Country Profile

Senegal is a West African country, bordering the North Atlantic Ocean and situated between Guinea-Bissau and Mauritania

General Information on Kenya:

Capital	Dakar	Time Zone	GMT+0000
Population	10,589,571	ISO Code	SN
Area	192,000 sq km	Dialling Code	+221
Languages	French (official), Wolof, Pulaar, Jola, Mandinka	Continent	Africa
		Internet Domain	.sn
Currency	Communaute Financiere Africaine franc (XOF)	GDP	$16.2 billion
		Export partners	France 19%, Italy 12%, Spain 6%, Cote d' Ivoire 2%
Major towns	Dakar, Kaolack, Matam, Podor, Richard Toll, Saint-Louis, Ziguinchor	Import partners	France 27%, Nigeria 19%, Germany 4%, US 4%, Italy 3%
Exports	fish, groundnuts (peanuts), petroleum products, phosphates, cotton		
Imports	foods and beverages, consumer goods, capital goods, petroleum products		

Structure, Organisation and Development Strategies

Historical Perspective

In the colonial period, cashew nut tree was considered as a **forest tree meant only for reforestation**. The yield of these plantations was very low and they were largely unsupervised, because they were considered as public property. The **quality of the product was low, to be exported.**

The cashew was propagated by raising seedlings in nurseries, in baskets or in polythene packets in bunches of 2 to 3 previously sorted nuts (nuts that don't float on the water). The nuts take 2 to 3 weeks to germinate.

The cultivation is done in three ways:

❖ Inter-cropping with a food crop (eg. groundnut) in a plantation with spacing of 8m x 8m in general, it may even be 6m x 6m or 13m x 13m. The care and control given to the crop protects the cashew nut saplings too.

❖ Cultivation of food producing crops close to the plantation (eg. composite cultivation with cassava).

❖ Cultivation of only cashew. It is generally done at a spacing of 8m x 8m to 14m x 14m.

Organization and evolution of the sector

Till the seventies, the cashew apple was consumed more as a fresh fruit than the cashew nut. The nut was yet to be exploited. Only a mere primary processing of the nuts was done. They were ignorant of efficient processing technologies at that time.

The production, harvesting and marketing of cashew nut were improper here at a time when countries like Mozambique and Tanzania had already penetrated into the international market.

It was from the beginning of the seventies, and especially towards the end of 90's that a well-structured and well-supervised national production emerged.

Production and Marketing

It was only in 1973 that the development programmes for cashew started with the initiation of some interesting projects meant only for this sector: SODENAS (Cashew Nut shelling company of Senegal) and the bi-lateral project PASA (Senegalo-German cashew project). The objective of both these projects' was the development of cashew cultivation in Senegal. Since its creation to 1986, SODENAS monopolized the procurement and marketing of cashew nut. With the help of local merchants, SODENAS developed a well-organized purchasing network at Casamance and Dakar. One part of this purchase was exported. The company exported 240 to 380 tons of cashew nuts between 1982 and 1986.

System of Marketing Cashew Nut in Senegal

The following sketch depicts the organization of the marketing sector.

Importing countries: India/ China/ Europe Dakar

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Wholesale merchants: Dakar, Ziguinchor, Fatick, Kolda (Representatives of the exporters)

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Intermediate purchasers (state, village level): State and district level

↓

Small merchants, Purchasers (local level): Village level

↓

Growers

The **SODENAS did not follow the liberalization policy** and did not liberalize its policy of purchase and price. As a result, **the local merchants**, who worked with the company, **chose to work on their own**, as there was very good international demand and the prices offered were high.

The company stopped bulk purchase from the growers and took up the **role of mediator and intermediary** in the sales for exports. Parallel to this network, other **national merchants** had emerged in **Casamance, Kolda, Fatick and Dakar**. These merchants, **sold the cashew with the aid of exporters.** They also set up a **network of purchasing agents** in different regions, which included small merchants and wholesalers, who bought cashew nut seasonally along with their other commercial activities. These small merchants worked on the wholesalers' account. The **nuts were bought in small quantities (1 to 20 kg) at the price fixed by the wholesalers**. The growers were **paid in kind** (rice, oil, soap, salt, etc.). The purchasers were **pre-financed by the wholesalers**, and collected the merchandise regularly from them. The purchasing agents, who lived in big villages or near important road junctions, turned up regularly in small localities and remote villages once a week or every fifteen days. They used **trailers with platform of 1,000-kg capacity**. In addition, there were other intermediaries, who would deliver directly wholesale amounts at higher prices**. Each intermediary demanded around 15 to 20% of the grower's price.**

The wholesalers were the merchants, who showed interest in cashew only in a seasonal and complementary way. So their experience about cashew market was minimum, access to the information on the market was also zero except for the information coming from the exporters in Dakar and, these exporters communicated only those information, which was profitable for them.

In the course of the last few years, many Senegalese companies for cashew exports were started, even though the information available on the international market was insufficient. The exporters responded to sporadic demands and chance offers. **Out of the 15 registered exporters, only the SODENAS, EL BASR and Tamaro signed direct contracts with the Indian importers.**

From 1992 to 1994, the third phase of PASA began and several projects were launched, which included a research programme for the selection and circulation of quality seeds and plants in the southern and the central regions.

The cashew sector in Senegal is under pressure to develop programmes for reforestation and forest seed production. The circulated plants are used as fruit or linear plantation. The selected varieties distributed are **Beninese, Costarican, Brazilian and Local**.

The orchards are situated in every village of the production region **(Fatick, Igunchor, Kolda, and Dakar)**. The growers of each region have their own associations. These regional structures cannot function in an articulate way. Each regional association has nearly 500 members. The **UGAB** (Union of Agricultural Groups of Niombato) in the Fatick region comprises of more than **2000 members**.

The villagers deal directly with the collectors, who fix the price in each period according to the present opportunities.

Processing

In Senegal, only SODENAS made use of machine shelling from 1987 to 1988.

As a result of the unsuccessful introduction of machine shelling, manual shelling has become the general practice. How the different steps of cashew nut processing is done in Senegal will provide an understanding of the extent of technical and technological up-gradation of Senegal.

HARVESTING: Done when the fruit is ripe.
TRANSPORTATION: Done after proper cleaning and drying.
DRYING: Done by sun drying for three whole days. The nuts are retrieved in the evening and high piling up is avoided.
STORAGE: The nuts are kept in jute bags and stored in warehouses. They have a shelf life of one-year.
ROASTING: The nuts are roasted in ovens, burning is avoided to get white kernels.
SHELLING: The nuts are cracked using a hammer of 200g weight, a tool that looks like a small "French screw driver" is used for opening the shell and taking the kernel out of the shell.
KERNEL DRYING: Being careful minimizes the breaking of kernels. The kernels are stored for a maximum of 3 days in closed containers. They are dried in metallic ovens for 2 hours 30 minutes at 70°C, and then stored in the containers.
SKINNING (REMOVAL OF THE THIN LAYER): This done using a small knife. Care is taken to minimize scratching and breaking of the kernels. The kernels are taken out of the closed containers, airtight plastic sachets in small quantities
SORTING: This is done for separating the whole kernels from pieces.
PACKAGING: The sorted kernels are packed in an airtight container (plastic sachets). Nitrogen is often used for a better preservation of the product.
Source: Amadou Baldé's Commission Report, 2001.

Primary processing

Cleaning

In this operation, the impurities (sand, straw, pebbles, etc.) mixed with the already collected nuts are eliminated. It is a manual operation where in visual separation is done.

Drying

After cleaning, the nuts are dehumidified according to the norms that set the limit for humidity at 08%. Natural drying in the sun is the most adopted practice, as it is least costly and ensures a better drying of the nuts.

Grilling or "fragilisation"

This is an operation for making the shell more fragile, so as to ensure easy separation from the kernel. There are many possible techniques: grilling or roasting, frying or cooking.

In Senegal grilling or roasting is the most common practice. Before roasting, the nuts are re-humidified and wiped so that the balsam cells are filled up with water at the time of roasting. This facilitates their cracking in the heat.

Shelling

The shelling operation is a very important step for getting a quality product. Care should be taken properly before cooling and rolling them in the alkaline ash for neutralizing the shell liquid that falls into the hands.

Shelling with mallet (rod)

This is the oldest and the most popular technique used in the country. It requires skill and experience for getting good quality kernels suitable for marketing.

The materials used are:

- A hard work bench (made of wood or siliceous stone)
- A mallet or a rod
- A pair of tongs or knife for taking out the kernel stuck the half-shells.

Manual shelling with single tong

It is a "stapler" like tong with two jaws, whose cutting edges more or less fits the nut to be shelled. With the help of the swivel levers, the following movements can be generated: cutting or incision of the outer shell of the nut and separation into two half-shells.

The output is estimated to 80kg/person/day.

Semi-mechanical shelling with finisher tong

It follows the same principle as the manual tong. In this case, the operations of incision and separation are done with the help of a pedal installed on a table.

The operator applies force on the pedal, which moves the mechanical jaw of the tong and alternately with the help of a hand lever, the operator separates the two half-shells. The sorting happens simultaneously in this type of mechanized shelling. The kernel-shell mixture undergoes an extra operation of sorting to divide the kernels by category following the norms or the market.

The output of this machine varies between 200 and 300kg/day.

Skinning (removal of the thin layer)

The operation of skinning should be conducted carefully, minimizing the scratching and breaking of the kernels. In Senegal, this operation is done manually, without any tools.

Sorting

In this step the kernels are classified as per the predefined norms and market-demands.

Going by the norms NS 003-0020, there is only one separate sorting of the nuts into four categories. The kernels are yet to come under a procedure for standardization.

The women simultaneously conduct the two operations (shelling and sorting) while doing manual shelling. They divide the kernels of different grade into different baskets (or containers) according to their sizes. **The sorting of kernel thus remained a manual operation**, because there is no perfect shelling technique that gives 100% whole kernels.

Secondary processing

The possibilities regarding cashew nut processing are not well explored. Some technologies, however, are in the process of being tested at the Institute of Food Technology of Senegal.

The research is limited solely to identification of optimum roasting parameters for the nuts. As far as the cashew apple processing is concerned, some products have already been manufactured. These are: jams, syrups, figs, canned food, white alcohol.

Packaging

In packaging, polythene is most commonly used, because of its low cost. Poor quality of packaging is often responsible for the low shelf life of the products. These packages may have defective sealing, be transparent resulting in change of colour, due to exposure the product to gases and water vapour causing its re-humidification and growth of mildews.

Other types of packaging used especially for selling kernels through supermarkets are:

- ❖ Reprocessed bottles
- ❖ 150, 200 and 500g boxes

This type of packaging is attractive. The per unit cost of these packages is not always affordable for the local processors.

Export Marketing

The internal production data

Documentary research and updated statistical review of external trade, forests and water and other statistics have shown an inadequacy of reliable data on the marketing of nuts and kernels.

The stopping of the different programmes (PASA 1,2 and 3) and the shelling unit (SODENAS) and the absence of a specialized structure for the collection and exploitation of data on the sector affect all the projections. As far as the kernels and other by-products from the primary and secondary cashew nut processing are concerned, Senegal is yet to have at its disposal data on internal consumption and exports.

Certain grower-processing agents, however, manage to market their kernels on the basis of orders received from their links or correspondents settled in Europe (France and USA in particular).

Export data

The exports are of raw cashew nuts only. It should be noted here that the lack of market-information and organisation in the sector explains partially the unreliability of the information on the quantities exported.

Inspite of the huge deficiency of reliable statistics, the statistics from 1996 to 2001, reveal some interesting trends.

Export of nuts and kernels in Senegal (from 1996 to 2001)

Year	1996	1997	1998	1999	2000	2001
Qty (kg)	1,963,281	2,113,875	6,977,638	14,905,275	6,761,065	3,156,220
Value ($ EU)	974,209	1,141,568	4,721,761	10,780,697	3,684,058	4,792,851
Value (FCFA)	730656619	856175798	354132111	8085522404	2763043562	359,4638,352

Source: Management of External Trade, 2002,

Export of cashew nut in shell in 1998

Destination	Raw nuts (kg)	Value FOB (CFA)
Portugal	114,330	36,954,435
Ivory Coast	84,668	34,290,540
Singapore	874,569	454,256,974
Total	**6,977,638**	**3,541,329,111**

Export of cashew nut in shell in 1999

Destination	Raw nuts (kg)	Value FOB (CFA)
Benin	1,000,000	560,000,000
The Western Indies	78,190	21,502,250
Saudi Arabia	1,110	60,000
India	13,459,788	7,322,413,352
Vietnam	58,000	45,798,466
China	175,680	73,785,600
Japan	102,256	40,538,472
Hong Kong	30,251	20,884,254
Total	14,905,275	8,085,522,404

This sample of the principal trade partners of Senegal confirms the dominating trend of the **Indian market**, which **imports nearly 95% of the Senegalese cashew.**

The data show that a part of the production is sold also in Africa and more specifically in Benin. However the final destination is always India, Japan or Europe.

From 1998 to 1999, the Indian exporters and professional or occasional collectors in the production regions used to influence the marketing. The liberalization of the market and the absence of a controlling structure favour this mechanism. A controlling structure could have brought more profit to the producing population. But, now they have to take dictates from **the merchants who impose the prices and the payment conditions.**

Other cashew growers of the region, viz. **Guinea-Bissau, Ivory Coast, Benin and Togo are the main competitors.**

As a matter of fact, the nuts from Senegal are relatively smaller and because of this have great difficulties in being accepted in the international market, where the demand is more and more for standardized products.

Main Agents in the sector

Agents	Functions	Observations
National Management of Forests and Water National Management of Statistics ACASEN State Service	Data on the national yield in cashew	
National Management of Forests and Water National Management of Statistics Dakar AirportPort of Dakar Chamber of Commerce…	Data on the exports of nuts and kernels (products, grades, destinations, freight etc.)	
Leaders Price (Hann) Score Leaders Market	Marketing data (products, prices, packaging…)	
ITA ESP	Appropriate technologies for cashew nut shelling	
CERER ACASEN	Manufacture and use of ovens/grills for cashew nut	
ACASEN LISA More than 100 village groups in the producing region	Processing	The village groups take part in primary processing with the aid of the supporting groups
ITA	Valorization of cashew apple	
Management of Forests and Water (Hann)	Researching on the activities already conducted on cashew	
Cashew growers' federations in the four states: Ziguinchor, Kolda, Kaolack, Fatick, UGAB	Organization and strategies for promotion of the sector	
SOCOPAO Chamber of Commerce El Nasr SODENAS	Exporters, forwarding agents and intermediaries	
India Benin West Indies Saudi Arabia Vietnam China Japan Hong Kong	Importers	
PROMER (Fatick, Kolda, Kaolack) PAEFK	Organisation	

Developmental Strategies

A close examination of the cashew sector shows an **incoherence of the strategies and a failure of the policies developed longtime ago for promotion of the sector**. About ten projects have been launched in the sector, during the 70's, 80's and the beginning of the nineties, which were not able to deliver the goals of self-sufficiency in the sector.

In the cashew sector, all the initiated projects till now did not make use of the inherent opportunities present in the network. These projects were often a mixture of ill conceived, non-coordinated and non-integrated programmes. The process of elaboration and execution of these projects did not take into account the individual and collective preferences of the population and hence were never be able to mobilize them into action.

Before the seventies

Most of the time cashew was cultivated for its fruit. It was considered to be a forest tree and was used for reforestation and as a firebreak, The plantations managed by the forests and water services worked as hedges or dense forests,

The objectives of the proposed programmes were:

- Produce selected seeds of cashew of local or foreign origin (Costa Rica, Benin, Brazil, Keindy Ndiaye, HE212, etc,)
- Distribute the plants to the population with the objective of protecting the environment.
- Conduct research on the methods of cutting and grafting of plants,

During this period the nutritive and economic importance of the produce of the tree was ignored.

The seventies and the eighties

In most of the sub-Saharan countries of Africa, structural readjustment policies and the recovery of economic and financial equilibrium characterize this period. No sector or product was overlooked which could result in socio-economic development of the states. At the beginning of liberalization, **the countries were compelled to adjust their prices with that of the global prices.** These prices were considered as effective indicators of resource allotment for paying off debts and for participating in global trade on the basis of their comparative advantages.

The financing of PASA and the creation of the Government body SODENAS corresponded to this strategy. Unfortunately, **this development strategy did not function very well**, because there was a lack of preparation of the policy and the growers. All the financed projects were under the control of the State. The yields of the various plantations were given to the SODENAS, who would ensure the marketing and processing in very rare cases.

In August 1986, marketing was liberalized but a minimum price imposed by the State was to be maintained. This was the beginning of the liberalisation of the sector, due to the failure of SODENAS and the end of PASA 1, which were the only structures for supervision and regulation set up by the State and the arrival of the intermediaries and the local merchants in mass.

The nineties

At the end of PASA, the Government started a follow-up phase of the earlier activities in projects with duration for two (2) years. However, it must be noted here that the increase observed in the late eighties was very pronounced. **The only concern of the projects completed till now was production of seeds and reforestation**. As of today, there is no structure with the specific orientation towards production, processing and marketing of cashew nut.

Sector Performance

Production

Evolution of the national yield over the period 1990-2001 and prospects

As earlier stated there is **an inadequacy of reliable data** on the annual yield of cashew nut too in all the regions, where there is some potentials for cashew cultivation.

In the nineties all the supporting projects of the sector (PASA 1, 2 AND 3, SODENAS, FRK, etc.) came to a stop.

At the Management of Forests and Water, control was no more compulsory after the suspension of forest tax on the product with the objective of promoting the cashew sector. This tax was finally re-introduced in 1996 by the decree no, 96/572, The data on the yield cover those presented by the exporters and the forwarding agents and are maintained by the Management of External Trade,

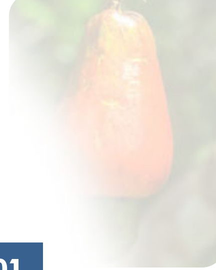
Our analysis is therefore based both on the productivity of the plantations and on the data provided by the Management of External Trade. The supporting projects actually caused the planting of cashew in more than 8,230 hectares out of which 7,481 hectares is owned by farming plantations and 749 by state-owned plantations,

Yield ratio of cashew per hectare

Duration (years)	5	10	15	20
Quantity (kg)	150	500	800	1500

Source: PRONASEF, Fatick, 2001

If at present we consider that the average age of the cashew plantations in the regions of PASA at 15 years, the current yield of cashew nut can be estimated to be in the proximity of 6,560 tons. **The following table provided information about Senegal's expected production over the last decade and the productivity of the plantations of PASA and some other regions from 1990 to 2001:**



Cashew nut productivity

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Out put (kg/ha)	150	150	150	150	500	500	500	500	800	800	800	800
PASA 2 (tons)	1235	1235	1235	1235	4115	4115	4115	4115	6584	6584	6584	6584
Senegal	4938	4938	4938	4938	16460	16460	16460	16460	26336	26336	26336	26336

Annual production of cashew nut

Year	1996	1997	1998	1999	2000	2001
Qty (ton)	1963	2114	6978	14905	6761	3156
Value (£ EU)	974,209	1,141,568	4,721,761	10,780,697	3,684,058	4,792,851

Source: Management of External Trade

In spite of the non-availability of data on the national yield, if we consider the number of plantations running in the different regions, it can be concluded that the statistics of the Ministry of Commerce are too different from the estimated quantity calculated from the ages and the areas of the plantations.

This situation actually shows the extent of losses caused by the lack or inadequacy of proper measures that had to be taken to get substantial revenues.

Types of cultivated cashew, development of new cultivars

The cultivation of cashew and the growth of cashew plantations was always pursued, even after the supporting projects stopped functioning. **The State has set up schemes for the production of plants and seeds in all the producing regions**. In the regions of PASA, PRONASEF (National Scheme for Forest Seeds) is taking on, whereas, in Ziguinchor and Kolda, the Management of Forests and Water develop the development programmes for increasing the productivity of the plantations and the quality of nuts.

Even though the cooperation schemes have stopped, the State continues to develop reforestation and circulation programmes at the rate of 120,000 plants per year on an average. Based on this, the yield of nuts could reach 30,000 tons by 2010. Specific action for the preservation and protection of the plantations should accompany these programmes.

Principal factors influencing the performances of production and collection

The regions that are benefited by the development projects of the sector **(Kolda, Fatick, Kaolack, Dakar, Ziguinchor)** cover large areas under category II, characterized by an annual rainfall of more than 800 mm.

Cashew cultivation in these regions is economically profitable. For this reason, all the officials one can meet at the growers' associations in these regions regret the shutdown of the supporting projects in this sector. These farmers seek seasonal credit in order to protect the plantations from bush fire and animals. They also demand some finances for providing agri-inputs. **However, the existing**

constraints today are causing the decline in yield and profits due to cheap selling by the numerous intermediaries.

The present situation shows a steady and constant decline of the yield in cashew nut:

- The plantations are not protected and are gravely degraded
- The aged plants are not replaced
- No application of fertilizers and plant-protection chemicals
- Improper harvesting techniques. Absence of proper harvesting implements like bag, gloves, drying shed
- Lack of financial resources (no seasonal credit) leave the farmers at the mercy of the intermediaries,

These factors are the reasons for the discrepancy between the quantities given by the Management of External Trade and the calculated expected output, made on the basis of the plantations (tables 4 & 5).

Processing

Evolution and prospects for processed products

The processed cashew products appeared in the markets in 1979 when the cooperation projects with Federal Republic of Germany were initiated and SODENAS (cashew nut shelling company of Senegal) was set up.

The cashew apple and the cashew nut were not marketed earlier to 1979. In 1979, thanks to the preliminary studies and several recommendations, value addition projects for these products (fruits and cashew nuts) was set up in addition to SODENAS and PASA 1, 2 and 3,

From 1979 to 1994, the project PASA functioned in the regions of Kolda, Ziguinchor, Kaolack and Fatick for the promotion and development of the cashew nut. The SODENAS factory was installed simultaneously with a shelling capacity of 1000 to 1250 tons/day. The nut and the apple are the two products that are processed now in the producing regions.

Types of processed and marketed products

The cashew apple, which is produced in thousands of tons, is used at presently only for local consumption and in the making of cakes and figs.

The production of cashew kernel is the major commercial activity of these regions.
The mechanization of operations was introduced with the creation of SODENAS. The efficiency of the unit and the quality of the kernel have always been in question. **SODENAS manufactured 39,000kg kernels while it was functioning**. **More than 70% of the production was exported**. Unfortunately, these products were not in compliance with the international standards when tested. This situation forced the closure of the company. This caused the country to return to traditional shelling. This slowed down the development of the processing sector.

It should be mentioned that the quality parameters are becoming more and more demanding since trade liberalization.

Types of processed products

Enterprise	Primary processing: Nut	Primary processing: Apple	Secondary processing: Kernel	Secondary processing: Apple
SODENAS	Plain kernels		Chocolate, soap, oil, kernels (salted, sugared, peppered)	
Cottage industrial units	Plain kernels	Jam	Kernels (salted, sugared, peppered)	
Processing units	Plain kernels			Fermented drinks (not well accepted by consumption)

Principal factors which influenced the performance of the national processing enterprises

Senegal has a long experience in the traditional processing of cashew nut. As in every cashew-producing region, **women are the main working staff** along with the children who help them. This very old practice was there even when the forest tree was planted as a family-venture.

With the setting up of plantations meant for exports, these family plantations have grown as these first ventures could convince the populace about the importance of the raw nut. The short experience with SODENAS made them realize that maximum value can be obtained if processing is carried out maintaining the international standards. In the small processing units, the processing remains manual.

The hindrances to the development of the sector today are lack of efficient and adaptable equipments (shelling, grill), lack of properly trained **manpower**.

For processing, in addition to the local knowledge, the entrepreneurs have to be organized, trained, equipped and **informed about the trends in demand at the international level.**

Some forms of secondary processing have been introduced, to manufacture products like chocolate, couscous, pasta and soap from the kernel. But this is not widely spread among the processors.

The compulsory quality control and quality management for a food product is quite unknown here. In fact, the traditional tools and equipments used are the prime sources of contamination.

Exports

Analysis of national exports of cashew from 1990 to 2001, by type of products and by destination

Exports of raw cashew nut from Senegal, 1996 to 2001

	1996	1997	1998	1999	2000	2001
in weight	1963281	2113875	6977638	14905275	6761065	3156220
in value	730656619	856175798	3541321110	8085522404	2763043562	3594638352

The statistical data collected from the competent bodies, specifically the Management of Statistics and Department Of External Trade cover only the years 1996 to 2001. The statistical data on production and exports have not been registered, since the elimination of forest tax.

The data presented in the table above reveal the progress of exports from 1996 to 1999, which is considered as a reference year, with a record exports of more than 14,000 tons nuts. **The decline in exports from 2000 is as per certain exporters due to the inferior quality of nuts**, when compared to those from the competitors in Benin and Guinea-Bissau and others.

Moreover, the disorganization of the sector, the liberalization of prices and a lack of a national policy in matters of production, processing and marketing are the other major for the decline in exports.

Degree of organization and coordination of the sector and its effect on the export performances

The operation of projects from 1980 to 1990 had ushered in progress in the sector. **These projects had actually introduced a system that allowed a control over all the agents in the interest of production and marketing**. Today, the rare organizations one can find in the sector are only of the farmers. With liberalization and the stoppage of the projects, only the Management of Forests and Water ensures coordination between different elements. But the latter's activities are limited to reforestation. **Now the various participating agents of the marketing chain work in a very independent way**. The State does not have any reliable specialized information centers on the sector. The existing professional organizations today are faced with problems regarding information and control on the sector.

Quality of the exported products: standards and existing laboratories for analysis and quality certification, effect of the products' quality on the export performances

The cashew nuts of Senegal are considered as relatively small. These nuts thus face serious difficulty in being accepted in the international market. In addition the importers' demands about quality are becoming more and more complicated (thickness of the nut, size of the kernel with respect to the nut, humidity, etc).

The development of the sector depends to a large extent on adhering to international norms.

As far as kernels are concerned, it needs to be mentioned that the new ventures focussed on exports did not quite succeed (for example: the SODENAS in 1988-89). A survey conducted among processors reveal the **existence of an informal network** of family and Diaspora based in France, Germany and USA which is **leading to exports**. These exports of very small amounts are still not adhering to standards. There actually exist about **ten private laboratories for analysis at Dakar**, specialized in chemical and bacteriological analyses of food products.

The cashew products for exports still do not undergo a compulsory food control. The documentary researches show the existence of a rule for quality control of food products. The law **66-48 of 27 May 1966 and its two application decrees (68-507 / 68-508) define the modalities of application of the law.** Moreover, the ISN (Senegalese Institute of Standardization), in response to the exporters' demand, has set up the **standard NS 003-0020 defines the general characteristics of cashew nut**. This standard has been prepared on the basis of regional and international standards in effect. However **its application is not compulsory.**

Certification

A system of certification of products is governed by a regulatory board.
This system requires

- A quality system
- Recognized inspectors
- A network of laboratories

In Senegal, a certification system is still non-existent. The certification is not managed by a proper authority. The laboratories affix a food control certificate according to the results of the analysis.

The quality of the products for exports is very important for the development of the whole sector. **The tough international competition should make the agents of the sector go by these international demands**. The decline in exports noticed since 2000 is due to the absence of a certifying authority that can guaranty the quality of nuts being exported. The existing national and international standards on cashew nut and cashew kernel should be widely circulated among the participating agents. The State and the professional organisms should work out, along with the importers, a system of control and certification recognized by the different parties.

Constraints to Export Development

Production and Harvesting

On the whole the areas identified as favourable to the cashew nut plant are the cultivation regions. At present, taking into account the age and productivity of the plantations the production should register a real increase. Unfortunately, these plantations are not well protected. Animals and bush fire have considerably reduced the yields. The farmers, although conscious of the importance of the sector, pitiably lacks means for running the plantations.

The **kernel is the only exportable product** generated in the cottage industrial and cashew nut processing units. **The exports of cashew kernels to France, Germany and USA, follows a family network.** This form of marketing is overlooked by the Government agencies. Nonetheless, one can recall that in **1988, the SODENAS could export more than 28 tons kernels to France in particular.** The quantities exported as of today are relatively low. Those concerned indicate quantities **of 20 to 100 kg kernels per month.** In fact the situation can be explained by the facts that the processing agents find it impossible to supply kernels of quality, in meeting the due dates and the other demands of the international trade. Then, the processors are not familiar with the modern equipments and technologies.

Export Marketing

The marketing of nuts has been liberalized since 1986. This policy led the local **merchants to turn towards the importers**, who very often offer more lucrative prices. There are at present situations of monopoly with the arrival of **the intermediaries, who unilaterally fix the prices at the regional level**. Thus the **cashew growers are suffering.** With the difficulties of the rural world during these last few years, it is understandable that the peasants don't have much of a choice. The ridiculous prices proposed **(250-400 CFA francs, i,e, maximum 0,4 US$) are a discouraging factor** and they do not put in the effort to guaranty quality nuts. The lack of organization, absence of an authority of control, regulation and certification are also behind the **premature harvest of nuts and marketing of poor quality nuts.**

National Policies

Senegal has made great efforts in the production and marketing of cashew products with the creation of the projects PASA I, II and III and SODENAS from 1979 to 1994 (PASA III). These various activities have allowed the people and the national economy to create **a wealth of more than 4 billion dollars per year and provide direct employment to thousands of people.**

The cashew sector has developed because of its economic importance and its impact on the fight against population drain. These various projects gave a special support to the important investments such as the laying out and protection of the plantations. The State also facilitated the circulation of seeds and selected plants as well as setting up a plan for training and expansion of cultivation and marketing techniques. The forest tax on cashew was temporarily eliminated to promote marketing of nuts without local constraints.

All the producing regions are currently developing an extension programme of the plantations by circulating more than 120,000 plants per year.

In the framework of agricultural policy, we could not identify an organisation of the public or private sector, specifically in charge with the revival of the cashew network. The numerous problems that are found at the growers' level are still there. The plantations have deteriorated and the marketing is facing the monopoly of the merchants, who fix the market prices. The processors agents lack proper equipments and the promoters to market the semi-finished kernels, which cannot offer the optimal value.

Nonetheless, certain projects and the NGOs develop very limited sector-based programmes. This is the case with PROMER, who supports the growers in processing and marketing of kernels in the important areas under the project, such as, Tambacounda, Kolda, Fatick and Kaolack. One can also mention the PAEFK (supporting project for the forest entrepreneurs of Kolda), which also takes part in circulation, protection and marketing of cashew products.

Other constraints

The roads of Senegal are certainly bad. However the structure of the sector and the physico-chemical characteristics of the nut indicate that the bad state of the roads is not a determining factor for the performance of the network. Roads that permit an easy access link all producing regions. Moreover, the earlier projects had laid out very easy access tracks for the vehicles and the barouches.

However there are armed gangs in regions like Ziguinchor who have been ruthlessly plundering the region since last twenty years and making the plantations inaccessible.

The financing for development and protection of the plantations is no longer available. The uncontrolled misuse of the plantations, coupled with an absence of maintenance enhanced the degradation of the plantation and the decline in yield.

The processing procedures are entirely manual. In 2000, PROMER developed a programme for circulating technologies for procedures that put an emphasis on the mechanization of certain operations. This is how the cooking pots will be replaced with modern grills. The manual shelling will be replaced by a mechanical shelling machine with cutting pliers and drying on the grids with high flame heating will be introduced. The designing of this procedure is still going on. These equipments will be widely circulated with the support of the development partners in order to guaranty production of kernels of quality in all the producing countries.

The regional growers' unions have long been encouraged in Senegal. However, these associations are currently experiencing a time of lethargy. Nonetheless, in the regions of Kolda, Fatick and Kaolack, the organizations that have begun to understand the importance and the stake of the sector, have been registered. In Fatick, the Union of Agricultural Groups of Niombato (UGAB), with its 2000 members, just started a project for identifying plantations all over the region. This association has set up a strategy of intervention, which made possible the opening of a mutual benefit society. The growers are becoming more and more conscious about the necessity of being organized for ensuring a long lasting security of the sector.

These professional organizations however are facing the difficulties of accessing loans and new cultivation techniques of a plantation that would guaranty a yield in nuts of quality.

Identification of Technical Assistance Projects

Production and Harvesting

In the framework of the programmes for the sector, an extension of cashew plantation is prescribed as much from the economic point of view as from the angle of protection of the natural resources. In the regions of Tambacounda, Kolda, Ziguinchor, Kaolack, Fatick and Dakar, there exist plantation sites that are sufficiently favourable to cashew cultivation. **So these programmes had the ambition of increasing the number of cashew nut tree plantations in Senegal by two to three times by 2010.**

The Forest and Water Services ensure the follow-up of the terminated projects. The protection and growth of the plantations did not develop much. Little by little the wire mesh covers are falling down and the animal feed on the trees, the rodents and insects attack the plantations. As of today, there is no national structure for tackling the constraints of the sector. **There are only the non-Governmental organizations, the projects and the growers' organizations, which are timidly developing very basic supporting programmes. These activities are clearly inadequate, given the magnitude of the task.**

Processing

The summary table shows the existence of small units for processing, supporting projects or technology transfer in the regions. These units give supplies to the growers and the merchants. In fact, roasting and shelling are always conducted at the plantations. The operations are completely manual, in spite of a real effort in the packaging of kernels.

The cottage industrial units are typically equipped with cooking pots and workbenches for shelling. These installations take care of the total production of kernels in the country. These procedures result in the low productivity of the units and the decline in the kernel's value.

In Senegal, the PROMER, in relation with the CERER, initiates the research on technologies and techniques.

Marketing and Export Promotion

The cashew sector is characterized by disorganization among the different agents and an exploitation of the poor population by the merchants. The organizations that had been created during the eighties and the nineties, functioned timidly. **This is why it is recommended that the growers form organizations at the level of various localities of production.** The growers should be organized in 'GIEs' or unions at village level, city quarter level, district level and state level. **These unions should be federated in a national association, which should work for the entire corporation.**

In the present context, marketing and exports of cashew nut should have a better support. The cashew sector can work as a defense and a right answer to the problems of poverty and the demands for creation of revenue and employment generation in the rural areas.

Strategies and national policies to help the development of the sector

A close examination of the sector during these last years **shows an absence of a specific programme in Senegal for the sector's development**. One can notice a **gap of nearly ten years**. In fact, since the shutdown of the sector-based projects PASA 1,2 and 3, the last of which came to a halt in 1994, the sector has simply been transferred to the Management Of Forests And Water. These managements intervene only in following the species, circulating plants out of selected seeds of quality. Every year, more than 100,000 plants are circulated this way**. The absence of a programme or a project results in the decline of a sector**, which has a participation worth 3 billions in the commercial balance of the country. In this situation, the nut exports faced numerous difficulties regarding reliable quantity of nuts in the market, decline in yield, disorganization among the different agents (growers, processing agents, merchants, exporters).

The crisis in the groundnut sector, which was the country's staple food giving crop, should make the Government authorities take over the sector that concerns 5 states, 5,000,000 people, 10,000 hectare, and an expected revenue of more than 30 billions per years.

Organization of the sector and regional cooperation

The disorganization among the sector's agents features also at the level of the so far unmentioned regional and international big organizations, where more important problems of the sector are often discussed. There certainly exist about ten peasants' organisations that have been very dynamic at the regional and national level since the last 10 years. However, the programmes concerning the cashew sector during these last few years were not based on an strategic reflection vis-à-vis its fall. The regional organizations are developing inter-state programmes that are more easily acceptable to the support organizations rather than to the national level structure. In brief, it will certainly be necessary to create and revolutionize some associations, which should very fast be affiliated to the regional organizations in order to be in rhythm with the international strategy of development of the sector.

Improvement and quality assurance of the exports

Quality of the cashew nut

The exploitability of the nuts from Senegal is in a difficult situation in the international market, because of its fall in performance year after year. On the other hand, the demand for the nut is growing every year all over the world. The European and Arabic countries are joining the Asiatic clients of Senegal, who are always dominated by India. Some exporters prefer to stock up at the markets of Guinea-Bissau and Benin, as these markets offer nuts of quality in compliance with the international standards and the procedures followed there make the exporter loyal.

Nevertheless, the nut's difficulty in penetrating into the international market has lead some merchants to ask for the setting up of a **Senegalese standard by the Senegalese Institute of Standardizatio**n. The pilot study has already made an approbation and the standard is adopted by the **Committee of Agro alimentary Techniq**ue. The application of this standard is not compulsory.

In fact, the nut's quality is determining the future of the sector. The choice of a product and the liberalization of the market compel the promoters of the sector, the State and the support organisms to integrate the quality factor in the production system. This concept should be visible all through the procedure, that is to say, from the identification of the consumers' needs, marketing, storehouses, promotion and quality assurance of the nut and its by-products.

The quality of the cashew nut should be certified in compliance with the standards in question. The compliance to the standards should materialize by a national brand, the utilization of which is governed by rigorous rules and which is based on an acting laboratory network for control.

The standardization and the related activities, notably the quality management, the certification are indispensable tools for the development of the sector. Faced with liberalization, such tools should necessarily be developed by all the agents (growers, processing agents, forwarding agents, merchants, State,) for living up to the challenges regarding the control and the revival of the sector.

Quality of the Cashew Kernels

At the supermarkets, efforts are shown on attractive packaging of cashew kernels. These shopping centres welcome clients, who give a lot of importance to the standards of hygiene and quality. So, most of the urban processing agents are compelled to adapt themselves to these demands in order to maintain a steady level of sale. Only, these activities should reach out to the rural processing agents who are still ignorant about these considerations of technical and regulatory order that have become compulsory with the liberalization and the harmonization of the procedures in matters of international trade.

Product	Quality	Package	Net weight
Cashew kernel	2nd choice	Plastic Sachet	150g
Cashew kernel	4th choice	Plastic Sachet	500g
Plain cashew kernel	1st choice	Box	150g
Salted cashew kernel	1st choice	Box	150g
Cashew kernel with butter (salted)	1st choice	Box	150g
Plain cashew kernel	1st choice	Box	300g
Salted cashew kernel	1st choice	Box	300g

Conclusion

The cashew sector, even though with various problems, is a very sensitive sector to the world economy in general, and to that of Senegal in particular. Studies show that it necessitates a readjustment with regards to organization, exploitation and financing in order to envisage a long lasting development.

Even though the cultivation is localized in some regions, the potentials are still huge. However, it should be mentioned that there is a great discrepancy between the aims (of the importers) and the means used by the farmers. As for yield, the serious degradation of the plantations and the collection of premature nuts should have to be remedied. Marketing is affected by the liberalization and the globalization, which brings in new tools for harmonization. These tools refer to the quality of the products and the adherence to international regulations regarding trade.

At the national level, the processing agents follow a production system that is based on traditional practices and use of very rustic materials. These practices do not always guaranty the quality of the products and do not permit the diversification of the kernel at the national and international level either.

These constraints are a characteristic of a sector that lacks organization and coordination. The cashew sector is undergoing the consequences of an absence of strategy and increased international competition.

The liberalization is a way to involve definitely the agents and the Government authorities in a synergy of revival with help of lessons acquired from the ten years of experience. In spite of these difficulties, the people still believe in the true potential of a sector in crisis for more than ten years. Mobilizing the agents around a development strategy of the sector, supported by Government authorities and the international organisations will permit the sector to get back its past glory with the creation of employment, increase in revenue in the rural milieu, acquisition of new technologies, control of the demands on standard and the protection of the environment.

Abbreviations

ACASEN: Cashew from Senegal
CCI: International Commerce Centre
CERER: Centre of Experimentation and Research on Recyclable Energies
ESP: College of Polytechnic
GIE: Economic Interest Group
ISN: Senegalese Institute of standardization
ITA: Institute of Food Technology
NS: Senegalese Standards
ONG: Non-Governmental Organization
PAEFK: Supporting project for the forest entrepreneurs of Kolda
PASA: Senegal-German Cashew Project
PROMER: Project for the promotion of rural micro-enterprises
PRONASEF: National programme of forest seeds
SODENAS: Cashew nut shelling company
UGAB: **Union of Agricultural Groups of Niombato,**

The End