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OVERVIEW STUDY OF CHAD AGRICULTURAL EXPORT PRODUCTS

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A C R O N Y M S

A M T T	Agricultural Marketing and Technology Transfer
B I A T	Banque Internationale pour l'Afrique au Tchad
B E A C	Banque des Etats de l'Afrique Centrale
B N F	Bureau National de Fret
C A R	Central African Republic
C F D	Caisse Française de Développement
C N R S	Centre National de la Recherche Scientifique
D R T A	Direction de la Recherche en Technique Agricole
D S A	Division des Statistiques Agricoles
G O C	Government of Chad
M A E	Ministère de l'Agriculture et de l'Environnement
O N D R	Office National de Développement Rural
O R T	Organization for Rehabilitation through Training
U D E A C	Union Douanière et Economique de l'Afrique Centrale (Gabon, Congo, Cameroon, Central African Republic, Equatorial Guinea, Chad)
U N C T A D	United Nations Conference on Trade and Development
V I T A	Volunteers in Technical Assistance

OVERVIEW STUDY OF CHAD AGRICULTURAL EXPORT PRODUCTS

EXECUTIVE SUMMARY

The Overview Study of Chad Agricultural Export Products is a rapid reconnaissance of the export sector. The study has four objectives:

1. to identify agricultural commodities currently being exported, whether through formal or informal channels (cotton, livestock, *natron* and fish products are excluded from consideration);
2. to make a preliminary assessment of the relative importance of each commodity identified in the present economy and its potential for expansion;
3. to identify the constraints to increased exports affecting each commodity; and
4. to provide information to GOC and USAID decision makers as well as a framework to aid them in selecting commodities and markets that merit further study.

The relative importance of each commodity is assessed on several **criteria** (volume of production and export, size of markets, potential for maintaining or expanding markets, competitiveness of Chadian products, etc.). In addition, existing constraints to increased exports are analyzed.

Before proceeding to the analysis of the export sector, Chad's macro-economic evolution is briefly presented. Agriculture, including livestock, forestry and fishing, dominates Chad's economy. Food crop production by smallholders such as cereals and other agricultural products (peanuts, sesame, onions, garlic, voandzou, *niébé* and other vegetables and fruits) represents the principal economic activity. Cotton is the most important source of cash income.

Recurring political instability, which erupted into civil war from 1979 to 1983, contributed greatly to the deterioration of the physical infrastructure and to losses in regional market shares. Economic performance in the ten-

year period (1984-1993) has been first dominated by the adoption of a broad adjustment effort (1987-1990), followed by a change in government and a growing fiscal crisis after 1991. Despite the economic and financial crisis, favorable climatic conditions resulted in strong growth in the production of food crops (oil seeds and cereals) from 1990-1991 to 1992-1993. This translated in real economic growth of the GDP in 1991 and in 1992. The devaluation of the CFA franc in early January 1994 and negotiations for the adoption of a new Structural Adjustment Program between Chad, the IMF and the WB represent the most recent economic events, events occurring in a context of a fiscal crisis and a difficult transition to democracy. In spite of these obstacles, the agricultural export sector as analyzed in this study is perceived as a key source of potential growth in a country well endowed with natural resources for agricultural production.

According to the above mentioned criteria, the export products have been differentiated into **four** categories:

1) A category of potential high volume exports

Production structure and trade channels (internal and external) of these commodities are both well established. These are crops which are widely produced and in large volume, or they are particularly important in the agricultural economy of a major region of the country. In addition, they are products for which there is a strong domestic demand, and which have further been able to develop markets in neighboring countries (CAR, Cameroon, Nigeria, Congo, and even Zaire and Gabon). Moreover, Chadian production of these commodities dominates outside markets, as evidence of comparative advantage.

a) Peanuts

Most of the production of peanuts for export (about 23,000 tons in 1992-1993) originated in the Sudanian zone, and this product follows several well-established routes to markets outside of Chad. By our estimates at least half, and probably more, of all peanuts shipped out of Chad go to the CAR and to the Congo. Peanuts produced in western Chad are more commonly exported to Cameroon. Prices vary a great deal seasonally and from year to year, depending on supply

and demand. Peanut exports are subject to fairly stiff taxes. In addition, transport costs for this product are high, reflecting both the economic conditions of truck operation in Chad and the various taxes imposed on truckers.

In spite of the existence of several constraints affecting the peanuts sub-sector, there are economic advantages in growing this product that involves a significant proportion of the rural population of the Sudanian zone. Farmers have shifted from cotton production to a greater emphasis on peanut production. Peanuts also have very good potential as a basis for transformation industries. Moreover they are considered to be beneficial to the soil¹. The production and export of peanuts have a good future because of the level and stability of external demand in the region.

b) Sesame

Farmers grow sesame in Chad as a low cost secondary crop which is not demanding of time, effort or inputs such as fertilizers. Production is limited, representing only 0.6% of world production in 1991. About 10% to 15% of the yearly sesame production of 16,000 tons (1992-1993) is exported; the rest is consumed locally. The export trade in sesame originates mainly in the southwest of the country (sesame is considered to be the most important export commodity produced in the Logone/occidental regions after peanuts). Sesame prices vary considerably during the year and between production years. Exports of sesame are either not taxed or taxed as if they were peanut exports.

Sesame productivity in Chad is low - 250 kilos/ha against a world average of 312 kilos (FAO). Farmers put very little effort into sesame production, and use no fertilizers or insecticides (sesame appears not to have much impact one way or the other on the environment). Since diversification and the reduction of dependence on cotton is one of the strategies which Chad is pursuing, sesame can make an important contribution.

¹ Although Daoussa Debi, the former Director General of the Ministry of Agriculture and Environment told us there could be problems.

c) Onions and garlic

The Ouaddai is the most important onion and garlic production area of the country. Some 12,000 producers grow onion and garlic in the region. The Binder area is also involved in the production of onions for export, and this production has increased in the last few years. Demand is generally strong for these products in the southern countries. While the air freight of onion and garlic is a strong indicator of demand, the much larger volume of produce travels overland to Bangui where it is sold or sent to Brazzaville by boat. Lack of access to credit, storage and transport losses are perceived as constraints by traders.

Nevertheless, the onion and garlic production sub-sector in the Abéché and Binder areas remains extremely dynamic. It has developed in response to domestic demand and has been able to grow to meet the considerable demand for Chadian onions and garlic throughout coastal and tropical central Africa.

2. Specialty export products

Gum arabic, hibiscus, algae and karité are commodities whose role in domestic or regional consumption is limited, but have a great potential for export development. In most cases, this potential is in the developed world, so that these products may eventually bring hard currency into the country. Except for gum arabic, a considerable effort would be necessary to develop any of the following products to the point where Chad could be a serious competitor in world markets. The entire production and marketing structure of each product would have to be revamped to meet the requirements of a demanding Western market. The experience with gum arabic shows that such an effort can bring excellent benefits to the country.

a) Gum arabic

Chad is, after Sudan, the world's second largest producer of gum arabic. Gum arabic has various uses in the textile and soft drink industries, printing, preparation of pharmaceuticals, food, and cosmetics. Official statistics show that Chad exports about 3,500 tons per year thru legal

means, and a further unknown quantity of gum of Chadian origin is sold by Nigeria and some possibly by Sudan. Chad should be able to triple the volume of exports through the formal sector by year 2000.

b) Hibiscus

Hibiscus is of interest because women are the principal producers and marketers. The regional market is significant, but this trade depends on low prices and brings little return to the producer. Trade to Europe and the Middle East could have a much greater impact on the Chadian economy, if Chadian hibiscus were to become competitive. This depends largely on reduction of transport costs.

c) Algae

Blue-green algae (spirulina) grows in natron-rich pools in Lake Chad and in the ouadis of the Kanem. The algae is collected by artisanal methods, and enters into the traditional cuisine of these regions. Some trade, including export to neighboring countries, is largely directed to emigrants from the region living in urban centers. To date this industry is more promise than reality. Algae collected in Lake Chad by artisanal methods is not suitable for the world market; samples are contaminated by sand and by coliform bacteria indicating fecal pollution. The development of the algae production sector can only be predicated on the displacement of the traditional exploitation of this resource, or on an intensive program to improve artisanal methods of collection and production.

d) Karité

Karité trees grow wild in southern Chad, particularly in the Moyen-Chari region. Karité nuts are used for the manufacture of a high-protein oil, butter, cream and soap. The harvest, transformation and trade in karité oil and butter is exclusively the domain of women. The world market potential is largely unexplored and poorly defined.

3. Secondary regional exports

The commodities in this category all figure in cross-border trade to some degree, but they appear to have neither the

importance nor the potential of those in the first category above (potential high volume exports). Nor do the products here have any real potential for export outside the immediate region, even to other areas of Africa. They are, however, all export commodities such as niébé, tomatoes (dried tomatoes and tomato powder), dates, melons, okra and hot peppers, squash seeds (*graines de courge*), earth-peas (*voandzou*), and tubers. In several cases (dates being the most evident) this export trade is of considerable importance to a producing region or producer group.

- **Niébé.** Niébé is exported in small quantities from the Moundou area to Nigeria, the CAR and Cameroon. Niébé is also an important secondary local product in Sarh and the Sarh region and is exported, largely to N'Djamena, to Cameroon, to the CAR (Bangui) and possibly to Nigeria. Niébé was also produced in large quantities in the Karal area and exported to Nigeria in the 1970's-1980's. It is clear that the Nigerian market has been an important outlet in the past for niébé from Chad.
- **Tomato powder.** First quality tomato powder - as well as dried tomato - is an export commodity. Increased trade between Chad and the CAR is due to the presence of Chadian exiles in the CAR after 1986. However, there is no significant market for this product beyond the Chadian émigrés living in that country.
- **Dates.** This commodity plays a fundamental role in the society and the economy of the Borkou-Ennedi-Tibesti region (B.E.T.). Most quantities sold outside the region are sold in the N'Djamena area and are consumed within Chad. Until 1965-1970, traders from Cameroon and Nigeria used to come to N'Djamena to buy dates and resell them in their countries.
- **Melons.** Between 1989 and 1991, a yearly average of 10 tons of were exported by air freight to Europe; in 1992, 4 tons of melons were shipped by air to France.
- **Okra.** Okra was a garden crop until recently. It is now cultivated on a larger scale, mainly in N'Djamena and the Ouaddai, for both the domestic and regional markets (mainly Nigeria).

- **Peppers.** Small quantities of peppers leave the Sarh region for markets in neighboring countries, mainly for use by Chadian emigrés living in those countries.
- **Squash seeds (*graines de courge*).** The Moundou area is an important production center for squash seeds that are used to produce oil, for the preparation of sauces and cakes. In addition, they are considered to be a good substitute for sesame and are exported to Cameroon, the CAR and the Congo.
- **Earth-peas.** This product is exported from the Moyen Chari region in moderate quantities to neighboring countries.

4. Cereals

This category is the least significant as far as exports are concerned. Basically, trade in cereals in the Chad-North Cameroon-Nigeria axis goes back and forth between areas of surplus and areas of deficit, without establishing any long-term flows. This pattern goes on despite efforts, periodically enforced, to restrict cereals exports from Chad.

METHODOLOGY

All the commodities discussed above have then been rated, using key criteria such as the potential demand for the commodity, the environmental impact, the impact on exports and earnings, the potential for transformation, the economic involvement of women, the usefulness of by-products, and the relationship to transport. These ratings, although also expressing some subjective judgements, are based on various information, observations and data gathered by team members during the course of the study. Peanuts have the best rating, followed by gum arabic and sesame, and onions/garlic; algae and karité are next, followed by tomatoes, beans and dates; okra/hot pepper and voandzou being last. Cereals have not been taken into consideration in the rating.

Both the extent and the diversity of Chad's agricultural export sector are greater than was expected at the outset of this study. The 15 commodities (cereals excluded) examined in this study account for about 9 billion CFA in export trade in 1991 - 1992. Chad is an important supplier of agricultural commodities within the region (Zaire to Nigeria), and should work to **maintain** its position and possibly to expand its regional markets. Further, Chad produces a small number of commodities which could be sold on world markets.

Significant constraints to the expansion of the export trade include: excessive transport costs, high taxes and bureaucratic costs, lack of credit and financing for exporters, and knowledge of potential markets. The quality and quantity of production of certain key commodities should also be improved.

RECOMMENDATIONS

Several recommendations come out of this study. The GOC should streamline the paperwork for exports and continue its effort to reduce the level of taxation; this should in fact **increase** the government's income from export taxes, as many traders now avoid paying any at all. A credit structure should be developed to finance the export trade. The agricultural extension services must pay closer attention to secondary crops such as sesame which have export potential. A number of activities aimed at promoting Chadian products in Western and Asian markets should increase buyers' knowledge of these commodities.

More information is also needed about demand in regional markets and about the potential of specific commodities. The recommendations include proposals for a number of supplementary studies that include 1) a focus on regional markets, 2) individual commodities, and 3) individual markets.

I. INTRODUCTION

The Overview Study of Chad Agricultural Export Products has four objectives:

1. to identify agricultural commodities currently being exported, whether through formal or informal channels;
2. to make a preliminary assessment of the relative importance of each commodity identified in the present economy and its potential for expansion;
3. to identify the constraints to increased exports affecting each commodity; and
4. to provide information to GOC and USAID decision makers as well as a framework to aid them in selecting commodities and markets that merit further study.

The notion of "agricultural" commodity is interpreted broadly to include both commodities which are cultivated by farmers and those natural products which are systematically harvested and marketed by rural populations. The following commodities were, however, specifically **excluded** from consideration in this study:

- cotton and cotton by-products;
- livestock and livestock products;
- fresh and preserved fish; and
- *natron*.

These are all, undeniably, major commodities in Chad's export trade. In each case, however, the production and marketing circuits are specific to the commodity and apart from the general circuits of agricultural trade.

The Overview Study is, as its name implies, a rapid reconnaissance of the export sector using informal interview methods and drawing on existing data. The most promising commodities identified here will be analyzed in greater detail in further studies.

The principles that will guide the presentation and analysis in this paper are primarily **economic** rather than sociological or agronomic. The importance of a particular

commodity in the export market will be assessed on several criteria including:

- volume of production and of export
- size of external markets
- potential for maintaining or expanding existing markets
- potential for new markets
- competitiveness of the Chadian product, and
- Chad's comparative advantage in producing a product for a given market.

According to these criteria, the export commodities have been differentiated into those that have a strong economic potential and those that are either secondary in importance or have little potential for sustained export growth. The former, which naturally have the greater interest for this and further studies, are of two kinds. One group includes commodities that are widely produced already and that have an important place in the diet and agricultural economy of the nation, but that could be expanded by improved production and marketing techniques. The other includes new or specialized commodities that are **not** widely exploited for domestic use, but which could be developed in light of strong external demand. Either of these categories includes a number of commodities that could make an important contribution to a strategy for strengthening the economy of Chad and improving the standard of living of the Chadian people.

II. MACROECONOMIC CONTEXT

1. Chad physical and economic aspects

Chad is a vast country, largest of the UDEAC members and fifth largest country in Africa. With 6.2 million inhabitants and a per capita GNP estimated at \$230 by the World Bank in 1993 (\$559 real per capita GNP according to the 1993 UNDP Report on Human Development), Chad is one of the poorest and least-developed countries in the world. It ranks 165th out of 173 countries on UNDP's Human Development Index (HDI), after all the UDEAC countries and Sudan (158) but before Mali (168), Niger (169) and Burkina Faso (170). This indicates that the overall capacity of the country to support development is very low. Recurring political instability, which erupted into civil war from 1979 to 1983, contributed greatly to the deterioration of the physical infrastructure and to losses in regional market shares.

Agriculture, including livestock, forestry and fishing, dominates Chad's economy. It contributes to about 40% of GDP and provides a livelihood for almost 85% of the population. Food crop production by smallholders, such as cereals and other agricultural products (peanuts, sesame, onions, garlic, voandzou, niébé and other vegetables and fruits), represents the principal economic activity. Depending on rainfall, the food crop output fluctuates widely and accounts for about 50% of agricultural GDP. Cotton, one of the most important sources of cash income, generates about 10%, and livestock and fishing 40%. The industrial sector is very small and contributes about 20% to GDP. Cotton processing and export activities of Cotontchad, a parastatal enterprise, dominate the sector. There are also a few medium-scale enterprises and a great number of informal micro-enterprises, working mainly for the domestic market. A large informal trading sector represents most activities of the service sector that accounts for about 40% of GDP.

Macro-economic performance in the ten-year period (1984-1993) following the war has been first dominated by the adoption of a broad adjustment effort, supported by the World Bank, the IMF and other donors (1987-1990). The agricultural export products of this study were not directly the focus of the program. These products nevertheless benefited from investment and policy reforms in the

transportation sector carried out by the program; the reforms resulted in improved road conditions, liberalized tariffs and increased competition in the trucking industry. Besides transportation, the adjustment program concentrated on the improvement of public resource management, the cotton sector and on reforms affecting the livestock sector. Overall economic conditions improved during the 1987-1990 adjustment period, particularly in the cotton sector, although production of most of the agricultural export products (oil seeds) and cereals varied with climatic changes: between 102,000 tons and 118,000 tons for oil seeds; between 549,000 tons and 616,000 tons for cereals (DSA).

Macro-economic performance since the beginning of 1991 has been dominated by political events. The new government had to deal with a fiscal crisis, drought and an unstable security situation. Despite efforts to mobilize more domestic resources and to limit expenditures, the government has not succeeded in stabilizing the fiscal situation. In 1991 and 1992, the budget deficit grew significantly and could only be financed by the high level of foreign budget aid and the accumulation of arrears. The deepening of the budget crisis continued in 1993 as well as the decline of the cotton sector (low world market prices and bad management of Cotontchad) and a significant drop in investment. The formal sector of the economy lost importance while weak customs administration encouraged more and more fraud. The overall level of effective demand decreased substantially, as a result of arrears in paying civil servant wages and in payments to domestic suppliers. In the political arena, a national conference that represented more than thirty political parties agreed on the outline of a new constitution as well as on the selection of a new Prime Minister to head a transition government.

Despite the economic and financial crisis, favorable climatic conditions resulted in strong growth in the production of food crops: oil seed production went from 118,000 tons in 1990-1991 to 243,000 tons in 1991-1992 and to 240,000 tons in 1992-1993; production of cereals went from 601,000 tons in 1990-1991 to 812,000 tons in 1991-1992 and to 976,000 tons in 1992-1993 (DSA). This translated in real economic growth of the GDP higher than 5% in 1991 and in 1992.

The devaluation of the CFA franc in early January 1994 and negotiations for the adoption of a new Structural Adjustment Program between Chad, the IMF and the WB represent the most recent economic events. Although it is premature to analyze their impact, these events occur in a context of fiscal crisis and a difficult transition to democracy. In spite of these obstacles the agricultural export sector, as analyzed in this study, is perceived as a key source of potential growth in a country well endowed with natural resources for agricultural production (and of course petroleum). In addition, the existence of an informal private sector acting as a driving force in the economy helps to compensate for all the institutional and political weaknesses.

2. The export sector (structure and evolution)

Chadian exports, as presented in the official statistics, include **mainly** cotton and livestock exports while other exports such as peanuts, onions/garlic, sesame, vegetables, cereals and part of the gum arabic are literally not included (exports statistics provided by BEAC for the last three years, include, besides cotton/cotton oil values, exported value of limited quantities of cigarettes, cement, construction material, etc). BEAC and WB officials explained that only exports transiting through formal channels are presented in the trade and balance of payments statistics.

Decreasing cotton prices after 1991 translated in decreasing export, while proceeds from livestock exports remained fairly stable. Because the value of imports was more or less the same between 1990 and 1993, the deficit of the balance of trade increased, as a result of changes in cotton prices. Therefore, the balance of trade appears to be structurally vulnerable to variations in terms of trade.

Because the official statistics in Table 1 present only two categories of exports, therefore not reflecting the actual movements of goods, the volume and value of export commodities in this study are estimates. Existing data, but mostly field interviews, have been used for the estimates.

Table 1: Official Export and Import Statistics, 1991-1993

Year	1991	1992	1993
	(In millions of CFA)		
Exports FOB	54,600	50,330	41,780
- cotton	26,828	25,249	15,941
- livestock and others	27,772	25,081	25,839
Imports FOB*	73,005	71,368	73,817
Trade balance	-18,405	-21,038	-32,037

Imports through formal channels only. *

Sources: BEAC; IMF.

3. Chad agricultural export products

The agricultural export sector in Chad includes a rich diversity of products, production systems, cultural systems and physical environments. Besides cotton (and the dominant role of Cotontchad), livestock (an important component of the agricultural sector), a great variety of other crops such as oil seeds (peanuts, sesame, squash seeds, karité), vegetables (niébé, tomatoes, okra, peppers, earth-peas, tubers), fruits (dates, melons), gum arabic, natron, algae, and hibiscus are exported. Most of these exports transit through informal channels. The following table presents the export products that are analyzed in detail in the context of this study. The presentation follows the classification by category and product used in this study.

In Table 2 below, export products are listed and the volume and value of exports in the first and second categories are given for several years. They have been estimated and calculated from different sources. Gum arabic is the most important export product, in terms of value, among those studied here. Total export volume of gum arabic through formal and informal channels was about 3,000 tons in 1991-1992, 5,300 tons in 1991-1992 and 6,000 tons in 1992-1993

Table 2: Volume and Value of Selected Agricultural Exports

PRODUCTS	EXPORT VOLUME (TONS)			VALUE (in million CFA)		
	90/91	91/92	92/93	90/91	91/92	92/93
CATEGORY 1:						
PEANUTS	11,000	23,000	22,500		2,300	
SESAME	1,010	1,300	1,600		156	
ONIONS		7,000			700	
GARLIC		2,000			400	
CATEGORY 2:						
GUM ARABIC	3,000	5,300	6,000	2,400	5,300	7,200
DRIED HIBISCUS						
ALGAE						
KARITE						

Commodities for which there is not sufficient information to make estimates of exports:

CATEGORY 3:

NIEBE/BEANS
TOMATO
DATES
OKRA/PEPPERS
GOURD SEEDS
EARTH PEAS (VOANDZOU)
SQUASH
TUBERS

CATEGORY 4:

CORN
MILLET
SORGHUM
WHEAT
RICE

Sources: DSA/ONDR; Field Interviews; Mallot 1993

(interviews with traders have led us to estimate exports through informal channels to be about 1,500 tons a year); value of exports reached CFA f 7.2 billion in 1992-1993 (see Annex I, table 1 for detailed calculations of export values). With about CFA f 2,300 million of exported value in 1991-1992, peanuts are second in importance among the

commodities studied here (Annex I, table 2). Value of exported onions/garlic and sesame are about CFA f 700/400 million and CFA f 156 million respectively (Annex I, tables 3 and 4). Total export value of the five above-mentioned export commodities (gum arabic, peanuts, sesame, onions/garlic) represent about 17.5 % of the value of total exports in 1991-1992 (Annex 1, table 5). Only part of the value of gum arabic is officially recorded in the statistics. The value calculated for all other export of agricultural products of this study is additional value to the officially recorded export value.

III. METHODOLOGY

Except for cotton and for gum arabic, there is very little systematic information or data about the export of any agricultural products from Chad. Cotton is documented because it is Chad's most important agricultural export, with marketing controlled by a parastatal enterprise. Gum arabic is currently the object of a great deal of attention, as world demand and prices are high. Gum exports are also relatively easy to monitor since most production is shipped to Europe via formal channels and must be vetted with a certificate of origin.

Published official statistics (Comptes Economiques, 1983-1993) lump all agricultural exports except cotton products into a single category. In the hope of getting more detailed information on specific commodities, six unpublished sources of official data on exports were consulted:

1. The Chambre Consulaire (Chamber of Commerce).

This institution delivers certificates of origin for Chadian products being exported. Most of the requests relate to gum arabic. However, the Chambre Consulaire is currently working to expand its data base by compiling the export statistics collected by Customs (including formal trade only). The Chambre Consulaire also maintains lists of export traders for all major trade areas in Chad.

2. The Ministère de l'Economie et du Tourisme.

This ministry has a ledger of all export licenses granted in Chad since 1986. By law, anyone wishing to export any agricultural products except livestock must apply for an export license (Decree no 113/1966). An export license mentions the product (a license is only valid for one product) as well as the quantity to be exported. A license is relatively inexpensive (5,000 CFA) and is valid for a year and for a fixed quantity of a single product.

The number of export licenses issued by the Ministry has declined steadily over the past few years: from 149 in 1989 to 115 in 1990 and to 44 in 1993. In the view of Ministry officials, this trend indicates that exporters prefer going through informal trade channels because of confidentiality:

copies of the export license are sent to the tax office, to customs and to the exporter's bank. A good deal of agricultural produce is exported without a license. Moreover, the purchase of a license is not necessarily evidence that a trader actually exported the product for which the license was procured. The licenses, then, are best seen as an indicator of those commodities for which major traders in N'Djamena have felt it was worth the trouble to take out an option for possible export over the year.

3. The Service de Douanes (Customs).

Information on official exports of agricultural products (other than cotton and livestock) is available through 1989. The value of officially exported products from the agricultural sector are very low (cf. table below). Onions, beans, earth-peas, corn, peanuts, and vegetable oils were the primary commodities traded. The principal destinations were the UDEAC countries (Cameroon, CAR, Congo), Nigeria and Sudan.

Table 3: Value of Officially Exported Agricultural Commodities Other than Cotton and Livestock

Year	Exports in CFA	% of total exports*
1986	186 million	0.5%
1987	335 million	1.0%
1988	221 million	0.5%
1989	544 million	1.2%

* % by value of all exports recorded by Customs

In reality, customs offices only identify and tax a small proportion of the real export trade in agricultural commodities. Most traders undervalue their shipments in customs declarations, or fail to declare them at all. Records from border posts give an indication of which commodities cross frontiers, and some sense of relative volume between commodities, but they do not show the real volume of the export trade.

4. Le Trésor (Treasury).

Excluding cotton and livestock, revenue from the export tax on cereals and peanuts ranged between CFA f 20 million and CFA f 45 million yearly between 1986 and 1989 (between 0.1% and 0.2% of total revenue). This revenue is provided by the taxes levied on the exports identified by customs, so these statistics are no more representative of the real volume of export activity than are the customs figures underlying them. Nonetheless, this is a baseline of sorts: the revenue formally generated at this time for the GOC by agricultural exports.

5. Municipalities.

Certain municipalities (Sarh, Koumra, Moundou) collect data on shipments of agricultural commodities for the purpose of levying municipal taxes. The Mayor of Sarh provided municipal records of exit taxes on produce leaving the city market over the past two years. These records give a general sense of volume and destination of shipments, although the shipments are certainly undervalued. In the case of Sarh, also, only peanut shipments are registered with any regularity.

6. The Ministère de l'Agriculture et de l'Environnement.

The Ministry of Agriculture and Environment provides data and estimates on production and trade in agricultural products through its offices in the regions (ONDR) and through the Market Information System that works out of the Direction de Statistiques Agricoles. ONDR and the DRTA (Direction de la Recherche et de la Technologie Agricole) have also sponsored a number of special studies on specific commodities (dates, gum arabic) and analyses of regional production systems.

The main interest of the ONDR in the past has been cotton and cereals, so the most detailed data available concerns these products. Many of the Ministry's statistics, particularly in recent years, are estimates or extrapolations from previous figures rather than the result of current field research. In particular, the Ministry can provide only the roughest estimates of marketing and exports of most commodities. These are, however, often the best

information available about this trade from official sources anywhere in Chad.

The above-mentioned sources are incomplete, although sometimes helpful. In fact, official records of these sources only cover formal exports, which may be only a fraction of the actual volume of exports.

Much of the information in this study is drawn from observations and from interviews with traders, shippers and government officials in border posts and in regional centers that see a good deal of export activity. These centers include towns on both sides of the border: in Chad, in the Central African Republic, and in Cameroon.

IV. CHAD AGRICULTURAL EXPORT PRODUCTS

1. POTENTIAL HIGH VOLUME EXPORTS

This category includes commodities whose production structure and trade channels (internal and external) are both well established. These are products for which there is a strong domestic demand, and which have further been able to develop markets in neighboring countries. In each case Chad is the principal supplier for buyers throughout central Africa. There is every reason to believe that Chad can (and should) maintain its present position as market leader and even extend its influence further afield. These then are commodities which should be considered to be at the forefront of Chad's agricultural export sector.

Each of the products below represents a particular combination of qualities as an export commodity. Overall, however, the following criteria were applied to all to evaluate their potential for inclusion in this first category:

1. importance of production; these are crops which are widely produced and in large volume, or they are particularly important in the agricultural economy of a major region of the country
2. presence of a domestic market which could help cushion the fluctuations of outside demand
3. existence of a strong outside demand
4. dominance or strong position of Chadian production in outside markets, as evidence of comparative advantage
5. potential for growth and expansion of markets; and
6. potential for increasing production to meet new demand.

1.1 Peanuts

Peanuts are grown in the prefectures of Batha, Biltine, Chari-Baguirmi, Mayo-Kebbi, Tandjilé, Logone Occidental, Logone Oriental, and Moyen-Chari. Production has risen

dramatically over the past decade, going from about 80,000 tons in 1984 to some 108,423 tons in 1991, then doubling again to 230,000 tons in 1993. Chad is in twentieth position among producer countries, with less than 1% of total world production in 1991 (Annex I, table 6).

Most of the production of peanuts that is destined for export is produced in the Sudanian zone, while the Sahelian zone supplies northern urban centers and Chad's central region. Peanuts play an essential role in the Sudanian zone. The importance of peanuts in the economy of the

Table 4: Peanut Production and Marketing, 1990-1993

A: National Statistics*

	<u>90-91</u>		<u>91-92</u>		<u>9 2 - 9 3</u>	
Production	108,423T	100%	230,417T	100%	233,763T	100%
of which:						
-Self-consumption	21,685T	20%	46,083T	20%	46,753T	20%
-Internal trade	43,369T	40%	92,167T	40%	93,505T	40%
-Export	10,842T	10%	23,042T	10%	23,376T	10%
-Others (seeds, stock losses)	32,527T		69,125T		70,129T	

Source: MAE, DSA (estimates)

* The DSA uses flat percentages for these estimates, which leads us to question the reliability of these figures.

B. Evolution of Peanut Production, Moyen-Chari, 1987-94

<u>Year</u>	<u>Production (Tons)</u>
1987-88	22,900
1988-89	29,890
1989-90	32,714
1990-91	28,103
1991-92	35,668
1992-93	34,842
1993-94	38,448

Source: ONDR, Sarh

Moyen-Chari in particular is undeniable. It is the second most important commercial crop, after cotton. Much of the private sector cross-border trade rests on this commodity, and its commerce is the mainstay of the Sarh market.

There are a number of reasons why peanut production has increased so dramatically in recent years in the cotton-producing areas of Chad. For the producer, peanuts offer a soil-building alternative or complement to cotton in the production rotation. Peanuts are harvested and sold at just the right time to allow the producer to finance the cotton harvest; the income from peanut sales provides cash for hiring labor and for meeting family expenses until cotton is sold. Production of peanuts allows a farmer to diversify sources of income at a time when cotton prices are steadily dropping. Also, the introduction of peanuts as a rotation crop helps to reverse the detrimental effects of cotton monoculture on the soil.

A large proportion of peanut production, at least half, is marketed as shelled nuts. Another important quantity supports an artisanal industry of oil production. Peanut oil is manufactured and sold by women. It takes two *koros* of peanuts to produce one liter of oil; at this rate, a woman can extract 20 liters of oil from one 100-kilo sack of peanuts. An oil producer gets CFA f 250 - 300 a liter in Sarh, plus the sales or use value of the oilcake. Most of the oil that is not consumed locally is shipped to N'Djamena - where the same liter is sold at CFA f 450 - 500 - rather than sent over the border.

Exports

Peanuts are produced between June and September. The period after harvest is a time of active trading as producers sell their crops. This activity reaches a peak in December. During this time brokers in major centers such as Sarh, Moundou, and Koumra establish stocks which are resold later as prices rise. The broker trade goes on year-round.

According to the Ministry of Agriculture and Environment (MAE), at least 50% of peanut production is traded (internal trade and export). The estimates of exports provided by the MAE (see table above) are generally similar to those provided by major traders and customs officials. If

anything, this official estimate may be a bit low. Adoum Moussami and Mamadou Hissène, important traders based in Sarh, estimate the overall trade in peanuts between Sarh and the CAR (1992-1993) to be 100,000 hundred-kilo sacks a year (about 10,000 tons). The second trader believes that a further 20,000 sacks (about 2,000 tons) go to Brazzaville. The customs office chief in Moundou told team members that about 21,000 hundred-kilo sacks of peanuts were also exported to Cameroon (through Léré) during the three-month period September through November 1993. In all, from what traders and transporters have told us, the overall export trade in peanuts to all destinations is on the order of 25,000 to 30,000 tons a year in 1992 - 1993. In 1991, Chad's export value represented only 0.2% of total world export value (Annex I, table 7).

According to informants in the Bangui market, peanuts are imported from Chad at the rate of about 10 truckloads (1 truck = 300 sacks) a week over the 8-month trading period (September through May). This gives a rough estimate of 102,000 sacks per year, close to the figure given by traders in Sarh. The customs office in Bangui taxes trucks coming into that city with Chadian peanuts. Their figures, indicating declared imports into Bangui only, are shown in Table 5 below.

Table 5: Sacks of Peanuts Recorded Entering Bangui Market from Chad

Year	1991	1992	1993
	30,455	39,771	28,924 (Jan.- Aug.) 43,386 (Year*)

80 kg to 100 kg sacks. Variations in the size of sacks make total volume approximate.

* Extrapolation from records of first 8 months.

Source: customs office, Bangui

Peanuts follow several well-established routes to markets outside of Chad. From the Sarh/Koumra region the main route is the direct road through the border post of Sido down to Bangui, while from areas west of Koumra peanuts are also shipped to Bangui through Doba and Goré (ONDR Director, Moundou). A significant part of these peanuts are sent on from Bangui by river to Brazzaville in the Congo. A smaller volume of trade goes from Sarh to Cameroon, mostly through Bongor or Léré.

By our estimates at least half, and probably more, of all peanuts shipped out of Chad go to the CAR and to the Congo. Sarh is the principal center for this trade, and peanuts dominate the storage and shipping facilities in the Sarh central market. Several of the markets in the border region south of Sarh - Danemadji, Moissala - also serve traders who carry peanuts directly to the CAR without passing through Sarh itself. A small-scale trade takes place right at the border (Sido), but most Chadian traders who deal with the CAR transport their produce directly to the terminal markets in Bangui.

The peanut trade is extremely important in Bangui and in markets throughout the CAR. Peanuts are a staple in the local diet, consumed on a regular basis by 3 families in 5; household surveys going back to 1977 show that the place of peanuts in the diet is well-established and the demand both strong and consistent (Ministry of Plan, Bangui). CAR consumers prefer Chadian peanuts to the local varieties, which are in any case produced only in limited quantities.

Peanuts produced in western Chad (and as far east as Goundi and N'Gangara north of Koumra) are more commonly exported to Cameroon. These are shipped through Bongor, through Léré to the Cameroonian market of Figuil, and directly west from Moundou to Maroua. Customs and ONDR officials also say that some peanuts from the Moundou area are shipped south to the CAR through Goré, although Cameroon remains the most important destination for trade from this region.

One center for export to Cameroon is the border city of Léré. Peanuts come from the Kelo, Doba and Moundou areas as well as from markets around Léré. Some traders from Sarh also trade along this route. The head *commis de charge* in Léré said that on average 30 tons of peanuts (300 hundred-kilo sacks) are shipped weekly from Léré to the Cameroonian

markets of Figuil, Maroua, Guider and Garoua. The transport is carried out for traders from the Moundou area who themselves accompany their shipments on the trucks. The peanuts are sold to Cameroonian traders (and not directly to consumers). A truck does not come back empty as traders backhaul goods in particular demand in Chad - most commonly cement, salt and flour.

Several other transshipment centers are important in the trade to Cameroon. Moundou, Pala and Bongor are all large central markets for major producing regions. N'Djamena also serves extreme northern Cameroon through the Kousseri market. A good deal of the actual cross-border trade is carried on by Cameroonian traders. Chadian traders often sell their produce to Cameroonian buyers in the major markets on the Chadian side of the border or in markets just over the border in Cameroon. Traders in Sarh and Koumra said, in fact, that Cameroonian authorities restrict Chadian traders to the border markets such as Figuil and Yagoua.

Chadian peanuts compete well with Nigerian peanuts in Cameroon. Chad produces eating peanuts (*arachide de bouche*) while Nigeria produces oil peanuts (*huileries*). The peanuts in northern Cameroonian markets, including the main market in Maroua, are for the most part of Chadian origin. There are unconfirmed reports of a strong demand in Cameroon right now from large wholesalers in Douala and Yaoundé.

Prices

Prices vary a great deal seasonally and from year to year, depending on supply and demand. Even prices from one weekly market to the next may depend on the presence of buyers; with several buyers bidding a sack of peanuts was selling for CFA f 5,500 in N'Gangara in mid-December where the price had been CFA f 4,500 the week before. Differences in the cost of transport also contribute to price variations between different regions.

This year prices for peanuts have been exceptionally low. **Demand** is weak in Bangui, according to traders, because salaries have not been paid and the CAR is in a long economic downturn. Political turmoil in the CAR and especially in the Congo has also disrupted trade and reduced

demand. **Production** is also up in Chad because producers are trying to get away from overdependence on cotton.

Prices have dropped to as low as CFA f 3,000 a sack of shelled peanuts at the farm gate (M. Plomb, BRA). In the weekly markets prices may vary as much as CFA f 1,000 from week to week on a sack (CFA f 4,500 - 5,500) according to supply and to the presence or absence of buyers from the CAR (information from Danemadji market). Prices in Sarh or Koumra were CFA f 5,500 to CFA f 6,000 a sack (December 1993). With prices in Bangui estimated at CFA f 9,000 to 10,000 a sack in December 1993, there is little profit to be made in sending peanuts out. The cost per sack of delivery in Bangui is estimated at:

Purchase price CFA f	6,000
Transport	2,000
Handling	400 (Sarh and Bangui)
Taxes	1,500
T o t a l	CFA f 9,900

Since some peanuts are being shipped, traders are cutting corners somewhere (underpaying taxes or holding the purchase price down). Still, all traders admit that their real business is based on the storage of peanuts for sale when the prices rise at least to CFA f 12,500 to CFA f 15,000, perhaps reaching as high as CFA f 25,000 a sack in Bangui (February - May).

In Moundou, prices were also lower this year compared to last year, as a result of the low demand: CFA f 5,000 for a 100-kilo sack in August 1993 compared to CFA f 8,000 for the same sack in August 1992 (BEAC survey, Moundou, 8/93).

Brokers and Traders

The broker is an important element in the export trade. His activities consist of receiving money from several traders to purchase and store peanuts on their behalf, against a commission; he also stores in anticipation of seasonal price rises. The traders are Chadians or clients from Bangui or Brazzaville. The broker usually operates one or several warehouses that contain the stock of peanuts that he buys in large quantities in the early markets (November-

December). The peanuts (and other products) are in part held for sale as late as June when prices are highest. The broker deals in volume: The largest broker in Sarh can ship up to 3,000 hundred-kilo sacks of peanuts a month (to both Bangui and Brazzaville) for nine months out of the year; he also trades in other commodities such as cereals, oil and oilcakes.

Brokers are not in general exporters, but rather buy and stock peanuts locally as agents for traders who are based in Bangui or Brazzaville. There are also traders operating out of Sarh; some of these buy from brokers, while the larger operators will also buy peanuts directly from producers. Women traders are deeply involved in the peanut trade between Sarh and Bangui. At least twelve women based in Sarh and Bangui, who regularly do this type of commerce, have been identified. Others are based in N'Djamena and trade directly from there. Chadian women traders are also based in Brazzaville and come regularly to Sarh to buy peanuts for sale in Congo (mainly Brazzaville). These traders only carry moderate quantities of peanuts and other products during a limited number of trips (a maximum of 1,000 hundred-kilo sacks for a maximum of six trips per year).

Small and medium-level traders, both men and women, appear to carry the bulk of the peanut trade from Sarh to Bangui. It is virtually impossible to get an accurate estimate of the volume of peanuts carried south in small loads (a few sacks at a time), as this passes unnoticed by municipal and customs officials. Medium-level traders, as represented by the women whose operations are described in the previous paragraph, move most of the peanuts purchased and stocked by brokers. A rough estimate would be that this trade represents about 40% of the total to Bangui and Brazzaville, while the small trader may be another 20%.

There are also a few more important trading operations. Perhaps the largest export business in Sarh is actually a complex of businesses run by a single family. Adoum Moussami is a major trader in Sarh who ships peanuts and onions to Brazzaville; his brothers assure the business at the Congo end, which takes produce as far as Pointe Noire and to Gabon. Hadje Fouda, his wife, is also a well-known peanut trader. Overall this operation moves more than 13,000 sacks of peanuts a year.

Mamadou Hissène, another major trader based in Sarh, owns his own trucks and ships peanuts (as well as other produce) to the CAR, the Congo, and to Cameroon. Since this trader is also in the hardware and building-supply business in Sarh, the trucks come back loaded with wood from Bangui or cement from Cameroon. He shipped 20,000 sacks of peanuts last year, as well as other produce. His is the only operation of its kind based in Sarh, but there are traders who combine the trucking business with export trade based in Moundou as well.

Although these large traders are few in number, their role in the export trade is important. The two operations mentioned here, between them, account for close to 15% of total peanut exports estimated for last year. As a whole these large traders, based in Moundou and other centers as well as in Bangui and Brazzaville, may account for as much as 40% of the trade.

Taxation

Peanut exports are subject to fairly stiff taxes. Official taxes on a 100-kilo sack of peanuts for export are as follows:

Ad Valorem taxes:

Droit de Sortie (DS):	3% on value
TCA/Export:	3% on value
Research Tax:	1% on value
Taxe de Conditionnement:	0.5% on value
Statistical tax:	1% on value

Sub-total: 8.5% on value

The tax rate itself is not onerous, except that one might bring into question the principle of levying **any** tax on exports and particularly those destined for countries in the UDEAC. **However, the tax becomes prohibitive because of the unrealistic base price** which is used for calculation. Customs in Sarh assumes a value of **CFA f 30,000** for a 100-kilo sack of peanuts. The Moundou office formerly used this rate but has reduced the base value to **CFA f 10,000** this year. These rates were intentionally set high at a time when Cotontchad was producing peanut oil and the government

was trying to ensure that a sufficient supply of peanuts was kept in Chad for this industry. Given that the real price of a sack of peanuts is between CFA f 4,000 and CFA f 6,500 on the local market, a trader is faced with the possibility of paying CFA f 2,100 in taxes on a CFA f 4,000 sack of peanuts, and without any current guarantee that further illicit taxes will not be taken along the road. Not surprisingly, traders systematically avoid the tax (records of the customs office in Sarh show that only 25 sacks of peanuts were declared for export in 1993).

In the opinion of the head of the customs office in Sarh, traders would like to regularize their relations with customs but cannot afford to do so. The argument is supported by the fact that traders do regularly declare their shipments to the municipality and are willing to pay the more reasonable municipal tax. The Sarh customs office has several times formally requested that the base price for the peanut export tax be brought into line with real prices, but without success.

Municipal tax

The Mayor's office in Sarh monitors peanut shipments at the market and levies a tax, which is CFA f 500 a sack. Both the Mayor's office and the traders admit that the number of sacks per load is generally undercounted by about one third. Nonetheless, most shipments are registered before departure, and their destination is recorded.

Transport costs

Transport costs are high, reflecting both the economic conditions of truck operation in Chad and the various taxes imposed on truckers. Legally, a trucker must declare the value of his load and pay several taxes to the *Bureau National de Frêt* (BNF) before even leaving Sarh. BNF charges are: 3% value tax; 1% BNF overhead; and 10% *Caisse Autonome d'Amortissement*, for a total of 14% of the value of the load.

² This last is a contribution to a national fund for road building and maintenance.

The transporter is responsible for a number of other charges. These include *laisser-passers* for the driver and two apprentices (CFA f 3,000 each); CFA f 10,000 administrative fees between Sarh and Sido (5 legitimate stops); CFA f 50,000 in bribes between Sido and Bangui; and a number of required expenditures in Bangui: pont mobile PK12 (CFA f 40,000), BARC (CFA f 16,000) - plus an estimated cost of CFA f 54/Km ton operating costs. By this estimate it would cost CFA f 1,144,980 to run a 30 ton truck between Sarh and Bangui; or, at CFA f 2,000 the sack for peanut transport, 572.5 sacks loaded just to break even³. To truckers the down-time - time wasted in dealing with barriers on the road, and in seeking out and loading a load in Bangui - is just as onerous for the trucker as the costs themselves.

An additional problem is insecurity on the roads. Trucks are threatened and occasionally shot at between the CAR border and Bangui.

Advantages of producing peanuts

Economic advantages are the most important advantages, as far as the study is concerned. At the farm level, the total area used for growing peanuts varies between 60,000 ha and 100,000 ha for the Sudanian region (ONDR). This is, according to the same source, more than the area planted in cereals (50,000 ha to 70,000 ha) and about one-third to half of cotton growing areas. Although peanuts grow in association with other crops, it involves a significant proportion of the rural population of the Sudanian zone (1.9 million inhabitants). With falling cotton prices, farmers have shifted from cotton production to a greater emphasis on peanuts. This aspect is important at a macro-economic level in a time of increasing trade balance deficit, as a result of falling cotton prices (the trade balance deficit went from CFA f 18.5 billion in 1991 to CFA f 21 billion in 1992 and to CFA f 32 billion in 1993). Sustained peanut exports to the region can help to reduce or limit the deficit.

³ Transporters commonly load a 40-ton truck with 550 to 600 sacks. 600 80-kg sacks (48 tons) is the limit of a truck's capacity.

There are other advantages to be derived from encouraging peanut production. Peanuts contribute significantly to the daily diet, being high in protein and other nutrients. An estimated 40% to 60% of peanut production is consumed by the producer or sold within Chad. It would be interesting to find out whether, as production increases, the quantity of peanuts entering into the local diet also increases - particularly in the south¹.

Peanuts have very good potential as a basis for transformation industries. Peanut oil is already produced artisanally by women in the South. It requires two koros of peanuts to produce one liter of oil; at this rate, a woman can extract 20 liters of oil from one 100-kilo sack of peanuts. With one liter of oil sold at CFA f 250-300, a woman can make between CFA f 5,000 and CFA f 6,000 per sack of peanuts. Given that women transform the peanuts they produce themselves or negotiate the purchase of peanuts at a minimum price (i.e. CFA f 3,000 per sack), they add 40% to 50% value to the commodity. Sales of oil and oilcake (for human food and animal feed) also contribute significantly to the income of women throughout the producing regions. However, further investigation is needed to determine with more accuracy the economic efficiency - production and opportunity costs - of transforming peanuts into oil.

This peanut oil is an important product from the Kelo area as well as from Sarh, and it is sent in great quantity to Cameroon. Surprisingly, oilcake is one of the few commodities that is still shipped in volume to Nigeria, through N'Djamena. Peanut oil can also be produced industrially. Cotontchad has made peanut oil in the past, but was not able to do so profitably.

Peanut production is generally considered to be beneficial for the soil, particularly in contrast to cotton monoculture, as peanuts are nitrogen-fixing plants. The former Director General of Agriculture however cautioned that poorly managed peanut cultivation can itself be damaging, as shown by experiences in Senegal and Nigeria. Any monoculture, even peanuts, will deplete the soil. Moreover, abusive use of chemical fertilizers is damaging.

¹ Estimates by the DSA would suggest that this is the case (see Table 4, page 22).

Finally, peanuts are harvested by turning over soil and plants after the rains have stopped. This leaves the fields vulnerable to severe wind erosion.

Constraints

1. Taxation

A truck-load of peanuts leaving Sarh or Moundou is, in principle, taxed by the Municipality, the customs and the Bureau National de Frêt. In addition, there are legal and illegal taxes levied along the route. There are five official stops between Sarh and the CAR border alone. Trucks will also be stopped at unofficial barriers several times along the same route.

Unofficial taxation for a truck transporting 300 to 400 sacks of peanuts between Moundou and Bangui are about CFA f 120,000 to CFA f 130,000 as of December 1993. These amounts are about 20% lower than CFA f 150,000 to CFA f 200,000 charged before April-July 1993 (Conférence Nationale and related decree). Estimates of the cost of getting a load of peanuts from Sarh just to the CAR border range from CFA f 15,000 to CFA f 50,000 per load (Dec 1993).

2. Inefficiency

Besides the money paid, a lot of time is lost. For example, there are some 15 control barriers between Sarh and Bangui (5 official and 10 unofficial). Under normal conditions, shipments of peanuts leaving Sarh take 4 days to reach Bangui. In Bangui, 1 to 2 days are needed for formalities and transshipping. A further 7 days are needed to ship the produce from Bangui to Brazzaville by boat. Shipping costs on the boat are CFA f 2,500 a sack. On average, truckers believe that 12 days turnaround time for a vehicle sent to Bangui, 20 days for Brazzaville, have to be calculated.

Traders say that people at customs do not really know what the rules are and therefore time and money are lost. Exporters complain that they do not get any receipt for taxes paid.

3. Lack of credit and financing

This problem is stressed by all peanut exporters, regardless of the volume of their trade. In the Pala region traders say they often lack capital to finance travel to regional markets where prices are lowest and take advantage of these prices. Nor can they always buy in the quantities they would like to have. The presence of Cameroonian traders that finance local transactions preceding exports seems to corroborate the fact that lack of capital for the traders is a real constraint.

Traders also complain that banks do not readily give credit for export. In those cases where some credit may be available the interest rates are too high (the BIAT charges up to 23% a year).

Producers and small-scale traders are particularly affected by the lack of credit. Producers are forced by the need for cash to sell at harvest when prices are lowest. Small-scale traders often face the same urgent cash need, and cannot hold peanuts long enough to gain the full benefits of seasonal price rises. For this reason, the production and small-scale trade of peanuts are often perceived as businesses with low returns despite the potential for profits.

4. Transport costs

High transport costs are also viewed as a constraint by several peanut traders. Small traders complain because transport fees paid to the trader also include illegal taxes. For instance, as of December 1993, the average amount paid per sack of peanuts for transportation between Moundou and Bangui was CFA f 2,500 (or CFA f 2,000 between Sarh and Bangui). This amount includes illegal taxes paid by the trucker and indirectly charged to the exporter.

Truckers for their part claim that the costs and risks they have to assume are too great, and that the margin of profit is too small. A trucker taking a load to Bangui from Sarh cannot afford to come back unless he gets a return load, and his margin of profit depends on that load. Legal charges and paperwork are complicated and expensive, and a Chadian driver is subject to a succession of illegal barriers on the CAR side. It is estimated that a driver needs at least CFA

f 50,000 today to cover illicit taxes on the trip, where CFA f 3,000 was enough in the 1970s.

5. Storage problems

Some traders complained about insects that destroy their products and expressed the desire to receive help to improve conservation. Storage losses are a particular constraint to producers and to small entrepreneurs who would like to hold local produce until prices rise, thus capturing some of the added value for the local economy.

A different kind of storage problem was observed at Bangui Sembo market. Storage space there is controlled by a few owners who have fixed prices at an excessive level - CFA f 300 per day per sack. This high cost is then reflected in sales prices, which hinders demand to some extent.

Conditions for the business of exporting peanuts

The overall constraints related to transport have forced traders to develop strategies to reduce costs. A major peanut exporter from Moundou told team members that the truck he uses to transport peanuts to the CAR must return with products of that country to be sold in Chad. This is the only way for the business to be profitable. Transport of export products to the CAR takes place six to seven times per year on average and normally the exporter travels on the truck. Import goods such as chairs, baskets, pots, kitchen utensils, etc. are purchased in the CAR and transported back to Chad on the same truck. This is not an isolated case and other exporters of the Moundou area do the same. Interviews with women traders of the Sarh area that frequently travel to CAR revealed that they must buy merchandise in Bangui to sell in Sarh if they are to turn a profit on a trip. Large traders of the Sarh area owning trucks do the same. Most of the large traders in the Sarh region trade in some combination of peanuts, onions/garlic and millet.

Cameroonian traders who come to Chad to buy agricultural products also bring rice, flour and clothing that they sell in Léré, Fianga and Pont-Carol. The traders are generally well organized for the transport. Several small traders

usually rent a truck together and make sure that the truck is full on the return trip as well as the outgoing.

It seems that transport of agricultural export products (particularly peanuts) cannot work without the complementary transport of imported goods. Traders have well understood this complementarity and have developed their activities around a combination of export and import trade. This helps to reduce transport costs and further serves as a strategy for both trader and transporter to reduce risks.

The production and export of peanuts have a good future because of the level and stability of external demand in the region. However, this export potential for peanuts is realistically limited to regional markets (the CAR, Cameroon, Congo, and Zaire). The world market is extremely competitive and there are several producer countries in Africa alone which are better placed to sell their peanuts than Chad (Senegal, Egypt and the Gambia; cf. Annex I, table 7).

1.2 Sesame

Originally from Asia, sesame is cultivated in both the Sahelian and the Sudanian regions (Batha, Chari-Baguirmi, Guera, Ouaddai, Mayo-Kebbi, Logone occidental, Logone oriental, Tandjile, and Moyen-Chari). The growing season is between June and September, and from September on the product is marketed. Yields are about the same for the two regions (250 kg/ha to 260 kg/ha). Sesame has a short production cycle of a maximum of 70 days and is cultivated in association with other crops. Farmers grow sesame in Chad as a low cost secondary crop that is not demanding of time, effort or inputs (fertilizers).

Total sesame production went from about 11,500 tons in 1985-1986 to about 13,000 tons in 1991-1992. In 1992-1993, total sesame production was about 16,000 tons of which 80% came from the Sudanian zone. Production is limited, representing only 0.6% of the world production in 1991 (Annex I, table 8). However, production can be expanded to meet any international demand.

Table 6: Sesame Production, 1990 - 1993

	90-91	91-92	92-93
Production	10,133T	13,270T	16,325T

Source: Min. of Agr., DSA

Some 20% to 30% of the yearly sesame production is traded and 10% to 15% is exported (estimate of the Ministry of Agriculture and Environment). Exact export figures are however not known. In any case, Chad is **not** among the world's first 20 exporters (Annex I, table 9).

The vice-president of the Chamber of Commerce in N'Djamena believes that about 5,000 tons of sesame are exported. Virtually all exports of this commodity go unrecorded by the institutions that monitor the formal trade sector. Most sesame is shipped in modest quantities as part of mixed loads of goods destined for neighboring countries. Only a few attempts have been made over the years to export sesame in large shipments to markets outside the region.

The export trade in sesame originates mainly in the southwest of the country. Sesame is considered to be the most important export commodity produced in the Logone oriental/occidental regions after peanuts. Exports are shipped from Moundou to Nigeria, the CAR and Cameroon. Sesame exported to the CAR and Cameroon is normally shipped together with peanuts.

The CAR does **not** appear to be a major importer at this time, although this trade has been more important in the past. According to informants in Bangui gourd seed has replaced sesame in the preference of CAR consumers. Much of the gourd seed is produced locally or imported from Zaire.

cotton fertilizer) each raised yields by a third to one half.

If they are to compete on world markets Chadian producers also need to improve the quality of their product. Different markets around the world each have their own preferences as to the grade and color of sesame required, but in each case a trader must be able to provide a reliable supply of clean product of uniform size, grade and color. World markets do not readily accept mixed lots of different color or size, which bring very low prices at best.

Several attempts to promote Chadian sesame for sale abroad have failed because producers here mix varieties in the fields and at harvest. The MAE tried to promote production for export in the early 1990s; one of the problems they encountered was that farmers did not readily understand or accept the need to standardize their production. Standardization appears to have made some progress since that time: sesame for sale in the N'Djamena market in January of 1994 was sorted according to color in many cases (sacks of red and of brown sesame separate) although other sacks contained mixed black, white and brown seeds.

2. Constraints related to the business environment

The Chadian business community is still tentatively exploring the potential sesame market. There have been inquiries from possible buyers in the Middle East and in Europe, but only one substantial deal has been tried so far. Traders interviewed seemed to have a few contacts, but no real overview of the world market for sesame or of possibilities outside the Mediterranean region.

One problem always cited is financing. Exporters believe there is a demand, and that Chad has sesame to sell. A trader would have to finance purchases in anticipation of orders or of payment on delivery. Few traders have this capital, and banks are unwilling to lend for export or the rate of interest is exorbitant.

It is also true that only one trader has so far tried to organize a buying campaign (Artine interview). This 1990 campaign, which was directly financed by the President's office after no other credit source could be found, ran into several difficulties. Buyers were not able to find as much

sesame as they hoped for. A further problem was quality control; the purchased product was not export grade and had to be cleaned and sorted, considerably delaying shipment. Finally, 37 tons were shipped belatedly to Europe. The buyer's letter of credit had expired and the trader concerned has not been paid (1990 to date).

The MAE suspended its efforts to promote sesame as an export crop in 1992 because the price of sesame on world markets had dropped to levels which no longer justified the effort. Over the past year both Chadian traders and foreign buyers (notably from Saudi Arabia) have shown a renewed interest in Chadian sesame. It may be, then, that demand and prices have recovered enough to justify a new effort to develop sesame exports.

Sesame oil and by-products

Sesame has a high oil content (over 50%), and this oil is easy to extract even by artisanal methods. Sesame oil has a distinct but palatable flavor, and it stores well over long periods. The FAO (1990) notes, however, that most sesame oil produced in a given country is generally consumed locally; the oil is not a major trade commodity.

Sesame cake, left after pressing the oil, is high in protein and minerals and can be used for food as well as for animal feed. Defatted sesame flour is also an excellent source of protein, which complements peanut and soy flours in high-protein food supplements. In India, sesame cake is sometimes used as fertilizer.

Environmental and social impact

Sesame appears not have much impact one way or the other on the environment. In regions where sesame is most extensively grown in Chad, this crop serves to diversify agricultural production in rotation with cotton and peanuts.

Although sesame is grown in some of the Sahelian regions this is primarily a crop of the southern savannah zone (over 4/5 of production). The economic impact of a successful campaign to promote this export would be felt extensively through much of what is now considered the "cotton zone".

In countries such as Burkina Faso (Djigma, 1985) sesame has been promoted precisely because it is a crop which grows well under the same conditions as cotton and even responds well to the same fertilizer used in much smaller doses than for cotton. Since diversification and the reduction of dependence on cotton is one of the strategies that Chad is pursuing, sesame can make an important contribution.

Sesame is not a crop particularly associated with either women or men. Many of the traders now exporting sesame to neighboring countries, and several of the N'Djamena traders (Kolingar, Hachim) who have expressed interest in world markets, are women.

1.3 Onions and garlic

Onions grow in the prefectures of Mayo-Kebbi (Binder area), the Ouaddai and Kanem; and around Lake Chad and N'Djamena. Garlic is cultivated for export in the Ouaddai only.

Ouaddai

The Ouaddai is the most important onion and garlic production area of the country. In 1990 onion production was at least 24,000 tons (ONDR) and possibly as much as 40,000 tons (Africare); garlic production was probably between 5,000 tons (ONDR) and 8,000 tons (Africare and other sources) in 1990. Some 12,000 producers grow onion and garlic in the region.

Ouaddai onions and garlic are small, dry bulbs which are strong in flavor and which store well. Because of their qualities these onions and garlic are in strong demand in all the coastal countries of Central Africa, where conditions do not favor the production of these crops.

The dry climate of the Ouaddai and the presence of accessible groundwater in and near seasonal river beds favors the production of onions and garlic in the dry season (October to March). Ouaddai farmers have perfected cultivation techniques to produce the dry, concentrated "Abéché onion", which is recognized throughout the region. For many producers this is the principal cash crop; income

from onion and garlic in 1990 was on average over CFA f 100,000 per household for producers surveyed by Africare (West, 1991).

The same conditions exist over a much larger area in the Ouaddai region than that which now produces onions. The principal constraint to expanding production is access to markets; the onion and garlic trade is largely confined to Abéché and a few nearby markets because of the lack of good roads in the region.

Binder

The Binder area has been involved in the production of onions for several decades, and it has become more and more important in the last few years. The increase in production occurred because of an increase in the demand from the CAR and Cameroon (Yaoundé in particular). About 40 villages in the area (there are 52 villages in the Binder area) are involved in the production of onions. In each village, there is an average of about 20-30 onions producers (about 800-1,200 producers in the area). Each unit produces between 50 and 200 hundred-kilo sacks a year. The yearly onion production of the area is estimated to be 15,000 to 20,000 tons. As many as 4,000 hundred-kilo sacks of onions leave the Binder area every week between November and June (source: Customs office in Binder). Most of the onions are sold outside the country.

Export markets

The MAE has been aware since at least 1988 that Congolese traders were interested in purchasing Chadian onions and garlic because of their good quality. Demand is strong enough to justify shipping produce by air freight in the *rupture*⁵ period of January and February, and from April through June when southern roads are impassible. Onions are also sent to the CAR. Informants in Bangui indicate that the market in this country is largely confined to Bangui, with onions considered a luxury food in rural

⁵ Low-water periods when river transport from Bangui to Brazzaville is not possible.

areas. Moreover, the main source of demand appears to be the community of Chadian expatriates living in Bangui. This is, however, not a negligible market; 50% of the population of Bangui may be Chadian, and 600,000 to 800,000 Chadians live in the CAR as a whole (out of a total population of 2.8 million).

In 1990, 282 tons of onions and garlic were exported by air freight from N'Djamena to Central Africa (Bangui and Brazzaville); in 1991, 396 tons of the same products were exported to the same area (source: Air Afrique). 141 tons of onions alone (no figures are available for garlic) were shipped in 1992 and 195 tons of onions in 1993. It costs CFA f 16,000 to transport a 80-kilo sack of onions from N'Djamena to Brazzaville (CFA f 200/kilo), but the price of onions in the Congo will reach CFA f 30,000 at these times. The Air Afrique manager indicates that during these periods the company finds it difficult to meet the demand of onion traders wanting to transport 10 to 15 tons a week.

Onions and garlic also transit through Sarh, following the Bangui trade route. These are not local products and come mainly from the Abéché region. Abéché garlic shipped through Sarh to Bangui and Brazzaville will often be sold as far away as Angola and Zaire (also traders from Kinshasa come across to buy it in Brazzaville). There is also a good potential market for garlic in Gabon where a 100-kilo sack that costs CFA f 5,000 in Abéché sells for up to CFA f 100,000. Traders in the Sarh region have confirmed the importance of the Gabon market.

Onions shipped to southern markets come primarily from the Abéché area (70%). Binder provides the remaining 30%.

While the air freight of onions and garlic is a strong indicator of demand, the much larger volume of produce travels overland to Bangui where it is sold or sent to Brazzaville by boat. Moundou is a transit point for onions from Abéché to the CAR while onions from Binder are marketed in Léré where they are sold and transported to Bangui and points south. Between December and March/April, an average of 60 tons of onions (about 600 hundred-kilo sacks) are transported weekly to these destinations. The traders are not from Léré and may be the onion producers themselves; they travel with their crop on the trucks. When they return

to Chad, they bring wood and furniture (from the CAR) to be sold on the Chadian market.

The season for export of Abéché onions is relatively short: October to January. Sarh traders may make 2 trips a season to Bangui with onions, garlic, and some tomato powder and peppers. Through December of 1993 close to 1,000 sacks of onions and garlic had already been shipped. In Bangui the onion dealers go to the Sembo market at Kilometre 5, where there is a depot.

The transshipment of onions in Sarh is handled by specialized traders in the Sarh central market. Several of these traders buy onions and garlic coming from Abéché in bulk, trading them wholesale and retail in the market. The commerce seems to be associated with a general retail vegetable trade, including dried tomato powder, ginger, spices, okra and the like. Most of the onions discharged at the Sarh market are for local sale (many others just transit without unloading), but 3,000 to 4,000 sacks a year are shipped from Sarh to Bangui (1 in 5 of sacks arriving).

By and large these traders did not cite any particular problems with their commerce to the CAR except competition. Demand is generally strong for this product in the southern countries.

Imports recorded by the customs office in the Bangui terminal market indicate that 1993 may have been an exceptionally bad year for onion imports to the CAR. Since these are partial figures, based only on recorded imports, this data suggests that imports in the past have been **higher** than the estimates of traders in the Sarh market.

Traders in Sarh believe that after January, in CAR markets, Chadian onions compete with and eventually are replaced by onions shipped from Sudan. These last are apparently cheaper and packed in larger sacks, although they are not the small dry onions said to be preferred by buyers. Late in the season Abéché onions are not as readily available and are apparently not shipped south in large numbers as Sudanese onions become available.

Table 7: Sacks of Onions Recorded Entering Bangui Market from Chad

Year	1991	1992	1993
Onions	4,562	4,014	1,454 (Jan. - Aug.) 2,181 (Year*)
Garlic	595	321	

100 kg sacks

* Extrapolation from records of first 8 months.

Source: Customs office, Bangui

Informants in Bangui did not mention onions from Sudan, but did say that imports of Chadian onions are meeting competition from cheaper onions brought in from Cameroon. It is not clear, however, whether these are in fact Cameroonian onions or whether they are Chadian (Binder) onions imported through Cameroon by Cameroonian traders (Motoba, Guidimti interviews).

The wholesale onion market in Brazzaville is controlled by some dozen Chadian traders, eight of which are women. This is an extremely active market and the traders travel regularly to Chad in order to carry out their transactions. The traders themselves are not organized and face problems with packing and quality control.

Customs officials in Moundou claim that the Yaoundé market is more important than Bangui for onions shipped from that region. Cameroonians also come directly to Binder to buy truckloads of onions for resale in Cameroon. This information is, needless to say, unsubstantiated therefore should be used with caution.

Prices

Prices vary considerably during the year as a function of supply and demand. Transport costs and illegal taxes are important factors in the price of onions, particularly from Abéché, at major export markets. Traders bringing onions from Abéché sometimes pass through Am-Timan on the way to

Sarh and Bangui in order to avoid taxes imposed in N'Djamena.

Because onions are a seasonal and perishable commodity the price fluctuations are greater than for many other export products. In Binder a 100-kilo sack cost CFA f 13,000 to CFA f 15,000 in October before the harvest, while it is about CFA f 1,500 to CFA f 3,000 in February and March when the supply is at its maximum. As of December 10, 1993, market price of a 100-kilo sack was as follows:

Binder	CFA f 8,000/9,000
Léré	CFA f 10,000/12,000*
Moundou	CFA f 13,000/15,000*
Bangui	CFA f 25,000/30,000*

* includes transport costs from previous point and profit of trader

6,491 sacks of onions and 6,558 of garlic were shipped to Bangui and to Nigeria from N'Djamena's Dembé market in a one-month period (December 1993; Annex I, table 10). This would represent only produce coming from Abéché that was routed through the N'Djamena terminal.

Constraints

1. Financing

Lack of access to credit and limited operating capital are the main difficulties cited (mainly by traders in Sarh). Competition from Sudan is also perceived as a constraint by some traders.

2. Losses in storage and transport

In order to benefit from higher prices, producers stock as much as 50% of production and sell the onions gradually. Storage losses, according to traders, are important; they can reach as much as 15% of quantities stored.

There are also transport losses but they are less important than storage losses. For example, between Binder and Moundou, 2% to 3% of onions transported are lost due to poor ventilation.

3. Transport

Roads are very bad between Binder and Léré. Onion producers in the Binder area had to collect money among themselves (CFA 100 f to CFA f 25,000 per producer) to repair the roads, particularly the roads that bring outside buyers to the villages.

As noted above, the lack of roads limits the production areas around Abéché as well. Due to road conditions, it is particularly difficult to access domestic as well as export markets from Abéché, during the rains and for some time after they end.

Onions from the Abéché region which are destined for southern markets must travel very long distances over bad roads no matter what the time of year. Since Chadian transport costs are extremely high even before the costs of legal and illegal taxes are added on, transport becomes a major component of the costs of Ouaddai onions in the CAR and the Congo. There is some evidence that onions from closer sources, possibly including onions from other producer regions in Chad, may be able to supplant Abéché onions on the Bangui market. This may happen even though consumers prefer the drier, stronger Abéché onion. The main reason would be that transport costs have priced the Abéché onion out of the market.

Lack of credit is another obstacle for traders. Although less significant, there are also problems due to the shortage of fertilizer and other inputs, and the absence of training and extension and assistance for the producers.

Prospects

The onion and garlic production sub-sector in the Abéché and Binder areas is extremely dynamic. It has developed in response to domestic demand and has been able to grow to meet the considerable demand for Chadian onions and garlic throughout coastal and tropical central Africa. The demand for onions and garlic, which has become important in the diet of people throughout the region, is likely to remain strong and to grow with population and economic development. Chad is very well placed to maintain and even increase its share of the market. Onions and garlic do not grow well in

more humid regions. Moreover, even among the onions and garlic shipped by other Sahelian countries, Chadian produce stands out and is recognized and preferred by buyers.

2. SPECIALTY EXPORT PRODUCTS

This second category of export products includes commodities with a limited role in domestic or regional consumption, but which have a great potential for export development. In most cases this potential is in the developed world, so that these products may eventually bring hard currency into the country. Equally important, they often have industrial applications which may eventually serve as inputs for industry in Chad.

A considerable effort would be necessary to develop any of the following products to the point where Chad could be a serious competitor in world markets. The entire production and marketing structure of each product would have to be revamped to meet the requirements of a demanding Western market. The experience with gum arabic shows that such an effort can bring excellent benefits to the country.

2.1 Gum arabic

Gum arabic, first used by the Egyptians, is the gum exudation of the acacia tree which grows in most African countries of the Sahel. It has various industrial uses in the textile and soft drink industries, in printing and in the preparation of pharmaceuticals and cosmetics.

In Chad, the acacia tree (*acacia senegalais*) is present in the prefectures of the Ouaddai, Biltine, Batha, Salamat and Guera. After the recent droughts, the acacia trees have spread to the prefectures of Chari-Baguirmi, Lac and Kanem. To date, only 5% to 10% of the trees which might be tapped are exploited (Mallot, 1993).

Chad is, after Sudan, the world's second-largest producer of gum arabic. Official statistics show that Chad exported 4,687 tons of gum during the 1992-93 campaign and about 3,500 tons per year the previous years. Interviews with gum

traders and data obtained from the Dembé truck terminal revealed that a further unknown quantity of Chadian gum is exported by the informal sector to Nigeria and some possibly to Sudan.

Chad produces and sells 3 grades of gum:

1. The first grade gum or "Kitir". The kitir is comparable to the Sudanese gum "Kordofan" and constitutes the best quality of gum available in the market. It is highly appreciated in the world market and its demand (50,000 tons per year) is almost always superior to supply.
2. The second grade gum or "Talha". This grade is of lesser quality. Its yearly world demand is about 30,000 tons and is generally inferior to supply.
3. The third grade gum or "Am-sinéné". The Am-sinéné is a low quality gum and is less demanded in the world market.

Several Chadian trading companies are actively involved in the gum trade, often working as agents for European companies. Apparently the entrepreneurs in the business are more likely to be Nigerian, sometimes Cameroonian (Artine interview). Chadian entrepreneurs have been squeezed out by the European agents and the Nigerian traders, both of whom have been able to bid purchase prices up to levels at which Chadian traders can no longer make a profit (Djallal interview). Chadian traders who remain active on their own account are usually those whose main commerce is in gum from plantations of their own (Kolingar interview).

Main world consumers of gum are: Europe (37% of world production); USA (22%); Japan (6%); and Scandinavian countries (7%). Chadian gum is regularly exported to France, Germany, Great Britain, the Netherlands, India, Greece, Nigeria, and the CAR (Mallot, 1993). The Air Afrique freight manager in N'Djamena indicates that for the gum Arabic campaigns of 1991-1992 and 1992-1993, 200 tons and 240 tons of this product were respectively exported to France by air freight. For 1993-1994, volume of exported gum arabic by air freight is expected to almost triple to about 700 tons according to the same source.

A large volume of gum arabic also leaves N'Djamena (Dembé truck terminal) for Maiduguri in Nigeria (Annex I, table 10). In a one-month period (December 1993) 11,310 sacks (over 1,000 tons) of gum were recorded going to Nigeria. Since most Chadian traders ship by sea through Cameroon, this is further evidence of the activity of Nigerian traders in the sector.

Prospects for gum arabic

World demand for gum arabic is estimated at 70,000 tons and remain unmet. The two main producers, Sudan and Chad, export 13,000 tons together. This justifies the high per ton price that gum Arabic commands: \$3,500 FOB Lagos seaport, \$4,000 FOB European seaports (Mallot, 1993).

Chad's gum production potential is underutilized; currently, about 60% of its gum fields remain to be tapped. The country should be able to triple the volume of its actual production with some effort and investment. With similar attempts, Chad could subsequently triple exports of the material through the formal sector by year 2000 (from 3,500 tons to 10,000 tons).

Much of this increase could be made up simply by ensuring that gum produced in Chad is also shipped to principal markets from this country. Two types of trade, largely unrecorded, take place through the Nigerian route. Gum is exported along this route by both Nigerian and Chadian trader. Indeed, in the last year, Nigerian purchases appear to have increased substantially. Informants say that even in a normal year the volume exported through Nigeria by both groups may equal or exceed that which is sent formally from Chad to world markets.

A thriving gum export sector could also become the basis for developing industries based on gum production. Gum from Sudan, for example, is sorted, cleaned and prepared in factories in that country. This allows exporters to ensure the quality of the product and also raises the value of the gum on foreign markets.

Constraints

Of all the products studied in this paper, gum has probably the best production and commercialization structure. However, there exist several factors that impede Chad's capacity to produce and efficiently export this product. Some constraints are:

1. Difficult access to some producing areas. The lack of adequate communication infrastructure in Chad makes it difficult for producers and buyers to establish contact and to move their products.
2. Lack of technical and training support to producers. The majority of gum producers use artisanal and often tree damaging techniques to produce gum. These producers need training to improve production, and the quality of the product.
3. Lack of organized marketing and export structures. Gum exporters generally operate individually and are not informed of opportunities presented by markets outside France.
4. Overtaxation (authorized and unauthorized). Several gum exporters complained about export taxes, and illicit taxes imposed both on exporters and producers.
5. Chad's land-locked position. This particular situation greatly affects transportation costs and reduces the competitiveness of Chadian gum vis-a-vis that of its main competitor, Sudan.

Furthermore, important price fluctuations are noted in the Chadian market this year. These fluctuations are attributed to the highly visible Nigerian presence in the market. There is unsubstantiated information that because of the devaluation of the CFA currency, Nigerian exporters are anxious to spend the maximum possible of CFA francs they have on hand. As a result, they are ready to buy Chadian gum at any price (interview with Kolingar). Additionally, Nigerian exporters apparently mix different grades of gum and sell the inferior product as "Chadian" gum. Domestic producers and traders have an interest in gaining control of this trade to ensure the reputation for quality of gum from Chad.

2.2 Hibiscus (*karkandjé*)

Sudan, which has a government-organized production and marketing program, is the principal world source of hibiscus. This product is however produced in all the Sahel countries, in North Africa and in the Middle East. Chad produces a small amount of hibiscus which is traded within the country and to neighboring countries.

Hibiscus is of interest because women are the principal producers **and** marketers. Also, it is a widely-grown crop which is well suited to Chadian conditions. The regional market is significant, but this trade depends on low prices and brings little return to the producer. Trade to Europe and the Middle East could have a much greater impact on the Chadian economy, if Chadian hibiscus were to become competitive. This depends largely on reduction of transport costs. Exporters also say that the supply is unreliable, and quality uneven (Kolingar, Djallal).

Small quantities of dried hibiscus are regularly transported to Brazzaville (source: Air Afrique). Small quantities of dried hibiscus are regularly exported to the CAR and to Cameroon from the Moundou area and from Sarh (*chef de douanes*, Kelo; trader interviews, Sarh).

Prospects

There is a world market for hibiscus, as well as the regional and local markets already noted. Several local entrepreneurs have investigated the European market but have found that export is not profitable under prevalent conditions. Hibiscus is sold by weight, but it is a bulky, low weight product. Transport costs are prohibitive, and particularly at the very high Chadian rates.

2.3 Algae

Blue-green algae (*spirulina*) grows in natron-rich pools in Lake Chad and in the *ouadis* of the Kanem. The algae is collected by artisanal methods, and enters into the traditional cuisine of these regions. Some trade, including export to neighboring countries, is largely directed to emigrants from the region living in urban centers.

Spirulina is increasingly in demand in Western countries, where it is used in health foods, and in Japan where it is a prized food coloring. Interest in Chadian algae is sufficient to have encouraged several entrepreneurs to test the European and American markets by contacting buyers and sending samples (Djallal, Whitehouse); also, foreign specialists (including a World Bank study team) have come to Chad to look at the prospects for this industry. France is funding a development project in the Bol region, and private funding is financing an experiment in algae cultivation outside N'Djamena.

To date this industry is more promise than reality. Algae collected at the lake by artisanal methods is not suitable for the world market; samples are contaminated by sand and by coliform bacteria indicating fecal pollution.

Traditional algae collection is a gathering activity undertaken by women in the Lake region. The methods are tiring and even harmful to participants, so that collectors harvest only as much as they need for consumption and a small level of trade. No effort is made to stimulate algae growth, so that collectors are really harvesting an exhaustible natural resource.

Algae appears to have real potential as an export product, but any effort to stimulate this should be carefully planned. The natural production area is limited to the Lake and to the Kanem. Within this region the gathering of spirulina for local consumption is already important in the nutrition and the economy of the population. Expansion of the export trade in algae will not easily fit with the existing algae economy, which itself is not capable of ensuring supplies for export. The development of the algae production sector can only be predicated on the displacement of the traditional exploitation of this resource, or on an intensive program to improve artisanal methods of collection and production.

2.4 Karité (shea nut)

Karité trees grow wild in southern Chad, particularly in the Moyen-Chari region. Karité nuts are used for the manufacture of a high-protein oil, butter, cream and soap.

The harvest, manufacture and trade in karité oil and butter is exclusively the domain of women.

Customs officials in Kelo have reported small quantities of karité exported occasionally, although this product is generally not the major export commodity. Some karité oil transits through Pala to markets in Cameroon.

Karité (along with several other oil-bearing wild nuts such as jujube's and balanites⁶) is the object also of a small international trade in specialty oils and essences. Karité oil, as well as the oils of some other wild trees, enters into the manufacture of skin softeners, cosmetics, and perfumes.

Some exporters interviewed (Djallal, Djonouma) have expressed interest in the potential of these natural products for export. The world market potential is largely unexplored and poorly defined. A range of wild products might be developed for the world market, possibly through channels similar to the gum arabic trade. It seems probable, however, that any one product such as karité will have only a small and geographically circumscribed impact on the Chadian economy.

3. SECONDARY REGIONAL EXPORTS

The commodities in this category all figure in cross-border trade to some degree, but they appear to have neither the importance nor the potential of those in the first category above (potential high volume exports). Nor do the products here have any real potential for export outside the immediate region, even to other areas of Africa. They are, however, all export commodities. In several cases (dates being the most evident) this export trade is of considerable importance to a producing region or producer group.

⁶ Although not used for oil in Chad, jujube and balanites nuts are supposedly used for this purpose in some countries, notably Canada (Djallal interview). Of course, this subject needs to be further investigated.

3.1 Niébé (dry beans)

Niébé is produced in the prefectures of Mayo-Kebbi, Logone occidental, Logone oriental, Moyen-Chari (Sudanian zone), Batha, Chari-Baguirmi, Guera, Ouaddai and Lac. In the Sudanian zone, yields are about 40% higher than in the other prefectures. Production occurs during the rainy season and commercialization is intensive from October through December. Total production of niébé was about 11,000 tons in 1992. There are no export figures for niébé.

Small quantities of niébé are exported from the Moundou area to Nigeria, the CAR and Cameroon. Customs officials say that niébé, with other beans, is the second most important export to Nigeria from the area (after peanuts). Niébé is also produced in the Pala region and exported to Cameroon through Léré. Most of the trucks carrying peanuts to these places also carry a few sacks of niébé (1 to 10), according to the exporters we met. The head *commis de charge* in Léré confirmed that every week 3 or 4 hundred-kilo sacks of niébé are transported to the markets of Figuil, Maroua, Guider and Garoua.

Niébé is an important secondary local product in Sarh and the Sarh region and is exported, largely to N'Djamena, to Cameroon, to the CAR (Bangui) and possibly to Nigeria. Chadian niébé is sold in Kousseri's main market (Cameroon). Niébé is not important in the local diet of the CAR and is sold there largely to Chadian emigrants. On the other side, there is a strong potential demand for niébé in Nigeria, and when originating from the border areas, this product is more competitive. However this market is not as promising for niébé from the distant Sarh region and other isolated zones.

It is clear that the Nigerian market has been an important outlet in the past for niébé from Chad. Many of the producers in the region south of Lake Chad (Karl), where there are ethnic and historical affinities with northern Nigeria, specialized in growing niébé for this market.

This trade has largely dried up over the past 4 to 5 years. According to a number of producers in the Karl region, the decline of the Naira has made it unprofitable to sell any produce to Nigeria. But it is important to note that the January 1994 devaluation of the CFA currency may change this situation. The difficulties of dealing with 3 sets of

customs officials (first Chadian customs, then Cameroonian, and finally Nigerian) was also raised by some traders. Today most of the trade toward Nigeria is in fish, livestock and meat, while produce on Chadian markets in this area may well **come** from Nigeria, as do most manufactured goods.

Many of the producers interviewed had reduced their production of niébé in favor of other crops - corn, vegetables - which have important markets in Chad or in Cameroon. Some Chadian produce is sold in markets on the Cameroon side of the Chari. On a visit to Balangoa market the team found producers selling niébé, peanuts and corn. The buyers were for the most part Cameroonian, although this market is a center for trade in Nigerian goods and operates largely in Naira.

Constraints

The ONDR Director in Moundou mentioned insect infestations that destroy part of the production, with consequences therefore on exports. Producers and traders in the lake region have confirmed this problem in that area. According to the Director of Rural Development, a hectare only produces 500 to 600 kg while the potential is up to 2 tons. He mentioned appropriate technology (produced from *neem* tree) which has been successfully introduced in Niger to protect the crop.

Insects also threaten the storage life of niébé. A trader in Danemadji (Sarh) estimated that in his (dirt-floor) storehouse a sack of niébé would be totally destroyed in less than two months.

Producers and traders in the Karal area believe that the exchange rate problem is the main constraint preventing re-establishment of the niébé trade with Nigeria. If this is true, then devaluation may reopen that market.

Still, despite the general belief that Nigerians love niébé almost above all other foods, it is also true that in 5 years the price of niébé in Nigeria did not rise to accommodate the exchange rate, even apparently on the black market. It is possible that in the interim Chad's market share has been taken over by domestic producers or by other exporters who can produce and ship more efficiently. Niger

has been developing its niébé production with an eye to the Nigerian market, and it is probable that some of Chad's market has been taken over by that country.

Several producers and traders in the Karal region also told us that they had left the niébé trade for the more profitable fresh-vegetable trade to N'Djamena.

3.2 Dried tomatoes and tomato powder

Tomatoes are produced between November and March in N'Djamena and between December and March in the prefectures of Kanem and Lac. In the Ouaddai and Salamat, tomatoes are produced during the two months of December and January. Throughout the country, commercialization starts in December. Total fresh tomato production is estimated at about 11,000 tons (1989); dried tomato production from fresh tomatoes amounted to about 6,400 tons the same year (sources DRTA).

First quality tomato powder is an export commodity, as are dried tomatoes. These are shipped from N'Djamena directly to Bangui or through Sarh, Moundou and the border cities of Goré and Maro. Dried tomato and powder is a steady export trade of moderate volume. The Dembé truck terminal, which probably handles most of this trade, shipped 6,554 sacks of tomatoes and powder to Sarh, Moundou and points south in the month of December 1993.

The tomato powder trade took off in southern Chad in 1986. In fact, most of the Sarh exporters began their activities between 1987 and 1989. According to Westneat (1992), increased trade between Chad and the CAR is due to the presence of Chadian exiles in the CAR after 1986. The year 1986 is also the year of the introduction of the first tomato mills in Sarh. As of 1992, there were six tomato mills in that city. Today few of these mills still grind tomato powder in any significant quantity, and none for export. Virtually all of the tomato powder marketed in Sarh and traded on to Bangui comes from N'Djamena already milled (Sarh mill operators, 1994). Moundou, like Sarh, has become a transit point for the tomato trade to the south (Bangui).

Prospects

Bangui in particular seems to have a consistent demand for dried tomatoes and powder. The prospects for increasing this demand, however, are not great. Tomato has not become a staple of the diet in the CAR. Also, the demand for tomato does not appear to extend to Brazzaville or other large coastal and tropical cities.

Many areas of Chad now produce fresh tomatoes, and this virtually year-round. Few of these tomatoes are exported, due to perishability, and there is virtually no transformation for export of any significance except drying and milling. Most producing areas are too humid to manufacture first quality dried tomatoes; poorly-dried tomatoes discolor and decay, and are not acceptable for long-distance shipping. Much of the export trade originates in Abéché, which has the conditions to produce quality dried tomatoes (Africare sources).

One possibility that might be explored in the future is the export of tomato powder to Europe and the United States, where it is used as a food ingredient in many prepared foods and sauces (McCormick).

3.3 Dates

Dates are produced in the Borkou-Ennedi-Tibesti region (B.E.T), the Kanem and the Lac prefectures. They play a fundamental role in the society and the economy of the B.E.T. The date palm tree produces fruit after five years. Besides producing dates after five years, a date palm tree protects, with its shadow, underlying crops against evapotranspiration. Dates are consumed at the harvest and dried for later consumption; handpicking is done between July and August (during the pre-harvest gap period, like corn). Dates are also used for the preparation of butters (hade and sunnugu) consumed by travellers. The dates are also used together with other products such as peanuts and sesame in order to prepare local pastries.

According to Arditi (1992), the 1962 production figure of 20,000 tons for the Borkou region is still valid today (this compares with a 17,770 tons production figure of DRTA). The amount sold outside the region is not known. The presence

and organization of local "exporters" in the B.E.T. is recent. It is a result of the political situation of the 1980s.

The date trade outside the region is dominated by a very small group of traders (men exclusively, with women participating only in retail sales). Most quantities sold outside the region are sold in the N'Djamena area and are consumed within Chad. Between Faya and N'Djamena, the price of a sack of dates doubles. Until 1965-1970, traders from Cameroon and Nigeria used to come to N'Djamena to buy dates and resell them in their countries. Today this trade from the capital city to the two neighboring countries is practically non-existent. Dates from Algeria are in fact sold in northern Cameroon and in Chad's southern urban centers. The Algerian source became important from 1978 on, when the road between Algeria and Niger opened.

3.4 Melons

About 125 tons of melons were produced in 1989. Melons are produced in the N'Djamena region and in Kanem and the Lac. Between 1989 and 1991, a yearly average of 10 tons of melons were exported by air freight to Europe; in 1992, 4 tons of melons were shipped by air to France (source: Air Afrique).

The melon exports to France have only a tenuous relation to the fresh vegetable production sector as a whole. The entire export activity is the product of a single farm, operated by a French entrepreneur on the land of a Chadian owner outside of N'Djamena (Bougoumène). The farm is a modern operation, fully mechanized and equipped, with a small Chadian work force. All production is for export - in fact the farm cannot by law sell produce in Chad - and the commercial ties to French buyers were established on trips to France by the entrepreneur.

This is not, then, a model easily reproduced. Nor is it clear that it works on any level. The Bougoumène farm has yet to recoup the investment and turn an overall profit after seven years of operation (Perrois interview).

3.5 Okra (*gombo*) and hot peppers

Okra was a garden crop until recently. It is now cultivated on a larger scale, mainly in N'Djamena, the Lake region, Kanem, and the Ouaddai, for both the domestic and regional markets (mainly Nigeria). Some okra is also produced in the Sarh region and exported in moderate quantities. Production of fresh okra is estimated at about 5,000 tons (1989); production of dried okra amounted to about 2,800 tons the same year (Ministry of Agriculture, DSA). Interviews with okra traders in the N'Djamena market revealed that fifteen 100-kilo sacks of okra were bought and shipped to Libya on December 14, 1993.

In the early 1980s VITA financed an export scheme to send fresh vegetables to Europe during the winter season. VITA organized farmers to produce, and arranged shipment and marketing in Paris. The project was turned over to the private sector in 1985, with few takers (Perrois; cf. melons, above).

In the view of M. Kohom, now of AMTT, who worked on this project for VITA, the single most promising crop and the one which was most requested in Europe was okra. No one has followed this lead, but this may yet be the most likely fresh-vegetable option available, since it is also a crop which grows well here and is well-known by local farmers. (Kohom interview)

The *Chef de Bureau de Douanes* in Sarh noted that some peppers leave the Sarh region for markets in neighboring countries. Some pepper shipments were also registered at the Dembé truck terminal in N'Djamena, and vegetable traders in Sarh said they take a small quantity down to Bangui on occasion. Overall, the volume appears to be quite limited.

3.6 Squash seeds' (*graines de courge*)

The Moundou area is an important production center for *graines de courge*, while the Sarh region is a moderate producer. *Graines de courge* and sesame are interchangeable in the southern trade. Production figures do not exist.

Graines de courge are used to produce oil, for the preparation of sauces and cakes. In addition, they are considered to be a good substitute for sesame and are exported to Cameroon, the CAR and the Congo. The head of the Customs office in Kelo has confirmed exports of these seeds to the CAR and Cameroon, while the Sarh team members have identified women traders in the regional markets that regularly transport *graines de courge* to Brazzaville. The seeds are generally traded with other products such as peanuts, millet, beans, earth peas and smoked fish.

3.7 Earth-peas (voandzou)

Chadian earth peas are cultivated in the prefectures of Chari-Baguirmi, Mayo-Kebbi, Tandjilé, Logone occidentale, Logone orientale and Moyen-Chari. Total production of voandzou was about 21,000 tons in 1992-1993 (DRTA). Earth peas (voandzou) are produced in the Sarh region and exported in moderate quantities.

Earth peas have a limited, largely ethnic-specific audience across savannah Africa. The potential for expanding export demand is small, and the probable impact of such an effort would be virtually nil.

' Squash seeds (*graines de courge* in French or *Guebrou* in Sara) are not to be confused with calabash seeds which are not used in the diet. Throughout the text, we will refer to this product with its French name "graines de courge" in an attempt to avoid confusion.

3.9 Tubers

3.9.1 Taro

Taro is produced mainly in the Mayo-Kebbi region where it finds the ideal conditions to grow as a tropical plant. Limited quantities of taro are exported to central and northern Cameroon, where this tuber does not grow. The head of Customs in Sarh has confirmed that taro is one of the products known to leave the Sarh region for markets in the CAR. According to CARE personnel in Kim who worked with taro producers and traders, women from Kim take their produce as far afield as Bangui and Nigeria for sale on a regular basis.

The taro of the Kim region grows under exceptional and restricted conditions, and there is very little scope for increasing production. CARE also was obliged to abandon a program to improve marketing of taro because there was no evident way to streamline the existing system (interview with CARE personnel).

3.9.2 Potatoes and sweet potatoes

Irish potatoes are produced mainly in the Lake region. These are not exported in great quantities.

Sweet potatoes of various kinds are produced around the Lake and in the south of the country. According to an expert of the ONDR, sweet potatoes of various kinds, and especially specialty varieties from the Sarh region (bourbayo) are sought in non-producing regions and are the object of an important trade (Dandy interview).

3.9.3 Cassava (*manioc*)

Cassava is cultivated in the border areas of Goré and Baïbokoum (Moyen-Chari) and some of the production is sold in the CAR and Cameroon. This tuber is also produced elsewhere in the Sudanian zone, but for local consumption only. Cassava is a low-value and high-bulk product which is grown throughout the humid regions of central Africa. The scope for developing this as an export product is limited at best.

4. CEREALS

A series of studies of trade in the Chad-North Cameroon-Nigeria axis (Harre et al., 1990 etc.) shows that trade in cereals goes back and forth between areas of surplus and areas of deficit, without establishing any long-term flows. This may also be true along Chad's eastern borders. This pattern goes on despite efforts, periodically enforced, to restrict cereals exports from Chad.

4.1 Millet, sorghum and berbéré

Millet (petit mil or mil penicillaire) and sorghum grow in the prefectures of Batha, Biltine, Chari-Baguirmi, Guéra, Kanem, Lac, Ouaddai, Salamat, Mayo-Kebbi, Tandjile, Logone occidental, Logone oriental and Moyen-Chari. Both cereals are produced between June and October and traded from October on. Millet and sorghum are exported mainly to Cameroon where consumers in the northern part of the country have eating habits similar to those of a large segment of the Chadian population. The millet and sorghum which are exported to Cameroon come from Pala and Lere, and to some extent from Bongor. Customs officials in Kelo have also confirmed that millet is occasionally exported from the Kelo region to Cameroon. Team members were told by several retail sellers (mainly women) that most millet sold in Cameroon originates in Chad.

Millet is a commodity in the Bangui trade. However, traders generally say that the demand in southern countries is limited to Chadian emigrants. Most of the large traders in the region deal in some combination of peanuts, onion/garlic and millet.

Berbéré grows in the prefectures of Batha, Chari-Baguirmi, Guéra, Ouaddai, Salamat, Mayo-Kebbi, Tandjilé, Moyen-Chari. It is produced between August and December. The crop grows especially well in the Salamat region and in Mayo-Kebbi, where production could readily be expanded.

Chad imports some berbéré from Cameroon. Customs officials in Pala have confirmed that this product imported from Cameroon is consumed in the Pala area.

4.2 Corn (*maïs*)

Corn is found in the prefectures of Chari-Baguirmi, Lac, Ouaddai, Moyen-Chari, Chari-Baguirmi, Salamat, Mayo-kebbi, Tandjilé, Logone occidental, Logone oriental. Corn is produced between May and September. Production of corn is increasing in the south and is cultivated in rotation with peanuts and potatoes or sweet potatoes. Most of the locally produced corn is consumed in Chad.

There is a potential for export and the best prospective regional market is Nigeria. Nigeria already imports some corn from Chad. However, many traders in the Karal market suggested that this trade was much more important 4 or 5 years ago. The decline in trade is considered a consequence of the deterioration of the exchange rate between the CFA and the Naira.

Chadian corn is currently for sale in modest quantities in some Cameroonian border markets such as Kousseri and Balangoa, but traders in Cameroon and Chad both say that corn is at the moment cheaper in Cameroon than in Chad. A good deal of Cameroonian corn is being **imported** into Chad this year, rather than the other way around (interviews with traders in Douguia, N'Djamena Fara).

4.3 Wheat

Wheat is grown in the region of Lake Chad. To the extent that wheat does not grow easily in the hotter and more humid tropics, Chad may have a potential role as a wheat exporter to Nigeria and to the coastal countries. In this regard, however, one must remember that Chad's wheat production is very small: an estimated 5,200 tons each in 1992 and 1993 (as compared, for example, to around 550,000 tons for millet and sorghum combined). Also, Chad's wheat is an artisanal production which cannot realistically hope to supply the urban demand for flour in the region, let alone compete with the industrial wheat (sometimes also subsidized) that world producers can dump on the regional markets.

Some Chadian wheat is exported to Cameroon. However, wheat exports to Nigeria may be much more important. This needs to be verified, but the Lake region is a logical supplier of

wheat to the Maiduguri urban population on the same basis as it might supply N'Djamena.

When cultivated traditionally, wheat is profitable for the farmers and can be marketed in the region. The wheat produced on the polders through the *Société de Développement du Lac Tchad* (SODELAC) is too expensive, because production costs are too high. This is a wheat that is sold with difficulty even in N'Djamena and that is not competitive on the regional market.

4.4 Rice

Rice is produced mainly in Mayo Kebbi and Tandjilé; smaller quantities are also produced in Chari-Baguirmi and the Logones (oriental and occidental). Rice is produced under several conditions: spot irrigation, flood and rainwater retention, and rain-fed rice in the rainy season (June to October), and under full irrigation in the dry season.

Irrigated rice is a relatively recent introduction in all areas, and the modalities of cost-effective production are still being worked out. This has led to a situation where irrigated producers are scrambling to find markets for the rice they need to sell to support irrigation while also searching for the best combination of techniques and technologies to ensure cost-effective production. At this point in its development Chadian rice, particularly the irrigated production, is not realistically competitive with rice produced even in Cameroon or Nigeria which is often industrial mechanized production. The effects of the CFA franc devaluation on this commodity need to be assessed to determine its competitiveness with imported rice. Chadian rice, even under irrigation, is often smallholder production.

Most of the available information on rice exports is anecdotal. There has been no systematic study of the Chad rice export market, and indeed there probably is no such systematic market.

ONDR in Moundou mentioned small quantities of rice being exported from the Moundou area to Nigeria, the CAR and Cameroon. In addition, the regional office of the Ministry of Agriculture reported that Cameroonian traders from Figuil and Badaji regularly come to Léré on market days to buy rice

(and other agricultural products). In term of exports, this year was not good when compared to the two previous years. (Source: ONDR, Moundou).

The major rice-producing regions are along the Cameroon border and the Logone river from Bongor south. Bongor may be an export market, but from information gathered during the evaluation of the CARE project in Kim it seems that much of the production from that region is either held for local sale or directed to the N'Djamena market (CARE interviews). Kim-area irrigated producer groups have experimented with exports to Nigeria and Cameroon but found that they could get better returns if they held their produce locally or in N'Djamena for sale during the rainy season.

V. SELECTED AGRICULTURAL EXPORT PRODUCTS

In this section, several criteria will be used to rank the commodities discussed in the report. The ranking is designed to provide a comparative basis for evaluating the export potential of each commodity with that of the others in the listing. This should help in setting priorities for action and further research, and contribute to future policy decisions.

5.1 Criteria for ranking export commodities

All the commodities will be rated on the following key criteria: potential demand, environmental impact, current economic importance, potential for transformation, job and income generation, economic involvement of women, usefulness of by-products, and relationship to transport. The categories used are very good, good, fair, poor, and none. It is important to note that these ratings may have subjective tones; they are based on various information, observations and data gathered by team members during the course of the study.

Very good

A commodity is exceptionally strong in the category in question, or has unusually good potential in this area

Good

The category in question represents a strength of the commodity, or promotion of production and exports is likely to have a positive impact

Fair

A commodity is neither particularly strong nor weak in the category in question

Poor

The characteristic is lacking, or promotion of the commodity is likely to have a negative impact

None

The category is not applicable or relevant to the commodity.

An explanation of the criteria retained for the tables is as follows:

1. Potential demand

The export demand for a commodity is evaluated according to the strength and stability of current demand, and on the potential for expanding markets. A rating of **very good** is reserved for commodities which have a potential world market as well as a strong position in regional trade.

2. Environmental impact

This criterion rates the effects on the environment of a possible increase in the production and exploitation of the commodity. A number of factors are considered, including:

- a crop's potential for building or degrading the soil
- the potential for diversifying production and promoting crop rotations
- protection or expansion of tree or permanent plant cover
- protection of other natural resources such as open and subterranean water, wildlife, etc.

Fair in this case describes an environmentally neutral intervention, while **poor** indicates a detrimental effect.

3. Current economic importance

This criterion measures the present scale of trade in a commodity, including the export trade (if any). A **very good** rating indicates a commodity that generates an exceptional level of business on a sustained basis. Included in this rating is an important export trade: either high-volume exports of a low-value commodity, or strong to moderate exports of high-priced goods. **Poor** describes commodities which, while they may be of local importance, contribute little to national income and show no prospects of growing in importance.

4. Potential for transformation (forward linkages)

A commodity is more valuable if it offers the possibility of transformation and industrial development. **Very good** here means that a commodity has the potential to support modern industrial development generating employment and adding value to exports; **good** refers to a more modest transformation industry (in some cases already existent); **fair** indicates a limited or distant potential for industry; while **poor** and **none** describe commodities which are rarely or never the object of industrial treatment.

5. Job and income generation

Commodities are evaluated on their potential for generating jobs or new economic opportunities. Besides possible industrial jobs the development of a commodity may stimulate employment in trade and transport. The promotion of an export may also open new opportunities to producers if the commodity is produced during the agricultural off-season, or if it allows the exploitation of previously unused resources.

6. Economic involvement of women

This criterion evaluates the participation of women in the production and trade of a commodity, and the benefits specific to women that would come from promotion of export. **Very good** suggests that women would participate extensively in the economic benefits of promotion, while **fair** describes a commodity in which women have little stake. In no case was promotion considered to be detrimental to the interest of women.

7. Usefulness of by-products (and alternative uses)

A number of commodities generate by-products during production or transformation which themselves have some economic interest. If these by-products are the basis for an important secondary trade or as an input to industry or agriculture the commodity is rated **very good** on this criterion. **Fair** suggests a limited agricultural use (livestock, fertilizer); **poor** indicates that by-products are sometimes used in cooking or household use, and **none** means that a commodity generates no by-products of any known use.

8. Relationship to transport

Chad's transport costs are extremely high. In some cases these costs are the most important factor in limiting the potential for export of a commodity. This criterion evaluates transport as a potential limiting factor. **Very good** indicates that a commodity is valuable and compact enough so that transport costs are unlikely to be a problem, while **poor** describes a commodity for which transport cost is a serious constraint.

Summary: OVERALL POTENTIAL FOR EXPORT (RATING)

The eight criteria above are evaluated on a scale of 4 (**very good**) to 1 (**poor**); **none** is 0. The ratings are added up for each product for a possible total of 32. The higher a product scores, the more economic potential it presents. However, the scores have more significance when products are compared within each group rather than across groups.

5.2 Rankings

GROUP 1 - POTENTIAL HIGH VOLUME EXPORT PRODUCTS			
CRITERIA	PIANUTS	SESAME	ONIONS/GARLIC
Potential demand	Good	Very Good	Good
Environmental impact	Good	Fair	Fair
Current economic importance	Very good	Fair	Very good
Potential for transformation (forward linkages)	Very Good	Good	Poor
Job and income generation	Good	Good	Good
Economic involvement of women	Good	Fair	Good
Usefulness of by-products	Very good	Fair	Poor
Relationship to transport	Fair	Good	Good
OVERALL POTENTIAL FOR EXPORT (RATING)	26	21	20

GROUP 2 - SPECIALTY EXPORT PRODUCTS

CRITERIA	<i>GUM ARABIC</i>	<i>ALGAE</i>	<i>KARITE</i>	<i>DRIED HIBISCUS</i>
Potential demand	Very good	Very Good	Fair	Fair
Environmental impact	Very good	Poor	Good	Fair
Current economic importance	Very good	Poor	Poor	Poor
Potential for transformation (forward linkages)	Good	Fair	Good	Fair
Job and income generation	Good	Good	Fair	Fair
Economic involvement of women	Fair	Good	Very good	Very good
Usefulness of by-products	Fair	Fair	Poor	Poor
Relationship to transport	Very good	Good	Fair	Poor
OVERALL POTENTIAL FOR EXPORT (RATING)	26	19	18	15

GROUP 3 - SECONDARY REGIONAL EXPORT PRODUCTS

CRITERIA	<i>DRIED TOMATOES</i>	<i>BEANS</i>	<i>DATES</i>	<i>OKRA/HOT PEPPER</i>	<i>VOANDZOU</i>
Potential demand	Good	Fair	Fair	Fair	Poor
Environmental impact	Fair	Good	Very good	Fair	Fair
Current economic importance	Fair	Fair	Fair	Poor	Poor
Potential for transformation (forward linkages)	Good	Poor	Fair	Poor	None
Job and income generation	Good	Fair	Fair	Fair	Poor
Economic involvement of women	Good	Fair	Fair	Good	Fair
Usefulness of by-products	None	Fair	None	None	Poor
Relationship to transport	Fair	Fair	Fair	Fair	Fair
OVERALL POTENTIAL FOR EXPORT (RATING)	18	16	16	12	10

VI. CONCLUSION AND RECOMMENDATIONS

6.1 Current state and potential

Both the extent and the diversity of Chad's agricultural export sector are greater than was expected at the outset of this study. Within a region extending from Nigeria to the Congo river Chad is a major supplier of agricultural goods, dominating the market for several commodities. Chad also is involved in a growing commerce with world markets, for the moment largely confined to gum arabic⁴, but with some real prospects for expanding into other commodities.

Cotton and livestock dominate Chad's export sector, with estimated values of about CFA f 50 billion. A rough estimate of the agricultural export commodities examined in this study suggests that gum arabic accounts for CFA f 5.3 billion in exports per year, with the high-volume regional trade (peanuts, onions and garlic, and sesame) bringing about a further CFA f 3.5 billion in earnings (1991 - 1992 figures; Annex I, Table 5).

Chad is currently in a very strong position as supplier of peanuts, onions and garlic, and sesame to the coastal and equatorial sections of central Africa, regions which include several large cities (Bangui, Brazzaville, Kinshasa, Libreville, Douala, Yaoundé). As the populations and economies of these regions grow, so should the demand for Chadian products. Consumers in coastal and equatorial Africa have developed a taste for onions, garlic, peanuts and a number of lesser commodities which are not easily produced in humid tropical climates. Chad is, by climate and geographical position, well placed to meet this demand; the more so because a number of potential competitors (Zaire, Angola, Sudan) have been hampered by political problems and poor communications from mounting an effective competition. This regional market is of considerable economic importance to Chad.

There is some evidence that Chadian exporters do not yet exploit the potential of this market to its fullest extent;

⁴ Also, of course, cotton.

Gabon, for example, may be a potential market for onions and garlic. Conversely, Chad needs to be careful to **protect** and **maintain** the share of these markets that it already holds. Chad's exports to Nigeria have been considerably reduced over the past few years. The possibility that this important market can be recaptured **must** be investigated. Competitors are also challenging Chadian exports in markets where Chad has long been dominant; one example is the Cameroonian and Sudanese onions now being sold in Bangui.

There are a small number of Chadian products which could be promoted on world markets. The most prominent of these is gum arabic, already well-known to Chadian exporters. Chad is second only to Sudan as a supplier of gum arabic to world industry. This trade could be expanded or strengthened in a number of ways. A great deal of Chadian gum is bought and exported by Nigerian and Cameroonian traders; Chad needs to recapture this trade and to impose rigorous quality controls so that the reputation of Chadian gum is established. The production of high-quality gum can be expanded. Chadian traders should be encouraged to explore new markets in Asia and in America. Finally, industrial grading and preparation of raw gum in Chad would create jobs and capture some value-added for the Chadian economy while making the product more attractive to buyers.

In addition to the well-known potential of gum arabic, there are other commodities whose possibilities deserve to be studied in more depth. In the past few years buyers from the Middle East and Europe have expressed interest in sesame from Chad. GOC-supported attempts to promote the export of Chadian sesame in the early 1990s were not successful, partly because prices dropped. The lessons of this failure might be applied to a new attempt to promote this export, especially as the world price of sesame is again close to the level of 1990 (\$625 - \$650 a ton FOB).

Chad is one of the few countries in the world where spirulina algae grows naturally. This algae is in demand in Europe, the U.S. and Japan as a food supplement and as food coloring. The possibility of producing export-grade dried algae is only now being explored, and none of this product is being exported as yet.

Chad also produces an unknown quantity of shea-butter and oil (*karité*) as well as some other products - hibiscus,

tamarind, *nééré*, balanites, and jujube. Except for shea-butter, very little is known about demand, prices on the world market, or Chad's capacity to produce quantities and quality sufficient for export. Some traders interviewed for the study indicated that they had received inquiries and that they were looking into the possibilities of exporting these specialty products.

6.2 Constraints and problems

There is, then, scope for developing Chad's agricultural export sector along several lines. The constraints which limit progress in this direction are also important. These include:

1. Transport costs

Chad depends on Cameroon and Nigeria for outlets to the sea, and the nearest port (Port Harcourt, Nigeria) is over 1,500 kilometers from N'Djamena. No railroad reaches Chad. Any export product which cannot be shipped by air out of N'Djamena is thus subject to long, sometimes circuitous routes that usually involve transit through several countries and by several forms of transportation (some combination of truck, rail and boat).

Truck costs are extremely high in Chad. The truck fleet is too large and underutilized; imported parts and fuel are expensive, and transport is subject to high official taxes as well as illicit (and unpredictable) levies at barriers along the road. Truckers also speak of the physical danger they are subject to when traveling rural roads in the CAR, Chad and Cameroon.

Roads are bad and poorly maintained, especially in Chad. A number of commodities - dates, onions and garlic from the Ouaddai, gum arabic from certain isolated regions - are more expensive than they need to be because of the costs of transporting the product from distant production areas over rough roads.

2. Taxes

Chad is one of the few countries that taxes its exports. In some cases, such as peanuts, taxes are set at prohibitive

levels. The expressed, but not implemented, intent of the GOC to eliminate export taxes on agricultural products will greatly assist the competitiveness of Chadian products. For most commodities, the requirements for paperwork, taxes and duties on exports are confusing to traders and government officials alike. Moreover, the time spent in collecting the necessary documents and in having them examined and verified at various checkpoints and border crossings is as costly to truckers and traders as the levies themselves.

Most traders, particularly those who export within the region, avoid paying export duties and taxes altogether. They are then more vulnerable to fines and levies along the road. Overland transport in the region is a gauntlet of barriers and checkpoints, legitimate and illicit, operated by municipalities, by the national police of several countries, or simply by free-lance operators. Very few routes in Chad or in the neighboring countries are free of barriers.

3. Lack of credit and financing

Chadian traders often do not have the capital to organize large-scale buying campaigns, and they find credit difficult and expensive to get. In the cases of sesame and gum arabic, export programs have been hampered or curtailed because traders could not raise enough cash in time to buy when prices were low and outside demand high. Traders in regional commodities - onions, garlic, peanuts - find that they cannot take full advantage of low prices and high supply at harvest. Many Chadian traders lose a part of the market to better-financed traders from Nigeria and Cameroon.

4. Quality and quantity

For many Chadian commodities neither the quantity nor the quality of production is reliable. Production of such crops as sesame, peanuts, tomatoes and beans is often considered of secondary importance by farmers who use few inputs and achieve very low yields. Producers often do not understand the importance of quality control or the need to provide the buyer with a uniform, clean product. Extension services have generally concentrated mostly on cotton and, at some extent, on cereals and have not provided farmers with the training and productivity improvement inputs that would help enhance production of many of the commodities considered here.

5. Knowledge of markets

With a few exceptions Chadian exporters have limited experience with and knowledge of world markets outside of France. In similar fashion, traders who export within the region may know a particular market (Bangui or Brazzaville, for example) but not really know the potential of similar markets in neighboring countries, or how to gain access to these markets. The expansion of the Chadian export sector is hampered by the risk and the cost of exploring new markets.

No one really knows the full extent and potential of Chad's export markets. The government and donor agencies are thus hampered in their effort to design policies and projects which could help develop this sector. This study gives an overview, but several factors - the broad scope of the study, the lack of supporting data and research, time, and the political problems that kept the team from visiting several key export markets - have limited the detail of information which could have been gathered.

6.3 Recommendations

1. Rationalization of taxes and paperwork

The GOC could reap an immediate benefit, in terms of income and of information, if it could streamline and standardize the requirements for exporting commodities. Taxes on some commodities are prohibitive, and should be reduced or eliminated. For the most part, traders and truckers have said they would be willing to pay reasonable taxes and duties, and to get the necessary papers if these were easy to obtain. In addition, if the right papers and tax stamps would effectively protect the exporter from harassment and extra taxes along the road, traders and truckers would comply with regulations.

2. Credit

The establishment of credit institutions for export traders would allow these agents to mount more effective campaigns to buy, store, and ship produce. Available credit at a reasonable cost would also encourage some exporters to take on the risk of seeking out and developing new markets.

3. Agricultural extension and research

Farmers need to be given assistance in developing the production of certain key crops. The ONDR pays a great deal of attention to cotton, and not enough to other key market crops such as sesame and peanuts. The experience of other countries such as Burkina Faso (sesame) and Niger (*niébé*), as well as those of NGO projects in Chad, suggest that many of Chad's export crops are potentially responsive to low-cost techniques and technologies for increasing production, protecting crops in the field and in storage, and improving packaging. Low-cost transformation, such as the production of peanut oil and tomato powder, could also be improved or introduced for other crops.

Extension need not be limited to field crops. The NGO DARNA has successfully organized gum arabic collectors into production and marketing associations, promoting quality control, improved collection techniques, and the protection and reproduction of gum-producing acacia groves.

4. Direct export-promotion schemes

Inasmuch as Chadian exports are somewhat hampered by traders' lack of information about markets, and especially those in the Americas and in Asia, some effort and resources could profitably be invested in bringing traders together with buyers from these unknown markets (for example, the Middle East market for sesame). There are a number of ways that this could be done, as for example is being proposed for gum arabic: presentation of Chadian products and exporters at trade fairs, advertising, organization of conferences in Chad or in the target market country, etc.

5. Further research

a. In-depth analysis of regional markets

Maintaining Chad regional position with regard to export is a key idea in the analysis above. In this context, it appears that a **regional study** of Chad's main export products would be appropriate. This study would be more focussed and more in-depth than the overview study, and would thus provide more information about regional markets. Specifically, the research would be limited to a group of key commodities (peanuts, onions, garlic, sesame) which are

traded along the same circuits and which are often combined in export shipments.

Demand for these export products exists in the CAR, Cameroonian, Nigerian and Congolese markets. A rapid assessment of the existing demand of these markets has been carried out. However, these markets are different and their degree of sophistication, subtleness, and importance still need to be analyzed and compared. Only an in-depth knowledge of the level of demand of the above mentioned products on regional markets can lead to decision regarding the level of production. If the first component of the proposed regional study would deal only with regional markets, a second component involving only peanuts and sesame would focus on world market demand.

b. Individual commodity studies

A second alternative to the one proposed above would be a study that looks at export commodities **individually**. At this point, the tables presented in section V could serve as a reference for the choice. One or two (or more) products could be part of the study. This alternative has the disadvantage of limiting the field of action rather than dealing with broad and more integrated segments of the economy. A good knowledge of regional and world markets is needed before any decision aiming at stimulating production for export is made.

c. Individual market studies

Like the individual commodity studies, further studies to appraise the importance of individual markets should be considered. Examples of possible markets include that for niébé in Nigeria, sesame in the Middle East, algae and gum arabic in Japan and the United States. Because of its volume, proximity, and potential, the Nigerian market commands particular attention. As Chad's exports to Nigeria have significantly decreased in recent years, it is essential that Chad make an attempt to tap this important market.

A N N E X E S

ANNEX I: TABLES

A. Chad Exports

Value of exported gum arabic, peanuts, onions and sesame have been calculated as follows (except for gum arabic, exports of these products are carried out almost exclusively through informal channels and volume figures express officially **unrecorded** exports):

Table 1: Calculation of the export value of gum arabic
(In Millions of CFA f)

	1990-1991	1991-1992	1992-1993
1.Total			
Exports (tons)	3,000*	5,300*	6,000*
2.Average Price			
of 1 kilo (CFA)	800	1,000	1,200
3.Export value			
(Millions CFA)	2,400	5,300	7,200
= 1.x 1000 x 2.			

* Official export volumes are 1,300, 3,807 and 4,687 tons respectively. The figures of 1. include also the amount of the estimated volume of informal exports (about 1,500 tons/year).

Sources: Mallot 1993, interviews with traders

Table 2: Calculation of the export value of peanuts
(In Millions of CFA f)

	1990-1991	1991-1992	1992-1993
1.Total			
Exports (tons)	11,000	23,000	22,500
2.Average Price			
100 kilo (CFA)	n/a	10,000	n/a
3.Export value			
(Millions CFA)	n/a	2,300	n/a
=[(1.x1000)/100]x2.			

Sources: Min. of Agr. DSA (estimates); BEAC; field interviews

Table 3: Calculation of the export value of onions/garlic
(In Millions of CFA f)

	1990-1991	1991-1992	1992-1993
1.Total			
Exports (tons)	n/a	7,000/2,000	n/a
2.Average Price			
100 kilo (CFA)	n/a	10,000/20,000	n/a
3.Export value			
(Millions CFA)	n/a	700/400	n/a
=[(1.x1000)/100]x2.			

Sources: MAE, DSA (estimates); BEAC; field interviews

Table 4: Calculation of the export value of sesame
(In Millions of CFA f)

	1990-1991	1991-1992	1992-1993
1.Total			
Exports (tons)	1,010	1,300	1,600
2.Average Price			
100 kilo (CFA)	n/a	12,000	n/a
3.Export value			
(Millions CFA)	n/a	156	n/a
=[(1.x1000)/100]x2.			

Sources: MAE, DSA (estimates); BEAC; field interviews

Table 5: Value of exported agricultural commodities: 1991-1992
(In Million CFA f)

Gum arabic	5,300	
Peanuts	2,300	
Onions	700	
Garlic	400	
Sesame	156	
<u>Subtotal</u>	8,856	17.5 %
<u>Total: official recorded exports</u>	50,330	100.0 %

NB: For detailed calculations of values of exported commodities, refer to the four tables above.

B. World Trade in Key Commodities

Table 6: Peanuts: Twenty Principal Producers in 1991
(Thousands of metric tons)

WORLD	23,366	100.0 %
AFRICA	4,813	20.6 %
1. India	7,000	30.0 %
2. China	6,000	25.7 %
3. United States	2,242	9.6 %
4. Nigeria	1,219	5.2 %
5. Indonesia	920	3.9 %
Sub-total		74.4 %
6. Senegal	700	3.0 %
7. Myanmar	505	2.2 %
8. Zaire	435	1.9 %
9. Argentina	429	1.8 %
10. Viet Nam	212	0.9 %
11. Ghana	200	0.8 %
12. Sudan	193	0.8 %
13. Uganda	173	0.7 %
14. Thailand	164	0.7 %
15. Mali	160	0.6 %
16. Burkina Faso	152	0.6 %
17. Côte d'Ivoire	140	0.6 %
18. Brazil	140	0.6 %
19. Mozambique	115	0.5 %
20. C H A D	115*	0.5 %

* Slightly different from the estimates of the Chadian Ministry of Agriculture and Environment, which reported 108 MT in 1991.

Sources: FAO, Yearbook, Vol 45, Rome 1991; UNCTAD, Commodity Yearbook, UN, NY, Geneva, 1993;

Table 7: Peanuts: Principal Exporters in 1991
Quantity (Thousands of metric tons)/Value (Million US \$)

	Quantity	(%)	Value	(%)
WORLD	1075	100.0%	855	100.0%
AFRICA	71	6.6%	50	5.8%
1. China	428	39.8%	360	42.1%
2. U S A	221	20.5%	150	17.5%
3. Netherlands	72	6.7%	74	8.6%
4. Argentina	76	7.0%	58	6.7%
5. Vietnam	80	7.5%	46	5.3%
Sub-total		81.5%		80.2%
6. Hong Kong	38	3.5%	34	4.0%
7. India	27	2.5%	25	3.0%
8. South Africa	22	2.0%	17	2.0%
9. Singapore	24	2.2%	15	1.8%
10. Germany	9	0.8%	10	1.2%
11. Israel	5	0.4%	9	1.0%
12. Senegal	9	0.8%	7	0.8%
13. Egypt	6	0.5%	6	0.7%
14. Zimbabwe	12	1.0%	6	0.7%
15. United Kingdom	4	0.3%	5	0.6%
16. Brazil	3	0.2%	4	0.5%
17. Gambia	5	0.4%	3	0.3%
18. Zambia	2	0.1%	3	0.3%
19. Paraguay	7	0.6%	3	0.3%
20. Mali	5	0.4%	2	0.2%
C H A D	11		2.55	0.2%*

* CFA f 7,000/100 kilo sack; 1 US\$=CFA f 300

Sources: FAO, Yearbook, Vol 45, Rome 1991; UNCTAD, Commodity Yearbook, UN, NY, Geneva, 1993; BEAC; team interviews in Sarh, Moundou, CAR, Cameroon.

Table 8: Sesame: Production in 1991
Quantity (Thousands of metric tons)

	Quantity	(%)
WORLD	2,000	100.0%
India	490	24.5%
China	380	19.0%
Sudan	260	13.0%
Mexico	130	6.5%
Nigeria	70	3.5%
Sub-total		66.5%
C H A D	13	0.6%

Sources: "Oléagineux", Vol. 46 no 3, 1991; MAE.

Note about world sesame production: World sesame production is mostly carried out by smallholders in developing countries in the tropics. It amounted to about 2 million tons in 1991 and came from more than 60 countries, of which India is the world's largest producer, with a third of the area planted and a quarter of the production. Of the French-speaking African countries (besides Chad) the CAR and Burkina Faso, although only small producers, derive a substantial part of their oil crop and farmland resources from sesame.

International sesame trading involves about 25% of total production, which represents around 3.5% (oil basis) of the world edible vegetable market. Even so, international transactions are almost exclusively in seed form, which makes for much better valorization of the product than oil, while producer countries reserve a large proportion of their crop for self-consumption in oil form.

Table 9: Sesame: Principal Exporters in 1991
Quantity (Thousands of metric tons)/Value (Million US \$)

	Quantity	(%)	Value	(%)
WORLD	505	100.0%	388	100.0%
AFRICA	68	13.5%	60	15.5%
1. China	83	16.5%	63	16.2%
2. Mexico	41	8.1%	44	11.3%
3. India	55	10.9%	37	9.5%
4. Sudan	30	6.0%	35	9.0%
5. Myanmar	59	11.7%	30	7.7%
Sub-total				53.7%
6. Guatemala	27	5.3%	22	5.6%
7. Singapore	39	7.7%	22	5.6%
8. Pakistan	23	4.5%	16	4.1%
9. Thailand	20	3.9%	13	3.3%
10. Hong Kong	14	2.8%	12	3.0%
11. Uganda	18	3.5%	11	2.8%
12. Vietnam	16	3.1%	10	2.5%
13. Venezuela	12	2.3%	8	2.0%
14. Nicaragua	5	0.9%	5	1.2%
15. Colombia	7	1.4%	5	1.2%
16. USA	4	0.7%	5	1.2%
17. Japan	3	0.5%	5	1.2%
18. Egypt	6	1.1%	4	1.0%
19. Turkey	2	0.3%	3	0.7%
20. Ethiopia	3	0.5%	3	0.7%
C H A D	1-2	0.15%-0.3%		

Sources: FAO, Yearbook, Vol 45, Rome 1991; UNCTAD, "Commodity Yearbook", UN, NY, Geneva, 1993; BEAC; Team Interviews in Sarh, Moundou, CAR, Cameroon.

Table 10: Shipments from Dembé truck terminal to Nigeria
(Maiduguri) and the CAR, December 1993

Unit = 100-kg sack

"Tomato" includes both dried tomatoes and tomato powder

Date	Peanuts	Onions	Garlic	Tomato	Okra	Arabic Gum	Destination
05-Dec-93		126				310	Nigeria
05-Dec-93						238	Nigeria
05-Dec-93						300	Nigeria
05-Dec-93		300	120				RCA
05-Dec-93		300	136				RCA
05-Dec-93	300	110	226				RCA
05-Dec-93	420	36					RCA
06-Dec-93						600	Nigeria
06-Dec-93		236	180				RCA
08-Dec-93						365	Nigeria
08-Dec-93						218	Nigeria
09-Dec-93						295	Nigeria
09-Dec-93						230	Nigeria
09-Dec-93	300	115	75				RCA
09-Dec-93				271			RCA
09-Dec-93		61	170				RCA
10-Dec-93						215	Nigeria
10-Dec-93						396	Nigeria
10-Dec-93		250					RCA
11-Dec-93						310	Nigeria
11-Dec-93				380			RCA
11-Dec-93		270					RCA
11-Dec-93		230	115				RCA
12-Dec-93						270	Nigeria
12-Dec-93		150		175			RCA
13-Dec-93						430	Nigeria
13-Dec-93		140	158				RCA
13-Dec-93				175	310		RCA
14-Dec-93						400	Nigeria

(continued)

Shipments from Dembé truck terminal to Nigeria (Maiduguri) and the
 CAR, December 1993 (continued). Unit = 100-kg sack

Date	Peanuts	Onions	Garlic	Tomato	Gum Okra	Arabic	Destination
14-Dec-93						303	Nigeria
15-Dec-93						230	Nigeria
15-Dec-93						218	Nigeria
15-Dec-93				318			RCA
15-Dec-93			230	115			RCA
15-Dec-93			300	170			RCA
15-Dec-93			191	113			RCA
16-Dec-93						320	Nigeria
16-Dec-93						175	Nigeria
16-Dec-93		175	270				RCA
17-Dec-93		18	350				RCA
17-Dec-93						175	Nigeria
17-Dec-93						272	Nigeria
18-Dec-93						273	Nigeria
18-Dec-93		112	370				RCA
18-Dec-93			350				RCA
20-Dec-93						320	Nigeria
20-Dec-93		310	136				RCA
20-Dec-93				366			RCA
20-Dec-93		400	36				RCA
20-Dec-93				485			RCA
21-Dec-93						310	Nigeria
21-Dec-93						400	Nigeria
21-Dec-93						411	Nigeria
21-Dec-93		346	119				RCA
21-Dec-93				260			RCA
22-Dec-93				384			RCA
22-Dec-93		136	273				RCA
22-Dec-93		36	318				RCA
23-Dec-93						273	Nigeria
23-Dec-93						310	Nigeria
23-Dec-93		410	372				RCA
23-Dec-93		318		148			RCA
24-Dec-93						413	Nigeria
24-Dec-93						318	Nigeria
24-Dec-93		202	316				RCA
24-Dec-93				241			RCA

(continued)

Shipments from Dembé truck terminal to Nigeria (Maiduguri) and the CAR, December 1993 (continued). Unit = 100-kg sack

Date	Peanuts	Onions	Garlic	Gum		Destination
				Tomato	Okra	
27-Dec-93						300 Nigeria
27-Dec-93						400 Nigeria
27-Dec-93		300	126			RCA
27-Dec-93		240	148			RCA
27-Dec-93		148	347			RCA
27-Dec-93		136	248			RCA
27-Dec-93				565		RCA
29-Dec-93						300 Nigeria
29-Dec-93				400		RCA
29-Dec-93				362		RCA
29-Dec-93		113	135			RCA
29-Dec-93				359		RCA
31-Dec-93						300 Nigeria
31-Dec-93				360		RCA
31-Dec-93				373		RCA
31-Dec-93		276	140			RCA
31-Dec-93		230	167			RCA
02-Jan-94						400 Nigeria
02-Jan-94						312 Nigeria
02-Jan-94		146	156			RCA
02-Jan-94				538		RCA
02-Jan-94		115	310			RCA

TOTALS:	Peanuts	Onions	Garlic	Tomato	Okra	Gum
						Arabic
	1020	6491	6588	6855	310	11310

Source: Shipping records, Dembé truck terminal.

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a) GONSALLO (1989); HARRE/ARDITI (1990); HARRE/IGUE (1989);

These reports, part of a single study, describe an integrated trade region anchored in northern Cameroon and linking that region to western Chad and northeastern Nigeria (N'Djamena to Maiduguri, with key centers in Garoua and Maroua). The economic motor which drives trade in the region is the demand of the Nigeria market, channeled through Maiduguri. Trade in the region is, on the one hand, of long standing and established in its diversity, structure (markets, trader groups) and economic role. On the other hand, the direction, volume and content of the trade is influenced by the exchange rate of the Naira and by periodic sub-regional shortages and surpluses; also there is some evidence that changes in extra-regional tastes and demand are becoming increasingly influential.

In this system of exchanges, Chadian exports are largely dependent on the demand from Nigeria, which drives the market. The principal commodities in demand are fish, livestock products, and natron- thus outside the scope of this study. A secondary trade in other agricultural commodities is noted but not examined in detail: peanuts, beans, onions. Also, there is both a steady trade in cereals (Lac region to Nigeria: wheat, millet, corn) which is notable but secondary in scale to the main commodities cited, and an important periodic trade in cereals which responds to sub-regional shortages by shifting surpluses from other areas.

These studies describe the market structure and flows of the region in some detail. The information should be verified in the field, however. Team members' trip to Kousseri, for example, suggests that market no longer functions as much as a bulking and redistribution point for Chadian products as Harré, Arditi (1990) and Harré, Igue (1989) suggest.

b) ARDITI (1991);

A rapid reconnaissance study of date production and trade argues that a previously important trade in dates from the BET to the south (Chad, Cameroon, Nigeria, coast) has been disrupted by two forces:

1) Internal conflict in Chad, and disruption of transport infrastructure; and

2) Growth of an alternate supply circuit bringing Algerian dates to Nigeria on Niger's excellent road system.

Customers can distinguish between Chadian and Algerian dates, and there is still a specific demand for Chadian dates where both are present. This observation was confirmed in Kousseri, where both types of date are available. Arditi believes that the BET date trade might be revived, but could not visit markets outside Chad to investigate this possibility.

c) WESTNEAT, 1992;

This is one of the few existing studies which traces the production and trade circuits of a commodity other than cereal. Dried tomatoes from the Abéché region are processed in N'Djamena and Sarh, with a significant volume of powder exported to Bangui.

A N N E X III: CONTACT LIST

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BOURI, Doulong, BEAC Bureau Chief, Moundou;

BRESSAT, Bernard, Senior Economist, *Mission Française de Coopération*, N'Djamena;

CHEIN, Brahim, Trader, Karal;

DAHER, Ali, Gum arabic exporter, Bangui, CAR;

DAL BELLO, Patrick, Geographic adviser for Chad and Equatorial Guinea, CFD, Paris, France;

DAMA, Ramat, Representative of the Canton Chief, Karal;

DAMALA, Hamadou, Head of Food Production for Livestock, *Agence National de Développement de l'Élevage*, Bangui, CAR;

DANSALA, Bambé, FAO Consultant, Former Minister of Agriculture, N'Djamena;

DAOUSSA, Bichara, former Director General, Ministry of Agriculture and Environment, N'Djamena;

DIEGO, (M), trucker, Sarh;

DINGAMYO, Mbao, Public relations, Chamber of Commerce, N'Djamena;

DJABAL, Hicham, Administrative Chief, Goundi;

DJAWRO, Abdoulay, Cameroonian trader and importer, Maroua;

DJENOYAN, Catherine, Trader/exporter/importer, Moundou;

DJIBANGAR, (M), Director General, GPR, N'Djamena;

DJIMADOUM, Nossi, Customs Director, Moundou;

DJIMADOUMBAYE, Mbaitingar, Partner in Mithril Farm, N'Djamena;

DJIMASNGAR, (M), Assistant Director, ONDR, Sarh circonscription;

DJIME, Aly, Director, ONADEH, Ministry of Agriculture, N'Djamena;

DJIME, Tchéré Ngaba, Acting Head, Research Division, ONDR, N'Djamena;

DOUTOUM, Ibrahim, Onion trader and trucker from Abéché to the CAR, N'Djamena;

EL-HADJ Djibrine, Trader, Pala;

EL-HADJ Garga Mal Amadou, Cameroonian trader in charge of the Sembo market, Bangui, CAR;

EL-HADJ Ibrahim Aboud Makaye, First Secretary, Cameroonian Embassy, Bangui, CAR;

EL-HADJ Mohamadou Saleh, Binder Canton Chief;

EL-HADJ Oumar, Trader, Pala;

EL-HADJ Oumar, Trader, Sarh;

EL-HADJ Oumarou, Director, CBLT, N'Djamena;

FADIL, Mahamat, Peanut broker, Koumra;

FAUBA, Padacké, Agricultural economist, AMTT (USAID), N'Djamena;

GIRAULT, Christian A., Research Director, Intergéo-CNRS, Paris;

GOUSSOUGOULA, André Moussa, Cameroonian trader, Maroua;

GUELE, Dieudonné, Director of Commerce, Principal Commerce Directorate, UDEAC, Bangui, CAR;

GUELKAGYO, Mianhoudam, Ministry of Economy and Tourism, N'Djamena;

GUIDIMTI, Alain, Cameroonian economist and trade specialist, Sanga (consulting firm), Bangui, CAR;

HADJE Kadre, Onion trader, N'Djamena;

HAKA, Ahmat Mahamat, ONDR, Director for the Sudanian zone, Moundou;

HAMIDOU, Amadou, Onion producer and trader, Binder;

HAROUN, Abakar, ex-ACDI Market researcher, N'Djamena;

HERMAN, Larry, Economist, AMTT (USAID), N'Djamena;

HICHAM Djabal, Chief of the Administrative Post at Ngoundi, Moyen-Chari;

KADRE, Hadje, Onion and garlic trader, N'Djamena;

KAKIANG, Lagnaba, Responsible for monitoring and evaluation for ONDR, Moundou;

KASSER, Abba-Chérif, Freight manager, Air Afrique, N'Djamena;

KEBBA, Wouadou Evariste, Director, VITA Credit Project, N'Djamena;

KERVYN, Pascale, World Bank, Central Africa Bureau, Washington DC;

KHAMIS, Ourde, ex-ACDI Market researcher, N'Djamena;

KOHOM Ngar-One, David, AMTT (USAID), N'Djamena, former project manager for VITA;

KOLINGAR, Khadidja (Mme), Gum arabic trader, N'Djamena;

KOLINGBA, Désiré Nzanga, Program Chief, World Bank, Bangui, CAR;

KONGBO, Lucien, Africare, Bangui, CAR;

KOUMANDO, Bibiane, Leading businesswoman, Moundou;

LABO, Amadou, Trucker, Léré;

LOMBAYE, Belengar, Trader/exporter, Moundou;

MADENGAR, Beremadji, General Director, Corontchad, former Minister of Finance, Moundou;

MADI, Boulama, Trader, Léré;

MAHAMAT, Abakar, ex-ACDI Market researcher, N'Djamena;

MAHAMAT Ahmat, Producer and trader, Roumaye (near Karal);

MAKENDEBOU, Philippe, USAID Program Management Specialist, Bangui, CAR;

MALICKI, Bouba, Cameroonian trader, Pala;

MAMADOU, Hissène, Trader, Sarh;

MANGALBAYE, M., BNF bureau chief, Sarh;

MARKHOUS Oucham Markhous, Transporter, N'Djamena;

MBAIGUEDEM, Justin, Economist, Regional Office of the Ministry of Commerce (for Economic Affairs), Moundou;

MBAIORNOM, Isaac, Coordinator of the Research and Development Cell, Directorate of Human Resources, Ministry of Agriculture, Léré;

MBOUDOU, Moussa, ORT, N'Djamena, formerly administrative assistant of the ORT project in Ngouri, Lake region;

MERCI, (Mme) Lamana, Trader, Sarh;

MONETTE, Jacques, Customs Consultant, USAID, N'Djamena;

MONOTAYEM, Souh, Customs office chief, Kelo;

MOROMBAYE, Emmanuel, Managing Director, SCCL, N'Djamena;

MORTON, Alice, World Bank, Central Africa Bureau, Washington DC;

MOTIBA, Frédéric Dounyo, Cameroonian economist, regional trade specialist, COSSOCIM (consulting firm), Bangui, CAR;

MOUBARAK, Djibril, Bureau Chief, SODELAC, N'Djamena;

MOUGABE, Lotard, Division Chief, Agricultural Statistics, Division Statistique Agricole, Ministère de l'Agriculture et de l'Environnement;

MOULLAH, Radam, Customs Office Chief, Binder;

MOUSSAMI, Adoum, Trader, Sarh;

MOYOUNA, Marcel, Ministry of Commerce, Director of Commerce, Bangui, CAR;

NARINGUE, Israel, Stevedore, Koumra;

NASSOUROU, Hamadou, Trader, Maroua;

NDIGTAN Yoradi Elie, AMTT Market monitor, Sarh;

NDIMANTANGAR, Nahorbaye, ONDR Chief, Pala;

NDJEDANBE, (M), Trader, Danmadji;

N'DOASNGAR, Gaikar, ONDR Director, Moundou;

NELDEAL, Ambroise, Consular Representative, Chief of the
Cameroonian community, Maroua;

NOURADINE, Mahamat, Cotton transporter, N'Djamena;

N'GARDOUM, Djaransgar, Farm manager, Bougoumène;

OSE, Iven, Adviser, VITA Credit Project, N'Djamena;

PERROIS, Patrick, French Exporter of melons and green beans;

PLOMB, Christian, Director, BRA project, Sarh;

POKOU, Yao, World Bank, N'Djamena;

RATOU Ando, Head of the Economic Analysis Division, Chamber
of Commerce, N'Djamena;

RENKIRIM, Martine, Trader/exporter/importer, Moundou;

SALE, Adoumou, Transporter, Sarh;

SALE, Alwali, Trader based in Bangui, CAR, interviewed in
Danmadji;

SIDANG-ME, Samuel, Manager, Regional Office of the Ministry
of Commerce (for Economic Affairs), Moundou;

SIDIK, Hassan, Customs office chief, Pala;

SOKONY, Didier, Technical Director, *Enquête en Centrafrique
auprès des Ménages*, Ministry of Plan, Bangui, CAR;

SONDHO, Djel, Head of the Studies Division, *Bureau
Interministériel d'Etudes et de Projets* (BIEP), N'Djamena;

SOSSANY, Issac, Customs officer, World Bank project Sydonia,
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SOUGUI Bie, *Sous-Préfet*, Maro;

SOULA, Jean Jacques, Senior Adviser for Rural Development,
Mission Française de Coopération, N'Djamena;

SOUMAINE Adoum, Director, DARNA, N'Djamena;
SOULOUKNA, Djina, Comptroller, Customs, Kelo;
TIDJANI, Sultan of Karal;
WALKER, James, Chief Economist, USAID Wash. DC;
WHITEHOUSE, Nigel, Partner in Mithril Farm, N'Djamena;
WILLIAMS, Anthony, Project Director, Africare, Moundou.