

# Kenya

## **ASSESSMENT OF THE SITUATION AND DEVELOPMENT PROSPECTS FOR THE CASHEW NUT SECTOR**

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## INTRODUCTION

The project “Trade expansion in Cashew Nuts from Africa” funded by the ITC Global Trust Fund and co-financed by the Common Fund for Commodities (CFC), is aiming to establish a strong regional network and a structure best adapted to support the strategic export development objectives for the cashew nut sector in each of the participating countries. The activities of the project address market development issues and provide the basis for regional networking, in order to ensure the sustainable development of the cashew nut sectors and to increase their share in the world market.

The countries participating in the project, enumerated by order of their importance as exporters of cashew nuts, are: the U.R Tanzania, Mozambique, Guinea Bissau, Côte d’Ivoire, Nigeria, Benin, Kenya, Senegal and Madagascar.

The ultimate beneficiaries of the project are the cashew nut smallholders and the small- and medium-scale processors and exporters of the product. The project is expected to impact on the expansion of the direct export trade in raw and processed cashew nut from Africa towards both developed and developing markets. This would be a direct result of the efficient networking of traders, of increased market transparency and of the co-ordinated export development efforts in the region.

A high-level African meeting of producers and exporters of cashew nuts will be organized in Cotonou, Benin, in July 2002, in the framework of this project. The meeting will review the current situation of the sector in the participating countries, on the basis of country reports prepared by national experts, with a view to conclude on future development activities, as well as on priority technical co-operation activities to be undertaken in co-operation with the International Trade Centre/UNCTAD/WTO (ITC), the Common Fund for Commodities (CFC) and other international donors in the field of cashew nut market and product development.

The country reports are published in the present volume in the original drafting language, i.e. English or French. Translations in the other language may be considered at a later stage, depending of availability of additional project funds

## EXECUTIVE SUMMARY

Cashew nut marketing in Kenya was liberalized from 1998, having previously been wholly owned by the Kenyan Government, through a parastatal body, as a monopoly with one processing factory. This single factory was closed down in 1996, due to low raw materials throughput and is under receivership. Its machinery and equipment have been cannibalised.

Cashew nut farming has always been a smallholder activity, with individual farmers owning small numbers of trees of various ages, under a wide range of husbandry standards. Culturally, cashew nuts are intercropped with mangoes, coconuts, or food crops such as millets and maize.

Liberalisation has exposed the farmers to a marketing environment with completely unpredictable prices, which led them to neglect their trees and the crop as a whole. Lack of credit for purchasing farming equipment and inputs for pests and disease control has aggravated the situation.

The main cashew disease in Kenya is the powdery mildew, which has become endemic in the growing districts of Lamu, Kilifi and Kwale, in the ecological zones II and III in Coast Province.

Shortages or lack of resources for research and extension services is a common phenomenon, cashew nut farmers not being attended or supported by anybody technically or financially.

Infrastructure in the districts has collapsed, rendering the access of farmers to markets inaccessible.

The main stakeholders of the sector are the farmers themselves, some small scale traders who buy the unprocessed nuts at the farm gate or rural markets and resell them to exporters, and the exporters who ship the nuts to India for processing.

The Ministry of Agriculture is responsible for development of the sector, through its agents the Kenya Agricultural Research Institute and the Coast Development Authority, but to date they have not put in place any specific development plans.

Efforts by NGOs such as Action Aid, working with CBOs to set up recently a pilot cashew nuts improvement programme have not yet succeeded. A private company has recently set up a small processing plant and has commenced purchasing nuts from farmers and processing the crop.

To improve cashew nut production priority would have to be given to controlling diseases and pests, and to improving husbandry, by enhancement of input supplies.

Training of farmers and supervision by the field extension service personnel should be reinstated. This short-term strategy will result in increasing yields of the

existing trees. The longer-term strategy should be a structured replanting programme, using improved germplasm.

A restructured marketing system should be installed, in order to give the farmers confidence, providing for primary local processing before exporting. These developments would require financial resources from both the public and the private sectors.

## **Chapter 1: STRUCTURE, ORGANISATION AND DEVELOPMENT STRATEGY**

### **1.1 Historical perspective**

Cashew is among the oldest cash crops in Kenya. The tree, yielding even in poor soils, has excellent cash crop prospects for areas where other productive crops cannot grow well.

The tree is indigenous to Central and South America and was introduced into East Africa during the sixteenth Century by the Portuguese. Its Swahili name is Kanju, a recognisable variation of Acaju, name given by the Tupi of South America. One of the first mentions of the cashew in Kenya comes from the Swahili Dictionary of Dr Ludwig Krapf, a missionary who arrived at Mombasa in 1844, and thereafter established a mission at Rabai. Apart from the name of the tree, Krapf quotes 'Dunge', the nut when green and before the apple is formed); Kanju (the fruit); and Korosho (the ripened nut).

Cashew tree bears fruit after three years, but the first crop do not exceed 4 kg/tree. A good average crop for a mature plantation tree is around 10 kg/year. This is harvested from the end of October to January. A smaller harvest is obtained in February and March.

In Krapf's days, the apple was used to make jam and jelly, as well as a beverage. The tree yielded a gum and the bark was used medicinally. The nut, apart from being a food when crushed, yields through extraction an oil of excellent quality.

In Kenya, processing of cashew nuts started in a very small way at Kilifi in 1930, with roasting and cracking the nuts under a mango tree. Following a visit to India in 1935, the late Mr. W.G. Lilywhite introduced a primitive type of drum roaster where shelling, peeling and grading was done by hand in an open shed. In 1950 an improved type of drum roaster was installed and new drying ovens were built. This granted a great deal of economic stability to Kilifi District, which did not have a cash crop previously.

Mr. W.G. Lilywhite showed small holders how to grow cashew and provided the seed. When the trees began to bear, his vans collected the nuts and farmers were paid in cash. One of Mr. Lilywhite's advantages was that he had no need to experiment with packing materials. During the 1930s in Kenya, petrol and kerosene were marketed in four-gallon cans (debes). By a simple conversion, debe tops were altered to include a circular opening. When steamed, the containers were ideal for exporting cashew kernels. By then, about 400 tons were being processed annually.

Between 1960 and 1963, the processing was taken over by Mitchell Cotts Cashew Limited. They increased processing capacity to 800 tons per year. In 1964 the Government took over the business and placed it under the National Cereals and Produce Board (NCPB) of the Ministry of Agriculture. The Industrial and Commercial Development Corporation (ICDC), the Industrial Development Bank (IDB) and the Kilifi District Cooperative joined later NCPB as owners.

The factory was able to process 1500 tons annually and employed a permanent labour force of 385 people. During this time, production of cashew nuts from the three main producing districts of Coast province namely Kilifi, Kwale, and Lamu, was stepped considerably through the extension service of the Ministry of Agriculture. Nearly 70% of the raw cashew nuts were exported to India for processing, a small percentage of which was returned to this country after processing.

Kenya Cashew Nut Limited commenced operations on 5<sup>th</sup> August 1975 and started by processing 5 tons per day. At full capacity, it was processing 60 tons per day and employing a labour force of 2000 people (1200 women and 800 men.)

The demand for cashew nut from Kenya was considerable. The main export markets were North America, Japan, Middle East, Europe and Australia. All raw nuts were supplied by the Kilifi District Cooperative Union to Kenya Cashew Nuts Limited, through the National Cereals and Produce Board. The cashew Nut Shell Liquid (CNSL) was a by-product of the roasting process. Through polymerisation, this oil yields a friction modifier used further in the production of brake linings.

The factory was privatised in 1993 and continued under the same name. The crop was marketed through farmers' cooperative societies, traders and agents. The Liberalisation of marketing of cashew nuts took place in 1997/1998. The factory closed down in 1998 and it is now under receivership.

## 1.2 Structure and organisation

Cashew nut farming in Kenya is a smallholder activity and there are no large plantations. Individual holdings vary from a few trees to a few acres per farmer. According to a recent survey, growing of cashew nuts is confined to the agro ecological zones I, II, III of the Coast Province of Kenya. The districts are Kwale, Kilifi, and Lamu. A few patches within Mombassa District contain some cashew nut trees that are not really cared for. The definition of zones is based on distance from the Indian Ocean Coast line. Zone I lies 0 to 15 km from the Coast Line, zone II at 15 to 35 km, and zone III at 35 km and beyond (see map 1).

The main characteristics of cashew nut growing areas in Kenya are shown in table below.

Table 1: Characteristics of cashew nut growing Areas in Kenya.

| Zone | Rainfall in mm | Area in ha | Tree population per hectare |
|------|----------------|------------|-----------------------------|
| I    | 900-1200       | 18500      | 70                          |
| II   | 600-900        | 7500       | 50                          |
| III  | 400-600        | 5000       | 10                          |

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Source: Baseline study by M' Rabu 2001; Jaetzold and Schmidt (1983); Coast Provincial Directorate of Agriculture, Annual Report 1999

The season for harvesting cashew nuts starts in October and ends in March. However, depending on the onset of the short rains and the arrival of the long rains, this pattern can fluctuate back and forth by one or two months. It is common to find the season extending its duration to the month of May. The main harvesting peak is in December- January, and a minor one in March - April. The main harvesting period coincides with the peak import demand in India, the heavy buying taking place in March.

Nearly all the existing cashew trees are very old, receive very little attention by the owners and are therefore characterised by low yields. The baseline study by M'Rabu et.al conducted in 2001 revealed that average yield of 47.7 kg/ha, while the average yield per mature tree was 3.2 kg/ha.

Table 2 : Cashew nut yields in Kenya, by district

| <b>District</b> | <b>Yield (kg/ha)</b> | <b>Yield (kg/tree)</b> |
|-----------------|----------------------|------------------------|
| Kilifi          | 61.5                 | 3.1                    |
| Kwale           | 24.2                 | 2.1                    |
| Malindi         | 47                   | 4.1                    |

Source: E.M. Rabu 2001

The trees are not uniformly distributed and the spacing is very variable. The mean number of cashew trees per acre is six, while the district means are 5, 6 and 8 for Kilifi, Kwale and Malindi respectively. Besides cashew, farmers grow other fruit trees, such as coconut, mangoes and citrus.

As stated previously, farmers do not apply any inputs such as fertilizers or products to control pest disease. The pruning of trees is not done. This explains why yields are low and very variable.

Nuts are mainly harvested after natural fall onto the ground. Some farmers would harvest the ripe apples still carrying the nut and manually separate them, then dry the nuts on mats or Hessian cloth under the sun.

One factor, which has contributed to lack of serious cashew nut farming apart from poor prices, is the land tenure problem. Most of the currently producing trees are found in the ecological zone I, where the land tenure system has not been clearly defined. Most of the people living in this zone (some of whom have been settled there for over 100 years), are called squatters, and do not yet have title to the land, despite the fact that the original owners can no more be traced.

Before independence, the land along the ten-miles strip used to be referred to as Protectorate, and owned by the Sultan of Zanzibar. Therefore, most of the so-called

owners were Arabs, who lived in the towns of Mombassa, Malindi and Lamu. These people did not care very much about what was going on, or who lived on their land.

Because of the good soils availability of water from wells and good rainfall, most of the Mijikenda people moved from CGEZ III and settled in CGEZ I, and started planting cashew among other tree crops. Some of the trees just germinated on their own, hence the large numbers of trees that are very closely planted, with both the branches and roots touching and a very intense competition for food and light. As a result, production is negatively affected and the land cannot be used for anything else because of the thick coverage by the trees.

**Land ownership patterns** are of three main types in the three districts, namely:

- Freehold
- Clan
- Leasehold

Farm ownership patterns have an effect on the confidence for secondary investments, such as for perennial cash crops.

#### Status of land ownership in Kilifi, Kwale and Malindi Districts

| <u>Districts</u> | <u>With title deeds(%)</u> | <u>Without title deeds(%)</u> |
|------------------|----------------------------|-------------------------------|
| Kilifi           | 80                         | 20                            |
| Kwale            | 45                         | 55                            |
| Malindi          | 24                         | 76                            |

#### Processing of Cashew nuts

Pan roasting of cashew nuts has always existed in all cashews - growing areas. However, the failure of the Kilifi processing unit led to the proliferation of microprocessors, mainly in Kwale, Kilifi and Malindi districts. The operations are being managed by farmer groups, self help groups and individuals who used to work at the processing factory. Over the last few years, the Community-Based Organizations (CBOs) have found it difficult to access markets. Their operations face an uncertain future, unless the marketing problems are addressed.

### **1.3 Marketing**

Before liberalization of the marketing of raw cashew nuts, the crop was marketed through farmers' cooperative societies, agents and traders' agents and was finally purchased by Kilifi Cashew Limited, the only major processor in the country. The farmer' marketing problems have been made worse by the collapse of the marketing system after liberalisation.

Cases of mismanaged co-operatives led to farmers being paid late, or denied their dues outright. The farmers have always considered the prices offered for their crop too low compared to their expectations. The fluctuating nature of prices resulted in the discouragement of smallholders and the consequent neglect of their cashew orchards.

The liberalisation of cashew nut marketing coincided more or less with the closure of the main processing factory, Kenya Cashew Nuts Limited, in 1998. It was expected that the liberalization of cashew nut marketing would allow competition in a buyers' market. The scenario pertaining since 1998 has made the farmers even more perplexed. Following the El Nino phenomenon in 1997/98, the 1998/1999 crop season was the best seen for many years. There was an unprecedented influx of buyers from India, the crop was large, of a good quality and highly priced because of the abundance of buyers (up to 70 KShs /kg).

During the 1999/00 season, only few exporters showed up, as the demand for export was low. The prices offered were nowhere near the previous year's levels. In the following 2000/2001 the situation was even worse, with prices falling to 30-35 KShs/kg (the current exchange rate is 78 Kshs for one dollar)

The export of unprocessed nuts has obviously exacerbated the potential for establishing a viable export industry within the country. The Ministry of Agriculture has recently attempted to reintroduce some guidance on the way forward but it is too early to determine what will happen.

#### Current marketing and processing

Marketing aspects comprise outlets, mode of transport, pricing, the effects of the closure of the processing factory and the value adding/processing aspects. Existing market outlets include neighbourhood shopkeepers and agents/middlemen. Agents /middlemen are the most common buyers of nuts in Kenya, undertaking about 95.2% of the trade in Kilifi, some 83.5% in Kwale and 64.6% in Malindi.

Pricing is a big issue in the cashew sector because of the prevalence of exploitation of farmers, farm prices being set by external forces. Recent prices vary between 10 and 20 Kshs/kg across the three districts. Because of the disorganized nature of marketing, most of the crop is bought at farm gate. While there may be market days, raw cashews are not the main commodity on sale.

Marketing of raw nuts is not organised, as there are no viable farmers groups with bargaining power. Consequently, there is a lot of uncertainty in the market. The number of buyers and their areas of operation are unknown and the prices offered very variable and unpredictable. A small sample survey conducted by Kenya Nut Company Ltd., came up with the figures shown below for farm gate and rural markets spot prices for raw cashews.

#### Current raw cashew producer prices by district

In Kshs/kg and (US cents/Kg)

| District | Mean       | Low        | High       |
|----------|------------|------------|------------|
| Kilifi   | 24.50 (32) | 13.80 (18) | 37.30 (48) |
| Kwale    | 20.10 (26) | 19.00 (24) | 29.45 (38) |
| Malindi  | 25.70 (33) | 21.30 (27) | 33.45 (43) |

Source: Field survey by Kenya Nut Co. Ltd.  
Exchange rate Kshs 78 for one dollar

## **1.4 Development strategy**

The economic development of the Coast Province has been relatively slow compared to other regions of Kenya. Rural poverty stands at 57% among the estimated 2.5 million people in the province, despite its high agricultural potential, particularly in CGEZ I and in some parts of the CGEZ III.

More than 56% of the inhabitants derive their income from tree crops, of which cashew is among the most important. Cashew nuts grow along the Coastal belt from Lunga Lunga in the south, to Lamu in the North East of the Province, covering Kwale, Kilifi, Malindi and Lamu Districts. The total area under cashew nut cultivation is estimated at 30,921 hectares (M' Rabu 2001).

In CGEZ I, where planting of cashew first started, trees are old and crowded. Nothing can be grown in between them, nor can spraying be done efficiently. Land is getting very scarce and therefore, on a small scale, in some areas trees are being thinned, pruned to make room for the alternative cultivation of annual crops and for pest and disease control. Cashew in this zone is threatened by other more profitable enterprises, such as dairy and vegetable production.

In CGEZ II, covering the area between 15 and 35 km inland, cashew orchards are not as crowded as in CGEZ I, but do not produce economic yields or meet quality requirements for the export industry. The Kenya Government has therefore initiated policy guidance for farmers, community based organisations and private investors, to revive the cashew nut sector. Small scale processing shall be encouraged in the short term through Community Based Organisations, as they own some trees and some are already processing their crops. Assistance needed include locally fabricated roasting pans as processing technologies to improve on quality.

The Government institutions operating in the cashew growing zones, namely the Coast Development Authority and the Kenya Agricultural Research Station in Mtwapa, have recently commenced some activities in this line.

## **Chapter 2**

### **SECTOR PERFORMANCE**

#### **2.1 Production**

World cashew nut production has fluctuated considerably during the last 20 years. The average annual output dropped from 407,000 tons/year during the 1969 – 1971 period, to 390,000 tons/year in 1978-81 and rose again to 471,300 tons/year in 1989-91.

The major world producers are India, Brazil, Mozambique and Tanzania. African producers accounted for some 78% of the world production in 1970, but reduced their shares to only 40% in 1979/81 and 24.4% in 1989/91. Kenya output declined from an annual average of 24,000 tons/year in 1969 -71 (5.9% of world production), to 16,500 tons/year (4.2 percent of world production) in 1979-81 and to 10,300 tons/year in 1989/91 (a mere 2% of the world production). Recent outputs are shown in the following table.

The above production pattern has continued to prevail up to the present time. The factors attributable to the continuing decline are largely associated with the collapse of the marketing system, consequential loss of interest by farmers due to price instability and the lack of production support services. These include development policy guidance and lack of adequate research and extension services.

Table 3 - Kenya: cashew nut area and production, 1990 to 2000

| <b>Year</b> | <b>Surface (ha)</b> | <b>Production (tons)</b> |
|-------------|---------------------|--------------------------|
| 1990        | 37668               | 22224                    |
| 1991        | 31952               | 19062                    |
| 1992        | 32051               | 10363                    |
| 1993        | 32126               | 19920                    |
| 1994        | 32272               | 10376                    |
| 1995        | 32318               | 12802                    |
| 1996        | 30872               | 10173                    |
| 1997        | 30893               | 9182                     |
| 1998        | 30850               | 10986                    |
| 1999        | 30921               | 14615                    |

Although cashew represents only one percent of the total Kenyan agricultural production in value, it is an important crop because it is grown in an areas with few alternative cash crops.

There is room for establishment of new plantations and improvement of existing orchards through a proper management. CGEZ III covers the area beyond 35km that includes Ganze, Vitengeni and Bamba in Kilifi district; Samburu and Navaya in Kwale; Lango Mbaya, Marafa and Chakama in Malindi. There is a big potential for expansion of cashew plantations. People are moving into these areas because land is still cheap. This is an area where natural vegetation is being destroyed and cashew could serve as an agro forestry species.

Production in Coast Province is characterised by low productivity per tree and unit area and large fluctuations from year to year. This situation has come about because the estimated 30,000 hectares of mainly old trees were established from material of low potential and are currently poorly maintained or totally neglected.

The liberalisation of cashew nut marketing was expected to result in increased business confidence among the various stakeholders, including the small holders, traders and small processors, which should have led to dynamic changes in the sector. This was, however, not the case. Prices have continued to be unpredictable and unsatisfactory.

Market information plays a major role in guiding planning, production and providing feedback on the performance of products in the market place. This is fundamental in the production and marketing of raw cashew nuts. Smallholders usually the most uninformed in the chain of activities related to the disposal of their crop. Price levels are determined elsewhere, without their involvement. The cooperative societies, traders or agents announce the new prices at the beginning of

the harvesting season, but farmers do not dispose of a mechanism ascertaining the genuineness of the price levels set. This problem is complicated by the lack of an accurate and acceptable method of determining the correct farm- gate price for the producer.

The lack of a regulatory body for the cashew sector has made the situation worse. Raw cashew nut marketing is dependent on external marketing forces, mainly emanating from India. It is generally understood that the Indian government is striving to produce enough raw cashew locally, in order to meet the local processing demand, rather than to rely on imports. At the same time, other new producers of cashew nuts outside traditional areas are expanding their crop.

Kenya needs to gradually move towards more local processing of cashew nuts and develop appropriate strategies for improving the domestic output and processing. This would minimize the exploitation of the farmers, while the socio-economic benefits are too important to ignore, in terms of value - addition and creation of employment. Reliance on the traditional systems of disposal of the crop will become increasingly risky for smallholders in particular and the cashew sector in general.

Cashew production includes a wide array of operations, ranging from medium sized, private factories and small-scale units, to smallholder producers and microprocessors. Small scale and microprocessors (mainly women groups) have been engaged in this business for sometime, but their share in the sector has not yet been determined.

### Research and Development

One research and development objective which needs full support is a study of the production system and practices by farmers, with a view to identify priorities and match the research findings with farmers needs. There is also a need to develop cultivars adapted to specific ecological zones, as well as the corresponding farming practices, and to make available to farmers new, high-yielding planting material at reasonable prices.

Research centres that develop new commercial varieties of cashew are in Mtwapa, Matuga and Msabaha. Cashew seeds from selected trees in Matuga were established at Mtwapa in 1958. In 1963, hundred and one trees were chosen from 300 trees available, and their yields were recorded during the period a long period. The best seven trees were identified and selected. They included A41, A47, A81, A82, A90, A100. In another selection, five trees JK226, JK292, KJK411, JK90 and JK 460 were identified, for use in breeding programme.

#### Improved cashew tree varieties and their characteristics.

| Variety | Nut characteristics |             |            | Kernel weight (g) | Yield (kg/tree) |
|---------|---------------------|-------------|------------|-------------------|-----------------|
|         | Weight (g)          | Length (mm) | Width (mm) |                   |                 |
| A75/83  | 5.25                | 28.27       | 20.91      | 1.25              | 34.71           |
| A100    | 5.07                | 29.14       | 22.53      | 1.46              | 78.55           |

Source: Annual Reports, Kenya Agricultural Research Centre, Coast Province, Mtwapa.

### Pest and disease control

Several diseases and pests are attacking cashew and causing considerable losses. The main diseases are powdery mildew and anthracnose. The main pests are cored bug, cashew nut bugs, cashew bark borer, and cashew stem girdler. Majomoto ants (*Oecophilla* sp.) colonize the cashew to feed on other insects.

Powdery mildew, caused by *Oidium anacardii*, is the most important cashew disease. A study conducted by Oltremare in 1982 in cashew growing areas showed the following levels of attack: Chonyi North (46%); (Mariakani 16%); Kambe Ribe (50%); (Gede (9%) and Witu (18%). Considering the low resulting yields obtained, the attack levels might have been even higher. The assessment of powdery mildew infestation revealed that application of fungicides significantly reduced the infestation. Yields were increased by six times over untreated trees, through the application of fungicides.

### *Ongoing work*

A “Cashew management improvement project” is being currently implemented and has the following activities:

- ❖ identification of high yielding cashew trees in farmer fields
- ❖ introduction of cashew upgrading techniques in farmer fields and evaluation of fungicides for control of powdery mildew in Kwale and Malindi Districts

Maintenance of recurrent selection and clonal evaluation trials started in 1980 are continuing and propagation trials are being undertaken at the station. A recurrent selection programme was initiated on the basis of the selected trees. The highest-yielding trees in each plot, from each of the best progenies, a second cycle be started within 6 years. Seeds from this trial could be issued to farmers. The eight persistently high-yielding trees identified were propagated vegetatively, by budding onto rootstocks. The resulting clonal varieties were planted in 1980. The selections differ in raw nut characters. The raw nuts were tested at the Kenya Cashew Nuts Ltd in Kilifi.

Nut characteristics, percentage recovery of nut components and quality of processed kernels were studied. The overall length of raw nuts from the 14 samples was slightly higher than the reported mean value for Kenya. This was also true for width and thickness kernel weights and recovery of nuts components. Other aspects investigated included moisture contents of raw nuts and components and the influence of humidification and roasting on nut width, moisture contents.

### Recommendations on cultural practices

From a spacing trial planted in 1970, testing populations of 44,69,111,135 and 278 trees ha yields per ha varied from 134 to 600kg raw of raw of raw nuts. Yields per tree responded very clearly to the various populations.

More space per cashew tree (fewer trees per ha) were not improved by the number of trees per ha. To avoid loss of fruiting surface per ha of land, two measures

were tested: an initial high density planting at 6m x 6m (278 trees per ha) later reduced to 12m x 12m (69 trees per ha). Establishment of a low number of trees per ha (at 12m x 12m or at 15m x 15m) did not prove satisfactory, although canopy surface and yield per tree increased at lower populations. These measures did not lead to higher productivity per ha. It was suggested that establishment of cashew trees in closely planted rows and ample inter-row spacing should provide more canopy surface per ha of orchard, until when the space between rows is taken up by the developed canopies.

When cashews are established in narrowly planted rows (2 to 3m) to form hedgerows, a more rapid build up of fruit - bearing surface is realised depending on the distance allowed between trees.

Hedge rows planted at 15m inter-row spacing can yield up to 3,170 kg/ha, while hedge rows planted at 9m yield more (4,100 kg/ha), but the canopies close faster. Rejuvenation has to be done 9 years after planting. Yields are 3,100 kg /ha and rejuvenation would have to take place 14 years after planting, for hedge rows planted at 12m.

Cashew yields decline due to loss of canopy surface, induced by intermingling of branches from neighbouring cashew trees. A drop in the productivity of canopy surface is also noted in trees beyond ten years. The rejuvenation of orchard can be obtained by replacement of the old stands by new cashew trees, or by rejuvenation of existing trees.

Replacement of trees by newly sown material would cause farmers to rescind income from the cashew orchard for at least 3 years. Some income could be generated by sale of firewood or of charcoal. It is estimated that some 450 bags/ha of charcoal could be obtained, if 278 trees were planted per ha. Replacement of old trees could be affected by removing alternate lines, at two or three year intervals.

Another option is to rejuvenate trees through removal of canopies by capping. It was established that, if trees are cut at 30-150 cm from ground level, a profuse growth occurs. If the cut occurs during the dry season, a good proportion of the coppice trees is likely to flower in the same year.

The main factors influencing production and harvesting performance are: diseases (mainly mildew); the age of trees, neglect by farmers; drought and poor soils, without any addition of fertilizers or proper pruning.

Farmers attribute their lack of interest in cashew cultivation to the high cost of pesticides and fertilisers, low prices of raw nuts, lack of improved, high-yielding varieties and the closure of the processing factory.

## **2.2 Processing**

As previously stated, the evolution of cashew processing has been based on individual private investors, who set up small processing units and engaged indirect purchasing from farmers, with little or no inputs to help them in production.

The advent of independence in 1963 led to the involvement of the Kenya Government in the sector, through the purchase of the existing factory owned by Mitchell Cots - Cashew Nuts Ltd., in 1964. This was followed by injection of funds to modernise the factory. The government funds were given through the wholly owned Industrial and Commercial Development Corporation (ICDC), the Industrial Development Bank (IDB) and the National Cereals and Produce Board (NCPB), who also provided the management personnel. The farmers were involved through their cooperative society, the Kilifi District Cooperative Union.

The liberalisation of the sector led to the withdrawal of these institutions and the sale of the factory to private operators. Unfortunately, the private operators have run down the factory and it finally closed down, after running up a heavy financial liability. The assets have been cannibalised beyond repair. Currently, no cashew products are being processed in Kenya. Microprocessors produce only raw kernels. The reversion to the old technologies, using crude pan roasting techniques, is unable to produce quality products.

Table 4 shows the evolution of cashew processing by the Kenya Cashew Nuts Ltd., up to its closure in 1996/1997. Since the closure of the factory, procurement figures are difficult to obtain. The data shows that production has been declining.

Table 4: Raw cashew nuts processed by Kenya Cashew Nuts Ltd.

| <b>Season</b> | <b>Production (tons)</b> | <b>Average price (kshs/ kg)</b> | <b>Income generated (kshs)</b> | <b>Income generated (dollars)</b> |
|---------------|--------------------------|---------------------------------|--------------------------------|-----------------------------------|
| 1985/86       | 11018                    | 5.5                             | 60,599,000                     | 776,910                           |
| 1986/87       | 7839                     | 4.5                             | 35,273,160                     | 452,218                           |
| 1987/88       | 12591                    | 5.5                             | 69,250,720                     | 887,833                           |
| 1988/89       | 2958                     | 7.0                             | 20,706,000                     | 265,462                           |
| 1989/90       | 2957                     | 7.0                             | 20,699,280                     | 265,372                           |
| 1990/91       | 8708                     | 10.0                            | 87,082,400                     | 111,644                           |
| 1991/92       | 9363                     | 11.0                            | 102,980,240                    | 1,320,260                         |
| 1992/93       | 5531                     | 11.0                            | 60,844,960                     | 780,064                           |
| 1993/94       | 5441                     | 14.75                           | 80,260,060                     | 1,028,974                         |
| 1994/95       | 1859                     | 13.75                           | 25,567,300                     | 327,782                           |
| 1995/96       | 6823                     | 12.75                           | 86,988,660                     | 1,115,244                         |
| 1996/97       | 3269                     | 16.0                            | 52,300,800                     | 670,526                           |

Source: Kenya Cashew Nuts Ltd.

Exchange rate: 78 Kshs = one dollar

The main factors influencing the processing performance have been the lack of organisation and the prevalence of a chaotic marketing system, characterised by irregular demand and low prices for raw cashew nuts. Small-scale processors can only handle about 10,000 tons, which would not meet export quality standards.

### **2.3 Exports**

All the nuts processed by Kenya Cashew Nuts Ltd. were exported largely the United Kingdom and to European destinations.

The recently established Kenya Nuts Company Ltd has not yet released its export statistics. However, based on its raw material purchases, it processed 250 tons of cashew in year 2000 and 300 tons in 2001.

Kenya does not produce any cashew nut by-products.

Cashew nut is not being considered as a major export crop, despite the potential that has been identified recently. The lack of organisation and coordination of the sector has impacted very negatively on its present status. During its operative life, the now defunct Kenya Cashew Nuts Ltd. used to meet the international standards in grading and packaging of raw cashew nut kernels.

## **Chapter 3**

### **CONSTRAINTS TO EXPORT DEVELOPMENT**

#### **3.1 Production and harvesting**

Production and harvesting have been seriously affected by a host of factors, including:

- Powdery mildew, which decimates the yield by destroying the flowers.
- The very old trees, which have very low yields, further decreased by lack of fertiliser use, lack of pruning and general neglect.
- Low potential germplasm
- Farmers' lack of knowledge relative to improved husbandry practices and lack of extension services
- Droughts and lack of irrigation.
- Poor infrastructure
- Poor policy framework and lack of a comprehensive development plans.

#### **3.2 Processing**

Stakeholders considered the closure of the Kenya Cashew Nut Ltd. a denied guaranteed market outlet for the produce, emphasized by declining and unstable prices of the commodity and the excessive exploitation of farmers by middlemen.

Cashew nut processing is currently done on micro scale, involving the use of roasting pans, followed by cleaning and packaging of the kernels. Special roasting drums have found their way in the area, but are still insignificant in numbers. Buyers of processed nuts include rural inhabitants and town dwellers.

Potential for export contract markets exists, but farmers are not able to produce the quality and quantity to meet the importers' demand.

### **3.3 Export marketing**

Lack of quality products and inadequate volumes have both impacted negatively on the export marketing potential. Until these factors are resolved, Kenya is unlikely to become a significant cashew nut exporter.

Whereas the production and trade policy for the cashew sector is to encourage private investment in farming and processing, the political environment and the land policy in the growing areas are not yet conducive to investment inflow.

Farmers are offered inadequate extension services, while the Government failed to maintain rural roads and infrastructure.

Research support is minimal, if not totally absent, due to lack of funding. Farmers, therefore, cannot access improved seed and planting material, as well as pests and disease control products. The cooperative movement, which used to provide credit to cashew nut farmers in cash and kind, has virtually collapsed and is therefore ineffective.

## **Chapter 4**

### **IDENTIFICATION OF TECHNICAL ASSISTANCE PROJECTS**

#### **4.1 Production and harvesting**

##### Public Sector

The Kenya Government is in the process of reviving cashew nut research activities through the Kenya Agricultural Research Centre at Mtwapa. A budgetary proposal for the next 5 years is under preparation.

The project will cover a short-term tree rehabilitation plan, using tested technologies developed at the centre and its outstations. It will also cover several agronomic studies and the introduction and testing of new germplasm.

The Coast Development Authority has indicated interest in setting up a production support project.

##### Private sector

Farmers are being assisted by NGO's, such as ACTION AID and Choice Humanitarian, through small input supply schemes, or training on pruning and cashew cultivation techniques. NGO's are also helping in location of traders who pay fair prices for the raw nut, if properly dried.

#### **4.2 Processing**

The only reported development in processing is the processing unit recently installed by Kenya Nut Company Ltd, with an expected full-scale capacity of 5000 tons of raw nuts.

The company has established a raw material procurement scheme by setting up purchasing centres in the rural growing areas of Kwale, Mombasa and Kilifi. The nuts are paid for in cash, and delivered to the upcountry factory for drying and processing. The kernels are then roasted and packed ready-to-eat for exported or sale to local consumers through supermarkets.

There are other much smaller operators who purchase cashew nuts and process them at home, pack them raw in polythene bags and sell them to local retailers

### **4.3 Export marketing**

At present there are no known projects aimed at assisting cashew export marketing, except the one mentioned for Kenya Nut Company Limited.

However, recognising the need for revival of the sector, the Ministry of Agriculture has formed a stakeholders TASK FORCE, whose mandate is to review the sector and make proposals for a comprehensive development plan. A Management Committee has been formed to steer the activities of this task, the first of which is to solicit funds to enable the preparation of a short and medium term plan to revitalise and improve production.

The Kenya Exports Promotion Council is a member of the Group and is expected to assist in export promotion activities, once cashew nut kernels of the right quality and of substantial quantity become available. This organisation is expected to coordinate the regional cashew nut network that might be established in future.

The Kenya Nut Company is already involved in exports, after adding value to kernels through roasting and packing for local and foreign supermarkets. The company has already established the recognised Hazard Analysis Critical Control Points (HACCP) quality control system and is also licensed as an organic processor, by the Soil Association Certification Ltd., a registered certifying body under the International Federation of Organic Agriculture Movements (I.F.O.A.M).

## **CONCLUSION**

The cashew nut sector in Kenya has been rapidly declining, for reasons ranging from poor crop husbandry, rampant disease spread to endemic levels, to the complete collapse of the marketing system.

Some NGO's are assisting farmers in crop husbandry improvement and farm gate marketing of unprocessed nuts. Others are setting up the local production of crude pan roasting equipment, unfortunately without any form of standardisation or quality control. Therefore the product cannot be exported.

At present, only raw nuts are exported to India.

Apart from the recently established small processing plant by a private company, there are no active programmes for improving the sub sector.

The potential for cashew nuts production and export from Kenya is not exploited at present and should be examined with a view to attract private sector participation. The government should be more involved in the development of the sector, by supporting research and extension services to farmers.