DANCED. This is a pilot project looking at the development of community forestry practices and extension development with the involvement of local communities.

8.4.3 Okongo Community Forestry Project - GTZ/SADC-FSTCU

This project is supported by the German government through SADC - Forestry Sector Technical Coordination Unit. It is one of four pilot projects being carried out in the SADC region. This particular one in Namibia is based in Okongo Constituency east of Ohangwena region.

8.4.4 Community Forestry in the North East regions - GDS/KfW

This project is based in Kavango, Caprivi and Tsumkwe District of Otjozondjupa region. The project is to start its activities in June 1999.

8.4 National remote sensing centre

The national remote sensing centre is involved in the development of GIS applications. The centre produces a variety of maps for different clients including presentation of forest statistics in map form for the Directorate of Forestry.

8.5 In-country capacity

The main weakness of the Directorate of Forestry is the shortage of qualified local forestry staff. Out of the 123 positions of professional and technical staff 65 (or 52.8%) are filled and 57 are vacant. The Directorate of Forestry, as the main institute directly involved in forestry data collection, is in the process of developing its human resource capacity to be able to deal with data collection, compilation, analysis and dissemination. This is particularly essential in the area of forest research to increase the human resource capacity to manage and perform scientific research to produce data and information to support the various forest management activities of the Directorate.

8.6 Frequency of data collection

For routine operations, such as nursery operations, issuing wood harvesting and export permits, data is collected daily. In the case of forest inventory, data collection will be repeated after 15-20 years while for local areas, requiring forest management information, the data will be gathered when appropriate. For other components, such as community forestry, environmental forestry, integrated forest fire management, the data is collected when appropriate.

8.7 The condition of data-dissemination

The forestry statistics information is mainly disseminated through the Directorate's monthly, quarterly and annual progress reporting system. The routine statistics, inter alia, include number of: plants raised, plants sold, permits issued, plants for own use/donated; revenue (n\$) generated from: plant sales, wood harvest permits, fines, timber contracts, exports of forest products etc.

The data from the forestry inventory, community forestry, environmental forestry, integrated forest fire management is disseminated through the various reports produced by the respective components. The forest inventory sub-component has so far produced 4 forest inventory reports, (West Tsumkwe in Otjozondjupa region; Nkurenkuru Concession in Kavango Region; Otjinene/Okakarara districts in Omaheke region; and Ongandjera Community Forest in Oshana Region). This sub-component is in the process of preparing a report for Caprivi where 861 tree plots were measured in both East and West Caprivi between September-December 1997.

8.8 Use of information

The information developed is used by the Directorate of Forestry and other institutions for planning various forestry and natural resource management activities in order to develop the forestry sector in Namibia

9.0 Conclusions & Recommendations

There is a great need of data on non-wood forest products in Namibia. It is not easy to distinguish the tourists who are entering the country mainly for ecotourism or just ordinary tourists.

1. There are many Non-Wood Forest Products used by local communities but not well counted in the national economy. There is an urgent need to promote such NWFP's that have been neglected so far.
2. It is also important to scientifically determine the nutrition content of many veld foods which are mainly popular among small ethnic groups, such as San people (Bushman).
3. Most of these plants thrive very well under harsh conditions, as a result, they help many families during drought periods.
4. There is an urgent need to document more information on the NWFP. In the past, young boys were taught, while sitting around the fire and when looking after the livestock, which plants or animals were edible or used for what purpose. Similarly girls used to do the same when they spent much more time with their mothers. These days parents spend less time with their children. Hence, the transfer of the knowledge in a usual way is very limited.
5. It has been established that there is tremendous economic potential in Marula oil and wine production and marketing, especially in the north central regions. Similarly with manketti Nuts in Kavango.
6. Local communities are willing to participate and cooperate in developing products for commercial use.
7. With regard to some products which grow in unoccupied communal areas (e.g. Manketti) and mainly utilised by a group of people (e.g.. Bushmen), they should be commercialised with great care because the process may end up depriving a large number of the community members from the vital benefits and enriching a few individuals.
8. Forest is and will remain a habitat of wildlife which is and will continue attracting tourists to this country.
9. With more economic values attached to a big number of tree species, many people will double the efforts of caring for the trees.
10. Great care should also be taken to ensure that the resources are utilised for the benefit of the local poor. Local communities should not just be used to harvest products and get very little portion of the total value.
11. Devils Claw has established itself in the international market as a medicinal plant. More efforts are required to determine the best way of proper and sustainable management.
12. Many people depend on the income from hot liqueur known as Ombike or Katshipembe. More studies are required to determine the health-friendly way of producing such a drink.

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APPENDIX 1; TOURISM

Tourism 2020 Vision: Forecast of Tourism Arrivals in Namibia by Main Market.

| Origin Market | Actual | | Forecast | | | Growth Rate (% pa) | | | | |
|----------------|----------------|----------------|----------------|-------------|-----------------|--------------------|--------------|-------------|-------------|-------------|
| | 1997 | 1998 | 2000 | 2010 | 2020 | 1997-1998 | 1997-2000 | 2000-2010 | 2010-2020 | 1997-2020 |
| South Africa | 187.687 | 209.318 | 263.687 | 472.223 | 806.625 | 11.53 | 12.00 | 6.00 | 5.50 | 6.54 |
| Angola | 158.188 | 177.316 | 210.548 | 326.975 | 439.427 | 12.09 | 10.00 | 4.50 | 3.00 | 4.54 |
| Botswana | 17.695 | 19.589 | 22.916 | 41.038 | 66.847 | 10.70 | 9.00 | 6.00 | 5.00 | 5.95 |
| Zambia | 7.589 | 9.317 | 12.469 | 26.920 | 46.209 | 22,77 | 18,00 | 8.00 | 6.00 | 8.37 |
| Zimbabwe | 7.559 | 8.395 | 10.061 | 21.721 | 38.899 | 11.06 | 10.00 | 8.00 | 6.00 | 7.38 |
| German | 54.952 | 59.623 | 69.224 | 129.942 | 232.707 | 8.50 | 8.00 | 6.50 | 6.00 | 6.48 |
| United Kingdom | 12.555 | 13.992 | 16.711 | 36.077 | 64.609 | 11.45 | 10.00 | 8.00 | 6.00 | 7.38 |
| Italy | 4.917 | 5.597 | 6.908 | 14.914 | 26.709 | 13.83 | 12.00 | 8.00 | 6.00 | 7.64 |
| France | 5.463 | 6.156 | 7.471 | 13.380 | 22.855 | 12.69 | 11.00 | 6.00 | 5.50 | 6.42 |
| Scandinavia | 3.253 | 3.355 | 3.929 | 7.376 | 13.210 | 3.23 | 6.50 | 6.50 | 6.00 | 6.28 |
| Other | 42.154 | 47.013 | 60.020 | 186.413 | 553.637 | 11.53 | 12.50 | 12.00 | 11.50 | 11.85 |
| Total | 502.012 | 559.674 | 683.944 | 1277 | 2313.734 | 11.53 | 10.86 | 6.44 | 6.12 | 6.87 |

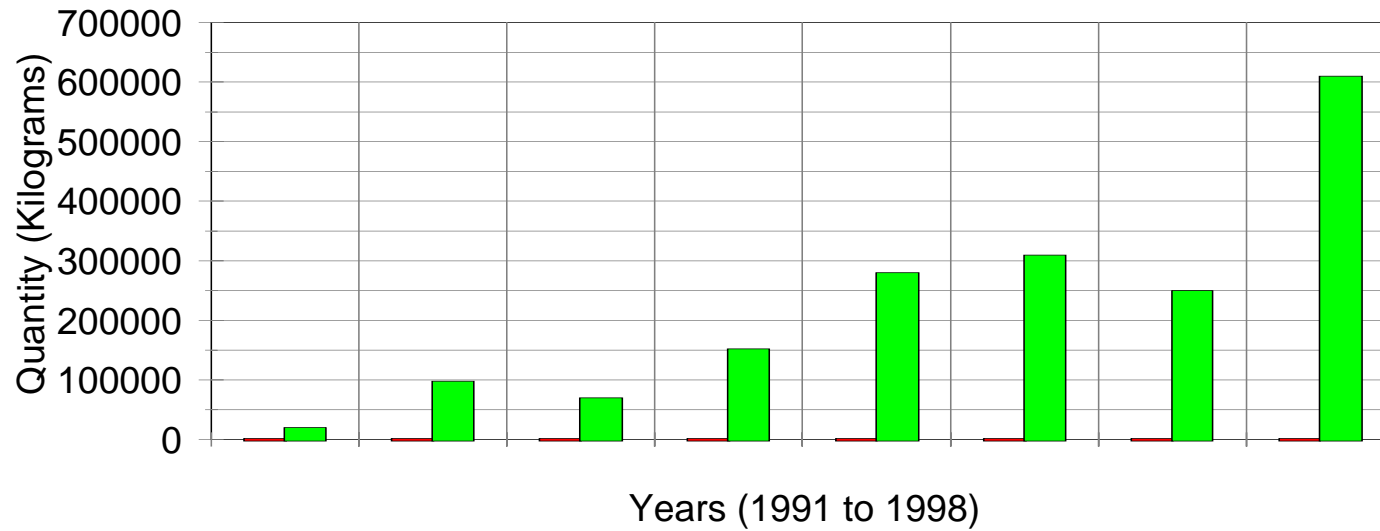
Source: WTO

Source of Tourism in Namibia

| Region and Country | 1993 | Share % | 1996 | Growth %p.a | Share% | 1997 | Growth %p.a | Share% | 1998 | Growth%p.a | Share% |
|---------------------------------------|----------------|---------------|----------------|--------------|---------------|----------------|-------------|---------------|----------------|--------------|---------------|
| AFRICA Angola | 12,719 | 4.99 | 144,915 | 125.02 | 31.41 | 158,188 | 9.16 | 31.51 | 177,316 | 12.09 | 31.68 |
| Botswana | 11,889 | 4.66 | 16,011 | 10.43 | 3.47 | 17,695 | 10.52 | 3.52 | 19,589 | 10.70 | 3.50 |
| South Africa | 155,050 | 60.81 | 172,544 | 3.63 | 37.40 | 187,687 | 8.78 | 37.39 | 209,318 | 11.53 | 37.40 |
| Zambia | 8,798 | 3.45 | 6,699 | 8.69 | 1.45 | 7,589 | 13.29 | 1.51 | 9,317 | 22.77 | 1.66 |
| Zimbabwe | 4,676 | 1.83 | 6,848 | 13.56 | 1.48 | 7,559 | 10.38 | 1.51 | 8,395 | 11.06 | 1.50 |
| Other Africa | 3,440 | 1.35 | 4,381 | 8.39 | 0.95 | 4,797 | 9.50 | 0.96 | 5,597 | 16.68 | 1.00 |
| TOTAL AFRICA | 196,572 | 77.09 | 351,398 | 21.36 | 76.17 | 383,515 | 9.14 | 76.40 | 429,532 | 12.00 | 76.75 |
| EUROPE Australia | n.a. | n.a. | 4,574 | n.a. | 0.99 | 4,958 | 8.40 | 0.99 | 5,541 | 11.76 | 0.99 |
| France | 2,374 | 0.93 | 5,127 | 29.26 | 1.11 | 5,463 | 6.55 | 1.09 | 6,156 | 12.69 | 1.10 |
| German | 29,730 | 11.66 | 50,899 | 19.63 | 11.03 | 54,952 | 7.90 | 10.95 | 59,623 | 8.50 | 10.65 |
| Italy | 2,262 | 0.69 | 4,672 | 27.35 | 1.01 | 4,917 | 5.24 | 0.98 | 5,597 | 13.83 | 1.00 |
| Scandinavia | 1,849 | 0.73 | 2,996 | 17.45 | 0.65 | 3,253 | 8.58 | 0.65 | 3,358 | 3.23 | 0.60 |
| Spain/Portugal | n.a. | n.a. | 2,237 | n.a. | 0.48 | 2,427 | 8.49 | 0.48 | 2,686 | 10.67 | 0.48 |
| Switzerland | n.a. | n.a. | 4,092 | n.a. | 0.89 | 4,325 | 5.69 | 0.86 | 4,702 | 8.72 | 0.84 |
| United Kingdom | 5,987 | 2.35 | 11,562 | 24.53 | 2.51 | 12,555 | 8.59 | 2.50 | 13,992 | 11.45 | 2.50 |
| Other Europe | 8,076 | 3.17 | 7,787 | -1.21 | 1.69 | 8,312 | 6.74 | 1.66 | 9,458 | 13.79 | 1.60 |
| TOTAL EUROPE | 50,276 | 19.72 | 93,946 | 23.17 | 20.37 | 101,162 | 7.68 | 20.15 | 111,116 | 9.84 | 19.85 |
| Rest of World North America | 4,8900 | 1.92 | 8,452 | 20.01 | 1.83 | 9,181 | 8.63 | 1.83 | 10,074 | 9.73 | 1.80 |
| Other, incl. Australia S.E.Asia Japan | 3,238 | 1.27 | 7,514 | 32.39 | 1.63 | 8,154 | 8.52 | 1.62 | 8,955 | 9.82 | 1.60 |
| Total Rest of World | 8,128 | 3.19 | 15,966 | 25.24 | 3.46 | 17,335 | 8.57 | 3.45 | 19,029 | 9.77 | 3.40 |
| Grand Total | 254,978 | 100.00 | 461,310 | 21.85 | 100.00 | 502,012 | 8.82 | 100.00 | 559,674 | 11.49 | 100.00 |

Harpagophytum exports from Namibia

Export recorded by MET over 8 years



Graph on

Harpagophytum Export, Extract adopted from Ministry of Environment and Tourism's Division of Special Support Services 1999.

