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**AN ANALYSIS
OF THE
GRAIN-MARKETING
SYSTEM IN
CHAD**

Prepared for U.S. Agency for International Development
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Eugene Grasberg, Ph.D.
Dr. Adly Hassanein

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Development Alternatives, Inc. 624 Ninth Street, N.W. Washington, D.C. 20001

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EXECUTIVE SUMMARY

Chad and Its Cereals

Chad, with its population of about 5 million, has one of the lowest per-capita incomes in the world. The rural population represents about 80 percent of the total. The country extends over more than a million of square kilometers (some 500,000 square miles), and covers three climatic zones:

- The Saharan zone, part of the Sahara desert, with very sparse population;
- The Sahelian zone, arid and subject to periodic droughts; and
- The Sudanian zone, further south, with 600 mm to 1,200 mm of annual rainfall.

The bulk of the country's population is divided between the Sahelian and Sudanian zones. The principal grain crops in Chad are pearl millet (*penicillaire*), several types of sorghum, rice and maize. Millet and sorghum constitute the base of the Chadian daily diet; their consumption amounts to between a quarter and one half of a kilogram of dry grain per person per day.

Rice represents about 10 percent of the total cereal output and has recently been an import item. Its production is concentrated in the southern prefecture of Tandjile. It is of considerably less importance than sorghum and millet, but it is highly visible on N'Djamena's metropolitan market and of course is consumed by producers in the irrigated perimeters. Maize accounts for nearly 5 percent of the total cereal output. It seems to be in high demand. Wheat production is negligible.

The total volume of cereal production is volatile, and depends heavily on rainfall. In a good year, such as the agricultural years 1985-86 and 1986-87, the order of magnitude of the total volume of cereals could be above 700,000 metric tons.

About 80 percent of the cereals produced internally is consumed on the farm. The remaining grain is marketed. Older estimates, dating from the 1960s and the early 1970s set the non-subsistence commercialized volume at some 10 percent or 12 percent of the average total production. In the circumstances of their times these estimates might have been right. Our analysis of the current situation indicates that by now, however, in 1988, the commercialized part amounts to nearly 20 percent of the total volume of grain produced in Chad.

It is this 20 percent of the total volume, then, that the present report addresses.

The Cereals Subsector

The principal problems that beset Chad's cereals subsector are as follows:

- The impact of severe drought which, since the beginning of the 1970s, have repeatedly affected the country's agricultural and livestock production, especially in the Sahelian zone;
- Inadequate or inappropriate agricultural techniques and resulting low yields per hectare; and
- The near non-existence of an adequate road system, which makes it extremely expensive (and in the rainy season, impossible) to move cereals from areas of surplus to areas of shortage.

In addition to the above problems, the country has suffered during the last two decades from intermittent military activities which have exacted their share of the limited economic resources.

The Cereals Market

The main problems that impede the effectiveness of the cereal market in Chad as an instrument of optimum movement of products are the following:

- The cost of transport which prevents the movement from areas of surplus to areas of shortage;
- The very considerable payments exacted by various services at numerous roadblocks along the highways; these artificially increase these costs of transport;
- The physical transport itself, largely monopolistically organized under a parastatal association of truckers;
- The great volatility of prices and the remarkable differences in prices between various localities, which indicates that the market system falls short of a pattern that would best serve both the peasant producer as well as the low-income urban consumer;
- The market which, by virtue of the absence of processing industries (using cereals for food and non-food products to help stabilize the demand and thus encourage agricultural production), contributes to this volatility of prices;
- The pattern of seasonal fluctuations of prices, which is economically damaging to the small farmer obliged to sell at unfavorable terms after the harvest; and
- The restrictive policy of the Office National de Céréales (ONC), the National Cereals Office, which deals only with a group of "approved" merchants (*commerçants agréés*), thus favoring a privileged group over all other traders.

The present state of commercialization is that of an entirely free market. Neither the state nor the ONC sets prices; anyone can participate in cereals marketing. The private sector handles almost all of the cereal trade, including much of that which is bought and sold through the ONC.

The team believes that the Government of Chad has chosen a wise policy in avoiding restrictions and price fixing with respect to the cereals trade.

The market system is very traditional, especially on the level of the small rural markets, where transactions take place in very limited volumes and retail is often confused with wholesale. As a result, a great multitude of traders is involved in the assembly of the product and its further movement to the consumer market.

Speculation in grain is limited. Most merchants do not have the working capital to tie up funds in large stocks for extended periods of time. They need to turn it over rapidly to buy other commodities. An exception to this is the merchants in small markets who may accumulate grain bought from needy peasants at low prices just after the harvest in order to resell it to the same peasants later during the season at higher prices.

At present, no data exists to estimate the volume of cereals that crosses the borders to and from Chad's neighboring countries: Cameroon, Nigeria and the Central African Republic. Much of that traffic is "informal." But it does seem that at times this movement is quite significant.

The ONC

The role of the ONC as participant in the market is limited to less than 5 percent of the total volume traded. Its presence is, of course, felt more in the metropolitan market of N'Djamena. The ONC has acted in the past, and intends to continue to act, as a large wholesaler whose objectives are the following:

- To maintain a food security reserve for the Ministry of Food Security and Population Groups in Danger;
- To stabilize markets in selected limited locations, by buying when the prices are low and selling when they are high; and
- To perform certain activities (such as the delivery of grain to areas of acute shortage not served adequately by private traders) for the Government or donors, against reimbursement of costs.

Below are the two principal recommendations that the team has elaborated for the Chad Grain Marketing Study:

- Our fundamental recommendation is that the private sector must be maintained as the principal vehicle of the grain trade. The ONC should continue to act as a large wholesaler and it should aim at financial solvability. Its actions ought to be guided by its profit and loss statement. It should not become involved in loss-generating activities. For the management of the food-security stock, as well as for any actions that are

deemed necessary for humanitarian reasons, the ONC ought to be reimbursed in the same manner in which any commercial firm performing such actions would be compensated by donors or the Government.

- Secondly, we feel that a national food-security cereal reserve of about 30,000 tons would greatly improve Chad's capability to resist catastrophic droughts and similar disasters. The ONC would have to be assisted in the accumulation of that volume. Donors could help through cash contributions or through monetization of food aid, the proceeds of which could then be used for buying local cereals. Commodities under consideration could include rice, wheat flour, powdered milk, and cooking oil.

Other recommendations include the following issues:

- The improvement of transport and breaking up of the Cooperative de Transporteurs du Tchad (CTT) transport monopoly.
- The assistance to private traders through credit (using PL-480 funds) and technical assistance.
- The assistance to private farmers' storage and marketing associations.
- Stabilization of the cereal market through the promotion of food processing and new uses for food in the domestic diet.
- Dissemination of market information through the radio and other means.
- An increase in the cost-effectiveness of the ONC.

In addition to these recommendations, we have provided a set of guidelines (see Chapter Eight, Recommendations) which ought to govern policy planning around both regular cereals commerce and food-aid activities.

In the study for, and the preparation of, the present report it became obvious to the team that any rational decision and action with regard to the cereal market in Chad is hampered by an almost total lack of relevant information. The subjects that are in the greatest need of investigation are these: producer and consumer behavior, factors that influence storage practices, consumption habits, and cross-border movement of cereals.

As a final note, we should state that during our work we found that the warnings expressed in existing documentation concerning the paucity of numerical data on Chad were fully justified. Accordingly, the team would like to remind readers of this report that the figures contained here reflect *orders of magnitude* only, rather than actual quantities; furthermore, they should be regarded only in an illustrative sense.

CHAPTER ONE

INTRODUCTION

BACKGROUND

Chad, with its population of approximately 5 million, has one of the lowest per capita incomes in the world. The rural population represents about 80 percent of the total and lives in three main agro-climatic zones:

- The Saharan zone -- less than 200 mm annual rainfall and less than 2 percent of the population;
- The Sahelian zone -- approximately 200 to 600 mm annual rainfall and about 50 percent of the population; and
- The Sudanian zone -- 600 to 1,200 mm annual rainfall and about 48 percent of the population.

These population estimates are those used by the World Bank and the FAO. The predominant activities in the Sahelian zone are cereal production and livestock herding, while in the Sudanian zone, production of cotton and cereal crops are the main economic activities.

Chad's economy over the last fifteen years has been unstable due to three principal factors: political conflict, world market fluctuations for cotton, and climatic changes. The constraints affecting the growth of the Chadian economy in recent years have been many:

- The cotton crisis which had a negative impact on farmers' incomes, government revenues, and the banking system;
- Recurrent drought which causes enormous fluctuations in agricultural production;
- Heavy dependence on external assistance;
- Weak and inappropriate governmental policies concerning prices, monopoly privileges, public enterprise, and taxation;
- An illiquidity of the banking sector which has impeded the revival of the private sector and which lacks an appropriate credit policy;

- A shortage of skilled and experienced public and private sector manpower, particularly in management and the technical disciplines;
- The slow and costly rehabilitation of infrastructure;
- The strong dependence of the Chadian agricultural economy on a monocultural system (i.e., cotton); and
- The serious lack of basic data on key economic and social factors.

The current objectives of the Chadian economic development strategy are:

- Food security;
- Diversification of production and export of surplus;
- Safeguarding of natural resources;
- Promotion and support of private enterprise;
- Improvement of public services; and
- Coordination of external assistance.

FOOD SECURITY AND GRAIN PRODUCTION IN CHAD

In 1984, the Food and Agriculture Organization of the United Nations (FAO) estimated that fully 35 percent of the Chadian population was suffering from a lack of food grain. Production fell that year to 37 percent of targeted totals (82,000 MT) in the Sahelian zone and 86 percent (190,595 MT) in the Sudanian zone. Emergency food aid totalling some 127,000 MT was distributed during 1984-85. However, in 1985-86, the deficit situation was reversed by good rainfall, and the year's grain production was estimated by the World Bank on October 26, 1987 to be a record 738,800 MT -- the largest crop since 1971. See Table 1 on p. 5 for a breakdown of estimated grain production by prefecture.

The 1986-87 production attained 726,700 MT and represents a second consecutive bumper harvest. However, insufficient market channels and inadequate commercialization networks failed to transfer surplus production into deficit areas. The systems also failed to stabilize cereal prices in surplus production areas.

Deficits in grain crop production in certain years and a surplus that cannot be stored, transferred, or absorbed by the market in other years have obliged the Government of Chad to recognize the need to improve the efficiency of its domestic market systems. The need for a grain marketing study at this point was essential in order to redefine the roles and duties of all institutions involved with food security issues.

THE GRAIN MARKETING STUDY IN CHAD

Objectives

(See Annex A for complete Scope of Work.)

The purpose of this grain marketing study, as proposed by the USAID Mission in Chad, is to:

- Determine the marketing networks and flow, both private and public, of cereals in Chad;
- Assess the actual and potential roles of the private trading sector in the country as compared to the public sector; and
- Make recommendations for strengthening cereals marketing within Chad based on the results of the study.

Approach and Methodology

The team reviewed existing reports on grain marketing in Chad and contacted the government institutions that are working on food security issues: The Ministry of Food Security, the Ministry of Agriculture (ONDR and BIEP), the Ministry of Commerce, the National Cereals Office (ONC), the Chadian Transporters Cooperative (CTT), non-governmental organizations (NGOs), and other projects. Then the team of DAI/USAID consultants started to record the size, structure, and evolution of the major marketing network for grain in Chad.

A general assessment of the private sector's capacity to move grain from surplus to deficit areas of the country was also needed to provide data on the flows

of cereal within Chad for both the private and the public sectors. In order to identify the key marketing constraints and to determine appropriate measures for alleviating them, the effect of the government policy in these areas had to be determined.

Other questions not addressed here but which could be incorporated into a future study might center around the consumers' dietary habits, attitudes, and behavior and would include the following questions:

- Who are the primary consumers of the cereals and in which zones of the country are they located?
- What kind of cereals do they prefer?
- What quantities of cereal are consumed over any given time period?

Similar questions based on the purchasing habits and behaviors of the consumers would also need to be incorporated into the subsequent study. Data should be gathered by means of a factual survey on the country's established information channels concerning cereals movements while recognizing that these channels have been established by means of demographic, economic, socio-cultural, legal, and technological factors.

TABLE I
ESTIMATED GRAIN PRODUCTION BY PREFECTURE

PREFECTURE	1976-78	1980	1981	1982	1983	1984	1985	1986	1987
SAHELIAN ZONE									
BATHA	37,800	29,300	18,000	11,270	32,300	1,686	51,550	22,964	20,046
BILTINE/OUADDAI	61,000	61,000	51,000	26,000	18,600	13,382	52,050	49,143	43,997
KANEM	11,300	8,000	2,600	1,800	9,400	1,189	17,450	5,343	6,640
LAC	9,100	6,000	6,000	4,500	22,400	13,450	33,330	21,330	14,701
CHARI BAGUIRMI	58,500	51,000	50,300	30,000	27,300	14,890	47,110	68,840	51,416
GUERA	26,500	21,000	21,500	18,400	20,600	7,454	40,550	62,032	51,056
SALAMAT	18,300	16,000	14,500	10,000	38,200	28,000	27,670	9,972	7,884
TOTAL SAHELIAN ZONE PRODUCTION AREA, HA	222,500	192,800	163,900	101,970	168,800	82,056	269,710	239,624	195,740
					332,878	262,694	534,475	529,528	463,310
SUDANIAN ZONE									
MAYO KEBBI	85,333	97,900	91,500	91,500	75,100	85,548	130,300	128,846	105,092
TANDJILE	56,266	52,700	54,500	54,500	53,400	29,109	66,430	108,296	72,968
WESTERN LOGONE	44,533	59,400	52,000	52,000	50,000	31,692	51,650	44,731	27,116
EASTERN LOGONE	79,633	71,700	75,500	75,500	62,800	61,928	71,450	73,602	73,678
MOYEN CHARI	82,533	86,600	84,500	84,500	89,800	92,305	100,500	118,760	97,505
TOTAL SUDANIAN ZONE PRODUCTION AREA, HA	348,298	368,300	358,000	358,000	331,100	300,582	420,750	474,235	376,359
	748,333	786,600	769,500	850,800	819,900	648,274	631,350	617,794	546,650
TOTAL PRODUCTION	570,798	561,100	521,900	459,970	499,900	382,638	690,460	713,859	572,099
TOTAL AREA					1,172,778	910,968	1,165,825	1,147,322	1,009,960
1976-1986 FIGURES FROM USAID/ADD									
1987 FIGURES FROM ONDR									
DECEMBER 1, 1987									
POLICY UNIT FOR FOOD AND FAMINE									

CHAPTER TWO
CHADIAN PRODUCTION SYSTEMS
GOVERNMENTAL PRODUCTION POLICY

Self-Sufficiency Strategies

The Government of Chad has recognized that it faces a chronic problem in cereals production and movements by having a rather large deficit in some years especially in the Sahelian Zone and a major surplus in other years. This surplus cannot be absorbed by the regional markets or conserved because of the serious lack of storage capacity in the country. Some official sources are advocating a regional self-sufficiency strategy which, from an economic and logical point of view, will penalize the high productive regions with low cost and will increase the vulnerability of the deficit areas in case of climatic changes. A shift to producer management and farmer groups is underway to address the negative impact of this institutional policy on both the production and the marketing systems.

Emergency Relief Interventions

Grain production in 1984-85 dropped to 272,000 tons thereby creating a deficit of about 300,000 tons, or half of the total population's needs. The decline in grain production led to an emergency international relief intervention which might have a negative impact on the marketing system and the producers' behavior in the long run if it is not coordinated with and related to the production policy. The area currently under cultivation in the 1987-88 agricultural grain campaign is estimated at 1,009,960 hectares, or one-tenth of the country's arable land. Any increased taxes or administrative restrictions on cereal production will lead the marketing network to switch in favor of lower-priced and smuggled foreign crops such as Cameroonian rice.

Food aid "give-aways" and/or the intervention of middlemen and non-qualified agents of the parastatal institutions in cereals commercialization cause loss of income to producers. In the first case, food aid "give-aways" during bumper harvest years

create unequal competition for producers. In the second case, the intervention of middlemen and unqualified agents reduces the potential earnings of the producers. The unavailability of credit is constricting demand for private investment in production, storage, and transportation. If the ONC were to put pressure on the private sector by raising cereal prices in order to re-establish market equilibrium, they might face a very difficult financial situation and stand in the way of free competition.

Irrigation Projects for Enhanced Cereal Production

Irrigation is a fundamental issue in the Chadian cereal production policy. According to the FAO, in the Sahelian zone, where water is the major constraint to cereal production, the potentially irrigable land is estimated at 1.2 million hectares. The Agricultural Rehabilitation Plan points out that the government will focus on a permanent irrigation system for cereals production in 12,000 hectares, 3,500 of which are under controlled irrigation.

Another step toward improved irrigation policies is the government's intention to rehabilitate 300 hectares in the Lake Chad polders; the project will be extended over 2,000 hectares of irrigated land.

The small-scale initiatives for the irrigation of 50 hectares or less is more likely to be sustainable, but the involvement of the producers themselves in the purchase of the pumps, the maintenance of the water distribution systems, and the management of the projects will certainly reduce the administrative costs and move the projects to full cost recovery of inputs. The manual irrigation by shadoof should be encouraged by the government.

The parastatal institutions such as the Office de Mise en Valeur de Sategui-Deressia (OMVSD) and SODELAC, which are established in the irrigated perimeters of Sategui-Deressia and Lake Chad, turned out to be loss-making organizations because of their lack of management and their profitability approach. They are handling the extension programs as well as maintenance, producer services, and the marketing activities.

Currently, there are three large-scale irrigation projects:

- The Lake Chad polders of SODELAC;
- The rice perimeters of the OMVSD; and
- The Casiers A, B and C on the Logone River.

A number of NGOs are also operating successfully with a variety of water management techniques. The parastatals (SODELAC, OMVSD) have a large administrative staff and fairly high overhead costs, this reflects the diminishing effect of their competitiveness on the market especially for rice production.

CEREALS CROP PRODUCTION

The production of grain in the Sahelian zone consists of "berbere" cultivated in lowlands under periodic flooding, and millet. The Sudanian zone accounts for most of the national cereals production of which 60 to 80 percent is pearl millet and sorghum; the remainder is berbere, maize, and wheat. It also produces diverse food crops including rice, groundnuts, and sesame.

In both 1985-86 and 1986-87, cereals production was around 700,000 tons and Chad was considered to be self-sufficient in cereals, according to the FAO calculation for export and import volumes and per capita minimum cereal needs by region. Despite the lack of import-export studies, consumption surveys, and the unreliability of population data, the decline in market prices for cereals in the last two years supports these calculations on a national level. However, a strong and real regional deficit persists especially in the north of Chad. The public sector production of grain is estimated at 45,600 tons from agricultural projects outside the ONDR operational zones, according to ONDR food crop production reports of 1986-87.

For 1987-88, the surface area under cereal cultivation has diminished by 7 percent, and the production will drop by 21 percent. This compares to 1986-87 which can be interpreted as a producer behavior in response to market conditions and/or rainfall irregularity.

The stock kept in storage by the merchants is estimated at 80,000 tons and the public emergency stock, including NGO stocks, is 40,000 tons. (Source: Office National du Développement Rural -- ONDR).

The following table illustrates the Ministry of Agriculture's estimations for cereal deficits for 1986-87 and 1987-88. According to the Ministry of Agriculture's estimation based on the FAO per capita consumption, the cereal deficit for 1988 will be 140,988 tons.

TABLE 2
CEREALS DEFICIT ESTIMATES

Zones	1986-87		1987-88		Deficit
	Surface (ha)	Production (T)	Surface (ha)	Production (T)	
Sahelian	480,327	251,670	463,310	195,740	55,930
Sudanian	610,495	477,906	546,650	376,360	101,546
Total	1,090,822	729,576	1,009,960	572,100	- 157,476

CROPS: VOLUMES, VALUES, CONTRIBUTION TO GDP

Composition

The preponderant crops in Chad are pearl millet (*penicillaire*) and sorghums (white, red, and "berbere" type). In 1986-87, a very good harvest year, they accounted for at least 87 percent of the total grain harvest, as the following table shows:

TABLE 3
COMPOSITION OF THE 1986-87 HARVEST
(in thousands of tons)

Crop	Sudanian Zone	Sahelian Zone	Total	Percent
Pearl Millet (<i>Penicillaire</i>)	142.2	191.9	593.2	81.6
Sorghum	259.1	-	-	-
Berberé	17.7	24.6	42.3	5.8
Subtotal (A)	419.0	216.5	635.5	87.4
Rice	19.5	.2	19.7	2.7
Maize	22.6	2.7	25.3	3.5
Wheat	-	0.6	0.6	-
Subtotal (B)	42.1	3.5	45.6	6.2
TOTAL (A)+(B)	461.1	220.0	681.1	94.4
Various ag'l. projects (*)	-	-	45.6	6.3
GRAND TOTAL			726.7	100.0

(*) Mostly rice and wheat

Source: World Bank, October 1987 Report, derived from ONDR data.

Value and Contribution to GDP

By value, grain crops make a very substantial contribution to Chad's GDP. A very rough estimate, following the World Bank's figures which in turn are probably not more than orders of magnitude, would put the total value of the 1986 crop of cereals at some 35 billion CFA. That figure would amount to some 70 percent of the value of all food crops (the other food crops being mainly the oilseeds and sugar cane). Adding a conservative guess of about 5 billion CFA for

the transport of, and the trading services related to, the commercialized part of the cereal crop, we arrive at some 40 billion CFA, or about 25 percent of the 1986 GDP at factor cost of 157.6 billion CFA in constant 1977 CFA.

The total value of food crops in 1986 is broken down on the basis of the World Bank Report figures, as follows:

TABLE 4

TOTAL VALUE OF FOOD CROPS IN 1986

Cereals	700,000 tons @ 50,000 CFA	35 billion CFA
Oilseeds	120,000 tons @ 80,000 CFA	10 billion CFA
Sugarcane and other food crops		4 billion CFA
<hr/>		
TOTAL FOOD CROPS		49 billion CFA

Measured at current market prices, the 1986 value of the cereal production and commerce was only 12 percent of the gross domestic product (GDP).

The explanation of the much lower percentage of contribution to the GDP in current (1986) money, as compared with 1977 constant money, is that, while the overall GDP deflator has gone up from 100.0 in 1977 to 178.5 in 1986, the prices of cereals (after the trauma of the 1983 and 1984 droughts) were back down to about the 1977 level, while the prices of other goods and services have nearly doubled. The prices of cereals over the years have reacted with flexibility to larger crops.

STABLE PRODUCTION SYSTEMS

A Model

It is too early to devise predictive quantitative models for the Chadian cereal commodity system because:

- Climatic factors (drought and rainfall), remain unpredictable; and
- Consumption habits in various zones are known only as crude approximations; and
- Population figures, as assumed in various documents, differ by the substantial margin of some 10 percent.

It would, however, be worthwhile to have a simple heuristic model that would help to understand the system and its behavior.

As the first step, we adopt the population figures and the population growth rate of 2.4 percent per year, as estimated in the 1987 World Bank Report (pp. X and 60). Using the above data, we arrive at the following order of magnitude of the demand for 1988-89:

TABLE 5
ORDER OF MAGNITUDE OF CEREAL DEMAND IN CHAD 1988-89

Zone	Population (thousands)	Per-Capita Consumption (kg.)	Total Consumption Needs (thousands of tons)
Saharan	103	80	8.2
Sahelian	2,700	135	364.5
Sudanian	2,631	150	394.7
Total	5,434		767.4

Source: T. de Kerros, *Etude pour la Définition et l'Elaboration d'Une Politique Céréalière au Chad*, p. 18.

The production component of our model is obtained by averaging, separately for each zone, the production figures for the two good years 1985 and 1986, as estimated in the World Bank Report (pp. 60 and 188), and then adding a margin of 10 percent to account for the need for seed grain and for losses in storage throughout the year.

Chadian production is compared with Chadian demand in the following table.

TABLE 6
ORDERS OF MAGNITUDE OF PRODUCTION AND CONSUMPTION
IN THE NEAR FUTURE, 1988-89
(in thousands of tons)

Zone	Production (less 10% for seed and losses)	Consumption Demand	Surplus (+) or Deficit (-)
Saharan	-	8.2	- 8.2
Sahelian	274.6	364.5	- 90.5
Sudanian	459.8	394.7	+ 65.1
Total	733.8	767.4	- 33.6

Based on the preceding illustrative quantification, the order of magnitude of Chad's "Cereal Balance Sheet" in a very good year in the near future would be as shown in Table 7 below.

TABLE 7
CEREAL BALANCE SHEET FOR A GOOD YEAR
IN THE NEAR FUTURE, 1988-1989
(in thousands of tons)

Production	815.3	Consumption	767.4
+ decrease in stocks		Retained for seed and losses (10% of production	81.5
- increase in stocks			
+ commercial imports			
- commercial exports			
+ food aid			
Sum of the above (+)&(-)	33.6		
Total in	848.9	Total out	848.9

Conclusions

Our figures represent only orders of magnitude. It must be said, however, that in the above illustrative balance sheet the production figures may be overly optimistic in that they include a generous reserve of 10 percent for seed and losses above an average of the last two years of good harvests. Despite that optimistically large production, if the population is indeed as large as the World Bank assumes, if it grows so fast, and if its cereal-consumption habits are as high as FAO's T. de Kerros assumes, cereal imports are likely to become a fixture of the cereal commodity system in Chad, at least until a major breakthrough in production is achieved.

If such were the situation, that is, if the order-of-magnitude figures we accepted following the World Bank and FAO documents were anywhere near reality, two courses of action would be indicated:

- **In the short run**, steps should be taken to establish an orderly import trade. Even now, substantial volumes of cereals clandestinely cross the borders. In that manner, the price mechanism of the free market allocates goods where their utility is the greatest. Private-sector traders ought to be encouraged in their contacts with potential supply sources abroad. The private sector solution is highly preferable to a governmental or parastatal mechanism for commercial imports.
- **In the long run**, the solution might be the expansion of agricultural production. Chad has large areas of good arable land which, together with improvements in agricultural techniques, could supply the country's growing needs. In that case, a necessary condition of success would of course be that transport from the new production areas to the areas of shortage could be done at an acceptable cost.

Table 8 on the following page provides a provisional balance sheet of all Chadian cereal production for 1987-88 by zone and prefecture, as estimated by Chad's Ministry of Agriculture.

TABLE 8

PROVISIONAL BALANCE SHEET OF CEREALS PRODUCTION, 1987-1988

ZONES	PREFECTURES	POPULATIONS	NEEDS IN TONS	PRODUCTION ESTIMATED	NEEDS IN SEEDS & WASTE	PRODUCTION AVAILABLE (T)	D E F I C I T	
							-	+
SAHARAN	B.E.T.	106,000	8,480			0	8,480	
	BATHA	422,000	56,970	20,046	3,007	17,039	39,931	
	BILTINE	211,000	28,485	9,258	1,388	7,870	20,615	
SAHELIAN	CHAR-BAGUIRMI	824,000	111,240	51,416	7,712	43,704	67,536	
	GUERA	248,000	33,480	51,056	7,658	43,398		9,918
	KANEM	239,000	32,265	6,640	996	5,644	26,621	
	LAC	161,000	21,735	14,701	2,205	12,496	9,239	
	OUADDAI	412,000	55,620	34,739	5,210	29,529	26,091	
	SALAMAT	120,000	16,200	7,884	1,182	6,702	9,498	
	Subtotal	2,637,000	355,995	195,740	29,358	166,382	-	189,613
	SOUDANIAN	MAYO-KEBBI	832,000	124,800	105,092	15,764	89,328	35,472
TANDJILE		363,000	54,450	72,968	10,945	62,023		7,573
LOGONE-OCIDENTAL		357,000	53,550	27,116	4,067	23,049	30,501	
LOGONE ORIENTAL		369,000	55,350	73,678	11,052	62,626		7,276
MOYEN-CHARI		631,000	94,650	97,505	14,626	82,879	11,771	
Subtotal	2,552,000	382,800	376,359	56,454	319,905	-	62,895	
Total	5,295,000	747,275	572,099	85,812	486,287	-	260,988	

Sources: Ministry of agriculture November 11/87
Per capita consumption according to FAO norms:

- saharan 80, sahelian 135, soudanian 150 kg/inhab./year

CHAPTER THREE

COMMERCIALIZATION

PRIVATE AND PUBLIC CEREAL TRADE

The Chadian policies regarding cereal commercialization and distribution are a mixture of liberalization and restrictions. Although any individual can participate in cereals marketing activities, some officials from the ONC and the Ministry of Commerce interpret the regulations to mean that only licensed traders are allowed to participate and only on a national level. This desire on the government's part to restrict the numbers of traders has a negative impact on market competition and only serves to encourage the excess of profits for a limited number of licensed wholesalers.

If the government were to take actions to encourage and consolidate the coexistence of private and public marketing systems, and to allow for more unrestricted movement of cereals from surplus to deficit areas, then better inter-regional trade within Chad would occur. In addition, and in many ways, this would help remove all restrictions facing private traders.

THE NATIONAL CEREALS OFFICE (ONC)

ONC Policy

In response to climatic and production fluctuations, a national cereals agency was created in 1978: the National Cereals Office (ONC). There is strong disagreement about its functions and policy. The ONC is assigned to:

- Create and administer the national reserve stock;
- Manage and coordinate the exported commercial cereals and the food aid sales programs;
- Prepare the emergency cereals plan and coordinate its sales within the emergency relief programs;
- Provide cereals for collective consumption institutions;

- Establish a cereals data bank and provide information about the grain market network; and
- Control by its commercial interventions the cereal prices fluctuations.

The disagreement among donors about the ONC's role, and particularly with respect to commercialization of cereals remains very strong. The ONC's failures in affecting prices is evident because of the lack of financial means, management and negotiation skills of its agents and the small size of the public security reserve.

As a matter of practice, ONC has not fixed, nor should they fix as an objective, the maintenance of a floor price for producers and ceiling prices for consumers because:

- Due to climatic variations, supply and demand cannot be assured without high costs to the National Cereals Office which would be involved in purchasing the crops in bumper years. This was not the case for 1985-86 and 1986-87.
- Psychologically speaking, and from experience, the farmers do not have confidence in the ONC's ability to buy all of their crops in good years or to transfer it from their surplus areas to the deficit areas.
- The cereals market is very sensitive to fluctuations and little is known about its mechanisms and its informal private sector channels especially as concerns cross border movements.
- The harvest of 1985-86 illustrated the cereal marketing problem and the ONC's inability to deal with it when the market prices plummeted and available financing and storage space was quickly used up.
- The payment of above-market prices for a minimal part of commercialized cereals is mainly an income transfer to intermediary traders and sometimes provides little producer incentive to certain groups of luckier farmers (such as rice producers under OMVSD extension program).
- The ONC will never be able to intervene except by selling food aid at subsidized prices in deficit areas where prices are usually higher and most consumers cannot be protected.
- The ONC is now storing cereals that cost more than the current selling price without incurring financial losses.

With regard to the commercial distribution policy, the supplying of deficit regions is a major problem because the costs of buying and selling do not generate any income for the ONC and a narrow benefit for large private merchants sometimes occurs.

The Financial Health of the ONC

The ONC needs to pay close attention to its cost of operations and make the strongest possible efforts to reduce it. By its very character as a public agency, even though profit-oriented and autonomous, the ONC is bound to have heavier costs than other participants in the free market. To mention only some of the reasons for this: The agency's public accountability requires costly record-keeping and accounting, a function almost non-existent with many traders. The quantity of cereals sold on credit to civil servants represents about 35 percent of its sales volume. The ONC must observe regulations of work-hours and salaries which are much more flexible in the private sector. The ONC uses modern warehouses and adheres to hygienic standards, while most traders store their grain in a much cheaper manner.

With 84,080 bags traded in 1986-87, the cost per bag, which the ONC calls *coût d'intervention* (cost of intervention), is 3,185 CFA on a total cost of 6,472 CFA. According to the ONC 1986-87 report, the operating costs represent 49.2 percent of the total cost despite the fact that there was very little long distance transport involved during this campaign. Most of the grain was stored in the same place that it was bought. If there were to be any long-distance transfer of grain, additional charges of anywhere between 1,000 CFA and 3,000 CFA would have to have been added.

If the annual volume of ONC transactions could be considerably increased, the unit cost (cost per bag) of operations would be reduced, assuming that the overhead does not substantially increase and there is not much additional variable cost. Still, the costs of intervention would remain considerable. Tripling the annual volume of operations to some 20,000 tons (which certainly would involve longer distances and heavy transport charges), would still leave at least 1,000 CFA of the intervening charges per bag. Thus, ONC operating costs would have to be cut.

The ONC, during a number of years to come, should aim at high profits, for two compelling reasons:

- Even if a substantial part of the targeted commercial stock of some 20,000 to 30,000 tons were to be provided by donors, the ONC must show that it is also capable of accumulating stock from its own profits. Otherwise, the donors will be confronted by an image of a leaky vessel which will forever be in need of transfusions to keep it from going empty; and
- Substantial reserves for possible losses are needed. While it is true, in principle, that prices tend to be lower right after the harvest and subsequently to increase until the next harvest, other causes may influence that pattern. Price statistics of the last few years of droughts and subsequent abundant rains and good harvest have shown this to be true.

Even with the best management and commercial acumen, errors of judgment and resulting losses will occur. Reserves must be kept to make up for these losses.

The ONC's Role in the Cereal System

The ONC's objectives (as indicated in its founding documents), are compatible with the philosophy that aims at a free cereal market unconstrained by price fixing and quotas.

Two ONC objectives are related to food security. They are:

- To establish and manage a cereal reserve which could be used for intervening in the case of catastrophic food shortages; and
- To lend its cooperation to food-aid distribution, while maintaining its financial autonomy.

Regarding the first objective, the stock of grain used by ONC in non-disaster years for its regular commercial operations would, in the case of a catastrophic food shortage, be used as a reserve to relieve the immediate pressure. If additional food aid is provided by donors, it may be used to replenish the ONC stock which was depleted by the emergency operations.

Regarding the second objective, that of financial autonomy, it ought to be fully ~~financed in the sense that~~ the ONC would be reimbursed for all costs incurred (out-of-pocket and pro-rated overhead), in its cooperation in food-aid distribution.

Two other ONC objectives are related to that agency's commercial operations, independent of possible disasters. They are:

- To work toward a stabilization of prices received by producers and paid by consumers; and
- To work toward a better distribution of cereals over the country's territory (i.e., to help move grain from pockets of surplus to pockets of deficit).

See Map 1 on the following page which shows the location of all 500-ton and 1,000-ton ONC warehouses throughout the country. Table 9 gives the statistics on ONC Food Aid sales from 1984 to 1987.

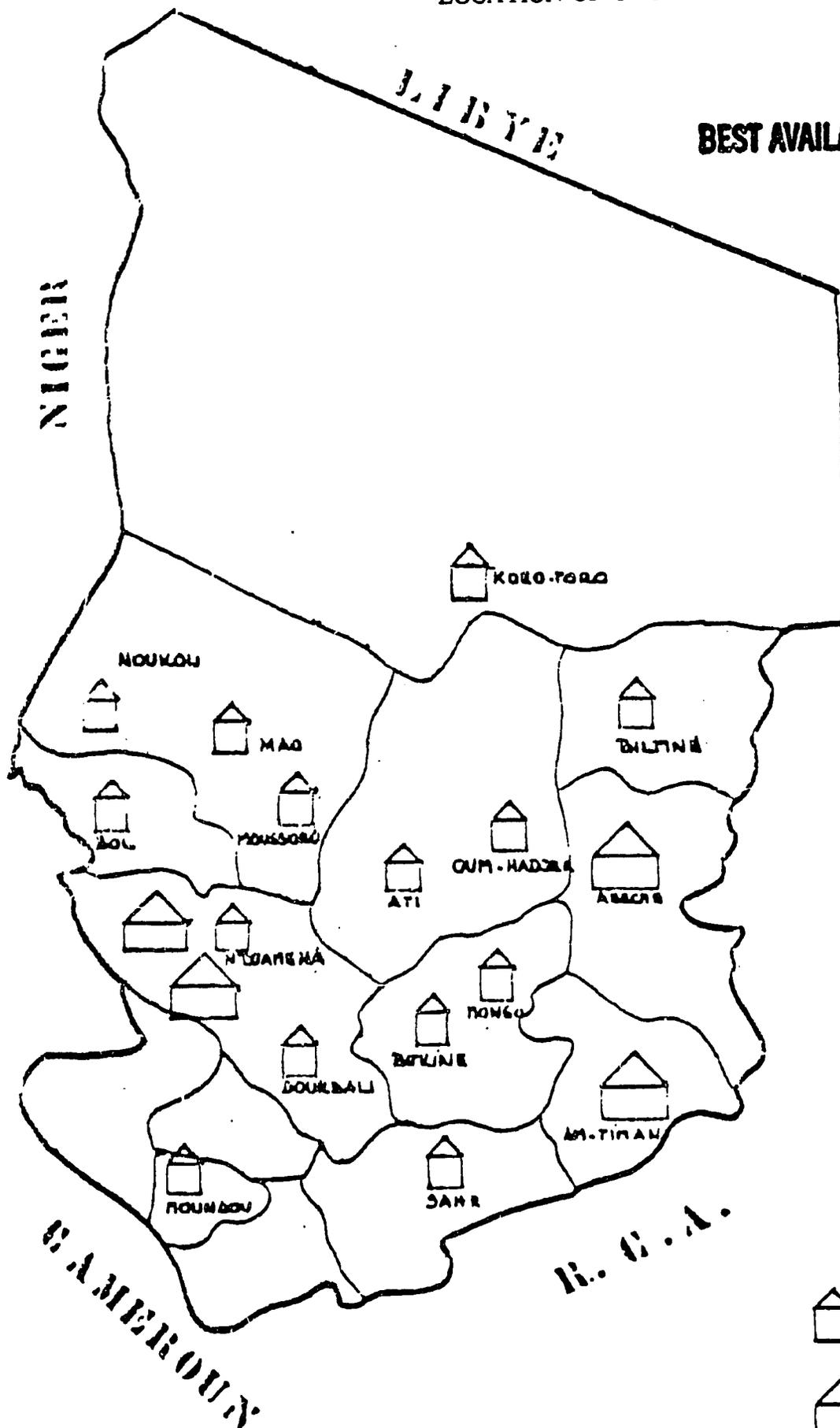
These two objectives are compatible with the free-market environment Chad intends to maintain and strengthen. They give to the ONC the role of a very large wholesaler whose actions influence the market by their share volume.

In stabilizing prices over the agricultural cycle, the ONC acts, first of all, in favor of the peasant producer who traditionally has been the victim of low post-harvest prices which he has had to accept, being desperately short of cash to buy necessities. Under that heading, a direct contact between the ONC and a strategically chosen network of groupements, "pre-cooperatives," cooperatives and similar farmers' marketing associations could be a direct means of the effort to prevent the traditional collapse of prices right after the harvest. (Note, however, that our insistence on genuine motivation, soundness, and integrity of such associations, as well as on the need for great caution, remains undiminished.)

The gain to the consumer from a stability of cereal prices is perhaps less obvious than the gain to the peasant producers. Nevertheless, price stability is important both to the family budget and family nutrition and health.

MAP 1
LOCATION OF ONC WAREHOUSES

BEST AVAILABLE DOCUMENT



-  500 Ton Warehouse
MAGASIN DE 500 TONI
-  1,000 Ton Warehouse
MAGASIN DE 1000

TOTAL CAPACITY = 12,600 MT

TABLE 9
ONC FOOD AID SALES, 1984-1987

Commodity	Donor	Quantity MT	Value CFA	ONC Allowance (retained by ONC)
Wheat, Flour, Sorghum	WFP	4,000	146,622,000	58,089,589 = 40 %
Rice	USAID	5,000	889,815,600	80,000,000 = 8 %
Cereals	USAID	7,500	815,446,900	125,000,000 = 10 %
Flour, Other Cereals	EEC	25,000	1,881,450,000	188,145,000 = 10 %
Flour	France	800	112,000,000	11,200,000 = 10 %
Rice	Japan	20,000	3,559,262,400	355,926,240 = 10 %
TOTAL		62,300	7,292,596,900	818,360,829

Source: ONC Accounting Office

ONC: Funds Available

The financial situation of the ONC for 1988 is estimated as follows:

<u>Source</u>	<u>CFA Value</u>	
Substitution action funds, 1986-1987	154,390,431	EEC
Substitution action funds, 1987-1988	500,000,000	
Project FAO/CHD/018/NET	175,842,000	Holland
Cash available	55,000,000	
Sales of cereals in credit to be cash in 1988	95,095,126	
Cereals in stock	650,000,000	
Government of Chad contribution	287,500,000	
Total Resources	1,917,827,557	

The objective of moving grain from pockets of surplus to pockets of shortage is compatible with the free-market philosophy, but it presents certain problems. Our attention was called to certain marginal cases, exemplified by that of the area of Bol on the shores of Lake Chad in the prefecture of Kanem. This area, a traditional pocket of cereal shortage is inadequately served by private traders because, even though the price obtained there can cover the high cost of transport from the nearest surplus area, the margin is too low to give a substantial profit. Accordingly, private traders would rather concentrate on other areas where they can earn a better profit.

How should the ONC deal with the above situation and similar ones? We suggest that, up to a point, and as long as a minimum profit can be made (or at least a loss can be avoided), on shipments to Bol, the ONC should ship. However, the ONC ought to set an explicit limit upon the proportion which such "semi-rescue" operations can bear to the fully commercial, profit-oriented operations of the ONC. Given its limited resources and fragile financing, the ONC can achieve only a limited amount of good influence.

Proportions of Marketed vs. Subsistence Cereals

Several prominent Chadian cereals traders and transporters confirmed that no less than 20 percent of Chadian cereal production is commercialized every year by both the private and public sectors. It was estimated by the World Bank that the about 10 percent of a good year's harvest in Chad gets commercialized and the remaining 90 percent is kept for producer consumption. But it is unlikely that these figures correctly reflect the current situation because of the following:

- The public sector parastatal companies as the OMVSD and other projects outside the ONDR operational zones produce and commercialize about 45,600 tons including 42,106 of paddy which is under OMVSD monopoly for inputs supply and dehusking;
- According to the Ministry of Agriculture, 80,000 tons are kept in storage by merchants from last year's (1986-87) cereals production which may in our opinion include imported rice and flour, and already represents about 12 percent of the total production;

- The millet market of N'Djamena is well controlled by the "Cooperative de Consommation" which itself is fairly specialized in cereals marketing. There are about 35 wholesaler members in the cooperative; each merchant possesses a 60-ton capacity shed shared with non-members as a permanent market against certain year-round fees with a transaction volume of about 37,000 MT/year;
- In the regional and village markets, commercialized cereal quantities vary from 20 to 50 percent depending on the kind of cereal and the harvest. The producers and/or the small traders market this grain locally or within a limited geographic area. In the Sahelian zone the producer sells one fifth of his production but in the Sudanian zone it can reach 50 percent of cereal crops. In the first case the farmer will use his income from livestock to more grain for future use, but in the second case the cotton crop will be used as a cash crop for the same purpose. According to the Ministry of Economy and a United Nations study, during the harvest period from mid-June to mid-December the rural consumer spends about 1.5 percent of his budget on cereals, but from mid-June to mid-September, he will spend about 7 percent. In the urban areas, on the other hand, the expenditure is about 7.3 percent including 1.5 percent for rice; and
- The urban population is increasing due to drought and war situations and it is currently estimated at 1 million people. Over half of them live in the capital N'Djamena (551,170 inhabitants).

We will discuss marketing systems and cereals flow in more detail later on in this study.

DISTRIBUTION AND INTER-REGIONAL TRADE

Trade Patterns

During our visits and meetings in Chad, some traders and many officials confirmed the existence of a cross-border grain market channel. This "informal" sector acting inside Chad and across its borders is fairly significant but difficult to investigate. A future study may be needed to assess the size and importance of this sector in light of regional trade agreements.

Certain isolated regions such Salamat and Lake Chad usually have surplus in years of good rainfall but the cost of transportation, taxes, and some unofficial barriers restrict the cereals movement to supply only the deficit areas where the demand exists. The result is rapid decline of market prices and bad distribution of regional production on the national level.

The illegal cross-border trade between Chad, Nigeria, and Cameroon is often substantial. It provides more income to cereal producers by avoiding high transport costs described in Chapter Five of this report, the local authority taxes, and the "unofficial" roadblock "fees." By way of example, the transportation costs for a sack of Chadian rice moved internally from Lai to N'Djamena amount to about 3,000 CFA. But the costs for the same sack of rice illegally moved across the river through Cameroon, and back into N'Djamena will amount only to about 750 CFA.

The grain distribution system in Chad is determined by four main elements:

- 1) The commercial distribution channels that are the traditional markets completely under private control. The size and significance of these markets are generally defined by many considerations such as:
 - The geographic areas's production and the volume of sales,
 - The quality of sales promotion of local traders, local authorities, and their representation among the wholesalers of cereals or other commodities, and
 - The quality of grain and pricing practices in the region.
- 2) The contractual relationship between the producers and the intermediary entities such as wholesale dealers, regional traders, and small collectors or ONC and OMVSD agents. The degree of remuneration, technical and promotional assistance, and the exclusivity of commercializing certain cereals are all important indicators upon which the parastatal agencies depend.

On the other hand, the ONC cannot buy more than 1 percent of the total cereal production in the country; and the selling prices are based on the current market prices in the area.

Concerning the OMVSD, the Government of Chad imposes a fixed floor price for producers of 60 CFA per kg and the agency has to buy and commercialize two-thirds of the rice production in its operational zone. The maximum quantity marketed by the OMVSD was 12,000 tons of the country's total production estimated by the Ministry of Agriculture to be around 42,106 tons.

- 3) The permanent conflict of interest between producers, agents, and collectors of cereals. This reflects the ironic situation of the Chadian market network. Instead of transferring their production to deficit areas, the producers wait and watch all kinds of signs from the merchants. Producers and merchants alike are discouraged by the high costs of storage and transportation.

- 4) And finally, management of sales and purchasing is generally the privilege of the private sector and especially of the wholesalers in N'Djamena and other urban centers. That is why the team considers the ONC presence in the market as a positive action to counterbalance this sector. There is a considerable regional imbalance in per capita production which is provoking localized cereals shortages and price fluctuations in the absence of inter-regional cereals trade.

Constraints to Inter-Regional Trade

The collapse of prices in certain regions of surplus production and the shortages in other regions points out the inadequacy of inter-regional trade. The main constraints are:

- The poor transport network;
- The lack of appropriate means of transportation for the private sector;
- High transport costs and the monopoly of the parastatal cooperative of transport (CTT) which imposes a fixed price/ton/km;
- The ineffective and insufficient inter-regional flow of market information which is accessible only to a limited number of wholesalers and which inhibits competition;
- The limitation of the number of private traders willing to compete in cereals marketing by a series of administrative criteria such as bank accounts, licenses, and modern warehouses; and
- The insufficient capital of the majority of merchants to undertake cereals trading operations in the absence of an adequate credit system.

FOOD AID DISTRIBUTION IN CHAD

The total quantity of food aid in 1984-85 was about 127,000 tons and the following year, 1985-86, it stood at about half that figure, or 67,198 tons. This food was distributed free on a monthly basis or through food-for-work and other programs. The Ministry of Food Security and Disaster Victims in conjunction with donors and NGOs managed the food aid program in Chad with great success. Most experts and observers will confirm the prudent and just use of food aid by the Government of Chad.

The ONC's participation in food aid distribution was relatively insignificant. From 1984 through 1986 the ONC sold 5,000 tons of rice given by USAID and 7,500 tons of wheat, maize, and sorghum at market prices according to a USAID agreement. The ONC's intervention in this regard was to help the Ministry of Food Security, which has a limited implementation capacity, and to generate income for the start-up of its commercial program. The ONC is not subsidized by the Chadian government. Given the fact that Chad experiences exceptional transportation problems which will not be solved for long time, the total elimination of food aid program would jeopardize the efforts of building a strong ONC.

As noted in the figures below, the international donors cut back food aid in 1986 and 1987. This was considered to be a step which, if successful, will still encourage the development of inter-regional cereals trading and will assure the survival of the private sector.

TABLE 10
MONTHLY FOOD AID DISTRIBUTIONS
(in metric tons)

	1983/84	1984/85	1985/86	1986/87
November	4,385	1,392	9,166	4,072
December	4,049	6,702	8,610	1,762
January	2,263	5,631	5,842	2,399
February	4,685	6,640	4,468	3,508
March	5,660	6,000	8,381	2,283
April	7,195	17,200	6,525	5,758
May	3,876	15,000	5,347	2,179
June	7,045	12,579	3,612	2,857
July	7,852	12,844	5,208	2,314
August	6,190	12,228	3,250	758
September	6,263	9,000	2,478	1,036
October	2,451	11,814	4,311	3,432
TOTAL	61,914	117,032	67,198	32,358

* Includes emergency food aid, food aid sales, and project food aid. The first column (1983/1984), however, includes only amounts distributed in emergency programs.

N.B. Figure cited for 1984/85 food aid distributions is usually 127,000 MT; reason for discrepancy is that the above 1984/85 figures do not include project food aid during first several months.

In fact only 32,358 tons of food aid were distributed in 1987 as emergency assistance. The idea of replacing food aid by buying local surplus cereals can be considered as a short- and medium-term solution for overcoming the periodic cereals deficit. It also helps the ONC to regulate market prices and contributes to a fairly balanced inter-regional trading system.

THE MARKET SYSTEMS

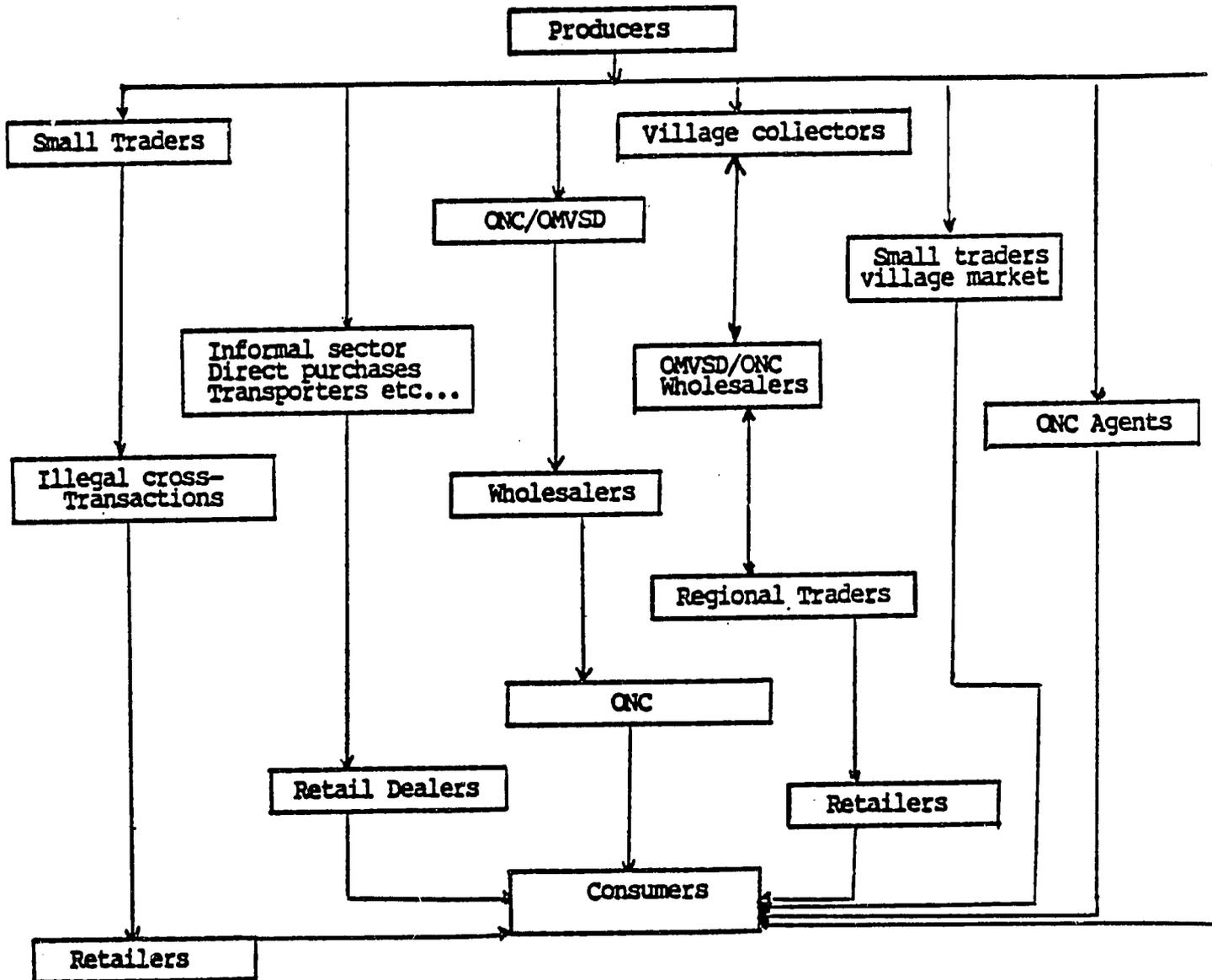
Participants

The cereals market network in Chad is a combination of an immense number of social behaviors, commercial actions, and individual interests and operators. In principle, commerce in Chad is free and anybody can undertake a cereals trading activity. Examples of traders active in Chad might include:

- Transporters who are delivering general commodities from N'Djamena to the eastern part of Chad and who come back with millet in order to turn more of a profit;
- Drivers who are looking for additional earnings by purchasing cereals on their way back from surplus areas where prices are lower. They then attempt to sell their stock in urban zones at a higher price;
- Visitors from the more rural production areas who are coming into town for personal business with one or two sacks of cereal to sell in the market or to families;
- City-dwellers on their way into food deficit areas who are carrying cereals for sale in order to make their trip more profitable;
- Merchants who sell commodities on credit to cereal producers before the harvest and get paid later in crops at a lower price;
- Lenders who lend money to needy farmers and who will be reimbursed in cereals at a lower price;
- Cereal wholesalers and other traders who purchase according to seasons, commodities, and level of profits; and
- Producers who possess some cash and who buy a part of their neighbor's production during the harvest and then act as middlemen.

FIGURE 1

DISTRIBUTION AND COMMERCIALIZATION
NETWORK OF CEREALS IN CHAD



The most important categories are the large transporters and the wholesalers. The team noticed that commercial transactions are not taking place in the market except for small numbers of sacks. Also, once the cereals come into the hands of the wholesalers by commercial channels, they can go on to retailers and sometimes even return back to the wholesalers once again.

The final purchasing by the end-users -- the consumers themselves -- can be done through small vendors by individual sacks or by *koro* (a local unit of measure) from retailers. The used sacks are sold only in important markets and sometimes for exaggerated prices.

The Market Network

First of all, there is a multitude of small primary and weekly markets where the traders are the producers themselves. The quantities for sale in these small markets can be between 5 and 15 sacks per week. There is also a series of secondary and weekly markets that serve a larger number of villages like Maito, Maasaguet, or Moundou where commercialization is accomplished by merchants and carried out by middlemen or agents of the ONC. (See Annex B for a list of all Chadian rural and urban markets.) The quantity of cereal for sale in these latter markets varies between 5 and 10 tons per week per market in the south and more in the center (e.g., the Salamat area). There are also daily markets; here their importance depends upon the demographic concentration and the significance of the nearby urban centers. Sales and purchasing are usually influenced by seasonal and regional factors.

The market network as shown on page 30 is made up of four routes; they are determined by the number of intermediaries who influence prices and commodity flows. There are short routes from the producer directly to the consumer, medium routes with one or two intermediaries, long routes, and, of course, the "informal" ones.

Although the central part of Chad is considered to be a surplus area for millet, producers sell the major part of their crops in the markets immediately after the harvest because during the rainy season, roads and communications are badly cut off.

In the urban markets of areas of chronic deficit, large quantities of cereals are commercialized during the production shortage gap when prices are higher between late October and January.

The quantity of daily marketed cereals marketed on a daily basis varies from market to market and depends upon many factors such as income, demography, social behaviors, facilities and food systems. In the central N'Djamena market, for example, merchants sell between 350 and 1000 sacks a day; this perhaps illustrates their storage capacity in a normal year.

In Moito, a cereals surplus area, about 150 sacks are sold every day starting in early December. In the Moundou market, where cotton is the cash crop, daily sales are estimated around 50 sacks of cereals per day.

Private Trade in the Cereals Marketing Channels

Despite the intervention of the ONC as a public channel in the cereals marketing structure, the cereals market in Chad is completely private. The ONC agents sometimes act as intermediaries between the middlemen on the village level and as merchants or wholesalers on the regional and national levels. In some cases, the ONC purchases cereals directly from large traders and sells to consumers in the same area or in a deficit area using the same merchant and middlemen. In one case, the ONC is selling to public service employees on credit and acting as the retailer.

The ONC is purchasing and selling cereals according to current market prices; it cannot effectively play an important role in stabilizing market prices and in improving commercialization of local cereals production. It is imperative that the ONC should have adequate resources in the short- and medium-term to be able to intervene effectively in the market.

COMPETITION AND SPECULATION IN THE GRAIN MARKET

The hallmark of the Chadian market is that every seller in it is a price-taker. Everyone takes it for granted that he cannot affect the prices at which he buys or sells; and so he does the best he can in light of those prices. It is also clear that urban consumers do not care much about which retailer they buy from; but they do respond readily to small differences in the prices charged by different retailers if any should arise. The traders are numerous and the products of one trader are virtually indistinguishable from those of any other. A small number of wholesalers (especially truck owners) by applying strong pressure on cereals market movement or by decreasing long-term costs, can cut their prices in order to attain sales volumes at a level where they can operate efficiently and still cover their fixed costs.

Grain initially enters the market in two ways:

- By the producers who sell small quantities at a time in village markets or by intermediary collectors who raise cash in order to pay their taxes or to purchase other commodities. These quantities are defined by the family's needs, the security storage capacity, and social events. Generally speaking, producers sell more than they need to with the expectation of being able to repurchase cereals after selling animals or cotton; and
- Through cereal collectors or middlemen at the village level who finance the householders with commodities or cash for their production inputs. These collectors will be reimbursed in grain at harvest-time according to an already-established price. These traders are in fact reselling the grain at a later time for more than the larger market price and to the same producers.

Regional traders or travelling middlemen remove large quantities to periodic or weekly markets in which they are specialized. The large village market traders maintain tight connections with wholesalers in the urban daily markets and are informed about the market network tendency.

The majority of consumer sales of cereals in villages and even in urban areas including N'Djamena is a door to door supplies.

According to government officials, private sector traders purchase cereals at low prices at harvest-time in surplus areas such as Salamat and resell at higher prices during the lean period. None of the traders that the team met had the working capital to tie up funds in stock for ten months at a time. In addition they lacked storage capacity and techniques. Because of the lack of a long-term credit line, wholesalers must turn over their capital as fast as possible to be able to purchase other commodities after the short season of cereals.

The team is quite sure that on a large scale, the myth of speculation is not true because if there were more wholesalers who could hold a large stock until the lean period, the cereal price would be more stable over the entire year.

A close observation of cereals market network in Chad, based on our direct and free contact with producers, collectors, and traders, shows that the relationship between producers and merchants is generally mutually beneficial. The team believes after all that the transactions between the ONC and the producers are more beneficial than the relationship they have with the private sector. Our simplified cereals market network diagram (see p. 30) confirms that the private sector is handling the entire trade of cereals. The ONC is in fact acting as a large wholesaler from a commercial point of view with one exceptional role concerning the maintenance of security stock for direct intervention in emergency situations in deficit areas.

The wholesalers with whom the team met are traders who purchase large quantities of grain; they are based primarily in N'Djamena or other large urban centers. Their commercial activities do not cover only grain but also gum arabic, textiles, cement, and other products. Some wholesalers own trucks and the large majority of them also have warehouses.

Merchants in the urban areas usually contract intermediaries to collect volumes of cereals at least 30 tons to carry in large trucks, which lowers their operating costs. Sometimes these traders deal directly with producer groups or with other wholesalers specialized in their zones if the price differential between the two zones justifies the transaction.

The position of wholesalers and their role in the local cereals trade is very important in the Chadian market network. As decision-makers, the whole system would fall apart without them, because their financial capacity and their risk-taking demonstrated by their injecting funds in advance is imperative to the smooth operation of the system.

The middlemen or collectors generally are professional cereal purchasers who know the rural markets well and who work closely with producers. They also have some storage capacity. There are large numbers of small producers who are marketing small quantities over several months. The arrival on the primary markets of these small quantities of cereals increases the cost of collection and dissuades the merchants who are not organized for such limited cereals supply. Generally speaking, the break-even point is 30 tons for wholesalers.

Most of the traders we met with in Chad are not aware of the importance of a clear bookkeeping and adequate forms of financial management. Although the management level of merchants is inadequate and although they lack medium- and long-term financial support, their experience indicates that they have more potential growth than any other parastatal institutions.

CEREALS MARKETING TRANSACTIONS

Commercialized Cereals

As stated before in this study, in the early 1970s only about 10 percent of the cereal production in a good year was marketed in Chad. But we will try here to demonstrate, after taking into account the FAO estimation for per capita minimum cereal needs by region, that the figure of 10 percent commercialized cereals cannot be used anymore. Our reasons for this assumption are as follows:

- Farmers have somewhat lost the habit of storing cereals year-round during drought and civil war periods and they often are content simply to sell to local traders;
- There is a complete lack of import/export studies and consumption surveys; population data is unreliable; and

- Market prices for cereals have declined due to the production surplus of the last two harvests.

The following facts will support this theory:

- The 1974 UNDP study of cereals production and commercialization in Chad indicates that the marketed quantity of cereals at that time was about 12 percent of a total production of 620,000 tons;
- The private sector storage capacity is estimated at 80,000 tons by the Ministry of Agriculture for 1987;
- The only available population data from the Direction of Statistics of the Ministry of Agriculture estimates the urban population to be around 1 million including N'Djamena with its 551,170 inhabitants;
- Our observations and meeting with N'Djamena market merchants indicates that about 35 to 100 MT of cereals are sold every day on this market;
- The development of cereal consumption is linked to its permanent availability on the market and according to the high record of cereals production which was around 700,000 tons for 1985-86 and 1986-87; and
- The minimum requirement of cereals per capita and per annum is 135 kg as calculated by the FAO for the Sahelian zone, and 150 kg for the Sudanian zone.

The team tried to come up with a round figure of an acceptable percentage of the commercialized cereals which can be situated between 15 and 20 percent depending on climatic, geographic, demographic, and consumption patterns changes.

During our visits to rural markets, the producers and the collectors recognized that of 20 sacks production four sacks are usually for sale and the number of sales units will double if production doubles. This means that farmers sell about 20 percent of their crops except for rice which, we were told, can be at 50 percent. In one case the commercialized quantity of rice represents about two-thirds of production as the farmers are obliged to sell it to OMVSD.

If 120,000 tons represents the total storage capacity then this corresponds to about 17 percent of the total production of 700,000 tons in a very good year. At the usual rate of stock turnover, much of the grain staying only for a few months

in the warehouse, it is enough to handle all the needs of the commercialized fraction of cereal harvest.

Consumption by the Urban Population of Chad

Twenty percent of Chad's population lives in cities. Out of this 1 million urban population, two-thirds live in the Sahelian zone (670,000), and one-third lives in the Sudanian zone (330,000).

Using FAO estimates of per-capita consumption, the annual needs of the urban population are as follows:

Sahelian zone	: 670,000 persons @ 135 kg per capita	=	90,045 tons
Sudanian zone	: 330,000 persons @ 150 kg per capita	=	49,950 tons
TOTAL			<u>139,995 tons</u>

Therefore, the Sahelian needs of 90,045 tons amount to 12.9 percent of the total harvest. And the Sudanian needs of 49,950 tons amount to 7.1 percent of the total harvest. In sum, the needs of the urban population amount to 20 percent of the total harvest. Another way of corroborating the above estimates is to show that out of the total harvest of 700,000 tons, all non-rice cereals amount to about 650,000 tons and the rice harvest to the remaining 50,000 tons. Peasants in need of quick cash can usually sell 20 percent of their output, or 130,000 tons, and rice growers sell approximately two-thirds of their output, or 33,000 tons. The total here becomes 166,000 tons.

The above quantity of 166,000 tons amounts to 23.2 percent of the total harvest and represents even more than our estimate of the commercialized proportion as 20 percent of the harvest. This figure must include illegal imports and cross-borders movement and resales to cover the deficit rural areas.

TRADE FLOWS

South-North Flow

The imbalance in production and consumption between the Sahelian and Sudanian zones indicated gives rise to the principal movement observable in Chadian cereal system: the rough flow from south to north. On the basis of the updated population figures, as shown in the preceding sections, that flow should be in the range of 50,000 to 90,000 tons, depending on the size of the harvest and the amount of grain available.

It is very important to see in that connection that there is nothing inherently damaging in the existence of a regional cereal imbalance between the north and the south. If, as one hopes, the droughts do not become a permanent fixture of Chad's climate, and if the agricultural techniques keep improving, leading to a continuous growth in the volume of cereal output, then a good basis will exist for a parallel development of two complementary commodity systems: that of livestock in the North and that of grain crops (supplemented by root and tuber crops) in the south. Such a regional specialization, together with a vigorous private interregional trade, would lead to a continuing development and strengthening of Chad's economy.

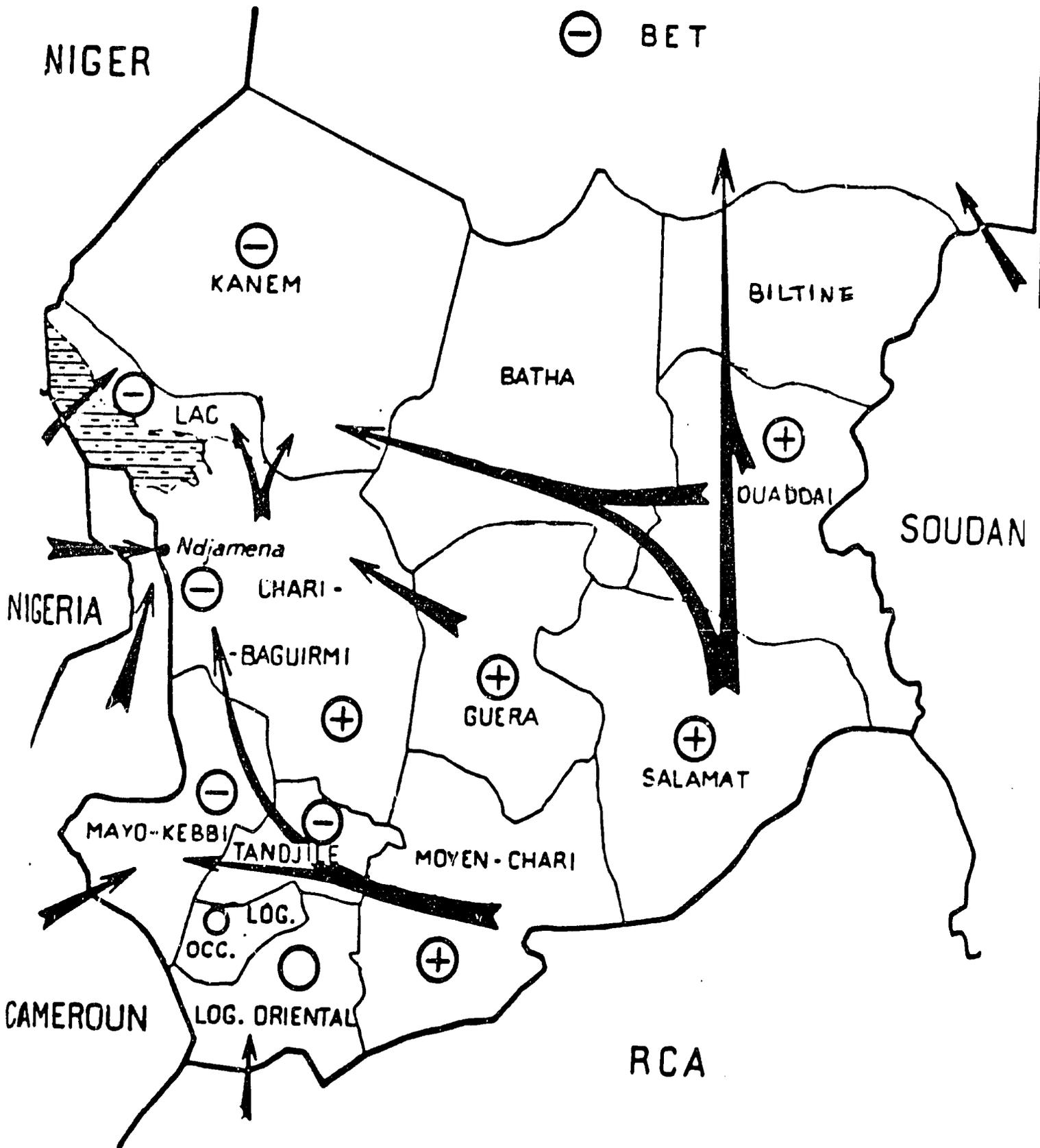
Intra-Regional Flows

Intra-regional flows within prefectures must be quite substantial in all areas of the country, given the size of some of its cities. These flows are especially significant within the boundaries of the prefecture of Chari Baguirmi which has a very large area and includes the capital city of N'Djamena with its large population of urban consumers.

As mentioned above, in January 1988, merchants in N'Djamena were looking for grain supplies in the Chari Baguirmi prefecture within the radius of about 300 kms from the city. Our team, on visits in two subsidiary markets located on two different routes, both leading to N'Djamena, was able to confirm that local small

FIGURE 2

TRADE FLOWS, CHAD
(As Identified in a 1974 U.N. Study)



traders in these towns were involved in supplying the capital city with cereals, at least at certain seasons of the year.

The 1974 UNDP report estimated the total of intra-regional flows at 20,000 tons in 1972. It seems that, in view of the growth of population and the significant increase in urbanization since that time, an estimate in the range of 30,000 to 40,000 for the present, assuming fairly good harvest, is not excessive.

Seasonal Arbitrage

As in so many other developing nations, cereal prices in Chad undergo very large fluctuations throughout the agricultural year. In normal years, just after the harvest, the surplus of grains depresses the prices. Then, the prices gradually recover as the year goes on, usually reaching a maximum during the "lean season," ("periode de soudure"), just before the next harvest.

After having waited for the harvest, the peasant is usually so short of money that he has to start selling as soon as his harvest is in, in order to buy basic household supplies of tea, sugar, and oil. In that manner, he is of course put at a maximum disadvantage vis-a-vis the grain market. Very often, the trader who is almost never uniquely a grain trader but deals also in the household goods, will have advanced these supplies against a commitment to deliver grain when it is harvested.

The small-town market merchant who buys or receives the grain right after the harvest will store it in the expectation of selling it later to the same peasant, at higher prices, for his consumption. One of our informants, a trader in Massaguet, told us that he expected to have a gross gain of nearly 100 percent over the few months that he will store the grain. The quantity he expected to store seemed not to surpass some dozens of 100 kg bags.

As disadvantageous as that pattern of selling and later repurchasing one's own grain by the peasant may appear, there is some rationality in it. In the Massaguet area, the peasant will buy back the grain after selling some of his livestock later during the season and thus obtain disposable cash. Similarly, in the

cotton growing areas of the south, the income from cotton is used to buy back the grain which was sold earlier.

It is difficult to quantify how much grain is involved in this temporal arbitrage. Informants, peasants and traders alike, usually speak in terms of proportions. They say for example: "Two bags out of ten which are harvested." However, in these statements the bags sold for commercialization and those sold for temporal arbitrage usually get confused. Also, it is impossible to ascertain whether every peasant family is so hard pressed for cash to have to enter these unfavorable deals of selling and buying back.

The private trader performs a function, a disappearance of which would put the peasant probably in an even worse situation than that in which he is now. However, there is no doubt that marketing cooperatives, if properly managed and if given access to storage credit, could very significantly improve the situation of the peasant by giving him the means to withstand the pressures and selling at better prices. By the same token, the system would work for a stability of prices throughout the agricultural year.

The team is fully aware of the difficulties of assuring adequate management for rural marketing associations or cooperatives. Other Sahelian (and non-Sahelian) countries have encountered serious problems regarding the repayment of credits granted to *banques de céréales*.

CHAPTER FOUR

PRICES AND PRICE DIFFERENTIALS

PRICE MOVEMENTS

The team studied price movements with two objectives in mind. First, we wanted to know how the price level of cereals responds to the year-to-year changes in the aggregate crop volume as determined by the climatic pattern of intermittent droughts and more abundant rainfall. We also wanted to know whether the private sector does, or can, influence these price responses. After studying these issues, it appears to us that cereal prices have shown a satisfactory flexibility.

Secondly, we looked at short-term relationships, within a single crop year, between prices and the crop cycle, local supply, local demand, and costs of trading operations, and above all, transport. The role of prices is twofold. On the one hand, price differentials, temporal or spatial, signal imbalances between supply and demand and potential opportunities for the trader to profit by equalizing the differential, if the costs of transaction allow him to do it. On the other hand, the speedy or slow disappearance or persistence of these differentials will show us how well the market system is performing its role. We have determined that the performance of the free market in Chad appears to be of rather mixed quality. There is no clear indication either of full effectiveness or of failure.

Our main question was: Does the private sector have the potential to improve its performance? The answer is most probably yes, especially if an improvement in road transport would make the movement of cereals easier. But an additional nudge by an alert ONC, acting as a large market participant, at well chosen times and places, could help to improve the responsiveness of the private sector to market signals expressed by price differentials.

Year-to-Year Price Movements

The satisfactory flexibility mentioned in the preceding section is shown, in Table 11, by the figures of average annual prices for the last six years, 1982-1987. In that sequence, the figures for the two middle years show the dramatic impact of

the last drought. The next two years show the effect on prices of the subsequent abundant harvests.

TABLE 11
AVERAGE ANNUAL PRICES OF PEARL MILLET

1982 in the Southern zone	9,685 CFA per 100 kg.
1983 in the Southern zone	7,735 CFA per 100 kg
1984 in N'Djamena	14,793 CFA per 100 kg
1985 in N'Djamena	19,875 CFA per 100 kg
1986 in N'Djamena	8,729 CFA per 100 kg
1987 in N'Djamena	5,567 CFA per 100 kg

Sources: For 1982-1983, ONDR, *Rapport Annuel* 1985-86.
For 1984-1987, non-weighted average of monthly prices registered by AID Mission in N'Djamena.

The above figures for various years are not fully comparable, having been derived by different methods and from different locations. Also, their significance is limited by the fact that within each year huge seasonal swings of prices take place. However, once due weight is given to these limitations, they still illustrate the effectiveness of the market system in its response to major changes in supply caused by the severe drought and the subsequent bumper crops. (Note that there is no way of disaggregating the impact on prices of food aid, during and immediately after the drought, from the impact of an improved harvest.)

Without going into detailed numerical analysis, it is clear that, as a result of good harvests, the prices fell back to their pre-drought levels, or even lower. The prices were not "sticky" in their response. This phenomenon is easily understandable in an economy in which there is almost no processing or packaging which might introduce rigidities into the reaction of consumer prices to changes in the volume of supply of the raw material, as happens in industrialized economies.

Whether there were any attempts on the part of traders, singly or in concert, to siphon off a part of the windfall from the falling prices and keep it from reaching the consumer, we could not tell. However, even very rough figures show that the consumer has reaped a very considerable benefit.

Indeed, against the background of the overall inflation of the last decade, the prices of cereals, when not affected by climatic disasters, have been a great help to the low-income consumer in facing the inflation on other fronts. Whatever the inner mechanics of the year-to-year price movements, that particular "Black Box" seems to perform reasonably well within the Chadian economy.

Short-Term Price Differentials

Within the limits of any single crop year in Chad, prices of cereals show very substantial differences, and depend on the following factors:

- The harvest season. As is well known, fluctuations during the whole cycle, from harvest to the *soudure* period just before the next harvest, can easily exceed 100 percent.
- Geographical location of and distance between particular pockets of relative surplus or deficit of grain. Prices in isolated pockets of surplus productions have been known to fall to the levels of less than one-fifth of the prices in deficit areas. Even at a short distance (35 kms or 80 kms on a fairly good road) one registers substantial differences in prices.
- Number of intermediaries between the producer and the consumer. The 1974 UNDP study estimated that in the Southern zone some 25,000 tons were traded directly, or at the most with one intermediary, between the peasant, producer, and the consumer. On the other hand, there will be two or three intermediaries between a distant small Sahelian producer and the consumer in N'Djamena. The passage of the product through these intermediate stages will raise the price.

OBSERVATION AND ANALYSIS OF PRICE DIFFERENTIALS

Price Differentials Between Not-Very-Distant Locations

Our team made a number of observations of current market prices and compared them with findings in existing reports. The first group of retail prices we considered were those occurring at weekly markets in two large villages, less than 100 kms of good road distant from N'Djamena. These were the villages of Massaguet (80 kms distant) and Linia (30 kms distant) over a four-day period in January 1988. Prices are in CFA per kilogram.

The following table summarizes these observations.

Product	N'Djamena	Massaguet	Linia
Pearl Millet (<i>Penicillaire</i>)	80	60	50
Berbere	70	50	60
Red Sorghum	60	44	40
Maize	80	50	n/a
First Quality Rice	200	200	n/a
Second Quality Rice	140	180	n/a
Cost of transport of a 100 kg bag to N'Djamena	-	1,000	500

It would seem that, even after defraying the high cost of transport, there were some attractive opportunities of trading left unexploited (e.g., the 3,000 CFA margin on a 100 kg bag of pearl millet between Linia and N'Djamena).

One should not rush to exaggerate the significance of these observations which, as is usual in the circumstances of a single visit, may contain some errors. It is worth noting, however, that another investigator, Mr. R. Maxon who visited the same

markets in June 1977, over ten years before our visit, also observed substantial differences in prices.

The price differentials observed by Mr. Maxon were along different vectors in space than those observed by our team: Prices grew higher away from N'Djamena, rather than vice versa, as was the case during our team's visit. This was probably due to different stages of the agricultural calendar cycle. Our observations were made in January, those of Mr. Maxon's in June. Nevertheless, and allowing for the lower cost of transport in Mr. Maxon's time, there were similar striking and seemingly unexploited trading opportunities (e.g., the 3,200 CFA difference on 100 kg of red sorghum between N'Djamena and Massaguet).

The following table shows retail prices observed by Mr. Maxon during one week in June 1977 at the N'Djamena, Massaguet, and Linia markets. Prices are in CFA per kilogram.

Product	N'Djamena	Massaguet	Linia
Pearl Millet (<i>Penicillaire</i>)	80	100	74
Berbere	70	90	72
Red Sorghum	60	92	74
First Quality Rice	100	130	140
Cost of transport of a 100 kg bag to N'Djamena	-	350	250

The above tables show impressionistic samples of price discrepancies within a fairly close range, on good roads, from the capital-city consumer market. They are disquieting. Each time, in 1977 and in 1988, the most striking one surpassed 50 percent of its lower end.

This concern, however, ought not to be exaggerated. Neither our team nor Mr. Maxon had the opportunity to follow up on how persistent the discrepancies are. In Linia, for example, we took our price observations in late morning, shortly after the market opened for business. Leaving Linia, in mid-afternoon, we saw some empty one-ton pick-up trucks, presumably from N'Djamena to buy produce. So it is possible that the discrepancy in prices had sent an appropriate signal and a process of price equalization was initiated.

If a process of equalization did indeed start and was continued between such pairs of locations as N'Djamena-Linia, N'Djamena-Massaguet, and other similar pairs across the country, how effective was it during an average market day? How much did it amount to over a whole year? To what extent was it successful in narrowing price discrepancies between various locations and what was the cost of the total of all these transactions in terms of cost of transport and margins earned by the intermediaries involved in the process?

We are far from suggesting that these questions have to be answered before first basic steps can be taken to help the private sector in cereal trade. However, when the time comes for fine tuning of decisions, for evaluating more narrowly defined segments of the sector, for comparing its performance with the public sector, then a more detailed research study may be needed.

Price Differentials Between Distant Locations

These differentials are very persistent and are due principally to the cost of transport. The cost of transport in Chad must be understood in the broadest sense, and must recognize that during the rainy season many roads are impassable. As an extreme example of the absence of transport within an acceptable cost range, one hears an often-repeated report of distressed peasants in isolated areas of grain surplus in the prefecture of Salamat who, after the last bumper crop, were willing to trade a 100 kg load of grain for a new bag (i.e., sell their grain for some two to four CFA per kg). But even in less drastic situations, spatial differences in prices of grains are easily of the order of more than 100 percent of the lower-end price.

All of the N'Djamena wholesale traders with whom the team had opportunities to talk in January 1988 stated that they were bringing to the capital cereals from areas of such regional market towns as Bousso, Bokoro, and N'Gama -- all in the prefecture of Chari Baguirmi. The difference between the purchase price in these markets and the cost of the product delivered to N'Djamena (not counting the trader's profit margin), was at least 100 percent of the purchase price.

All the above mentioned markets in the prefecture of Chari Baguirmi are about 300 km from N'Djamena. Why did N'Djamena traders not go further afield to buy grain?

One answer given to the team's question was that, with the price differential between the supply markets and N'Djamena as it was at that time, the cost of transport made it impossible to go any farther in search for the grain. The price differential would have to have been larger in order to justify a longer haul.

The above answer is, of course, perfectly credible. But it also seemed possible that the traders of N'Djamena limited their purchases to the boundaries of the prefecture Chari Baguirmi in which the capital is situated and let the traders from other prefectures ship grain from there. If that hypothesis is correct, it would be difficult to say what the real effectiveness of market signals is, and how truly competitive the market is.

Other Price Differences on Intermediate Distances

In looking through various cereal price statistics, one comes upon other apparent discrepancies that are difficult to explain. We took two recent examples from a price report prepared by the ONC during December 1987, *Tableau Comparatif des Derniers Relèves de Prix de Coros de Céréals*. For conversion from *coros* to kilograms we used the rate of 2.5 *coros* equal 1 kg. That rate ranges at different places from 2.3 to 2.7 *coros* for one kg. Considering that a 100 kg bag is usually thought to contain 40 *coros*, the rate of 2.5:1 seems to be a most realistic average.

The prices of sorghum in Sarh and Am Timan were 60 CFA and 14 CFA per kilogram, respectively -- a difference of 4,600 CFA on a 100 kg bag. The distance between these two locations being about 350 kms, the cost of transport even at an assumed high rate of 8 CFA per bag per km would amount only to 2,800 CFA, leaving an ample margin of 1,800 CFA for other transfer costs and a substantial gain. How could a competitive market let a difference of that size develop?

The same report shows a difference of 3,400 CFA on a 100 kg bag in the prices of pearl millet between Pala and Moundou (in the prefecture of Mayo Kebi). The cost of transport on the distance of about 210 km between these locations, again at a high rate of 8 CFA per bag per km would be 1,700 CFA per bag, leaving a margin of 1,700 CFA for other transfer costs and the trader's profit.

Other puzzling examples of great price differences may be found in the statistics of pearl millet prices in the Sahelian zone, originated by the *Système d'Alerte Précoce (SAP)* of the *Association Européenne pour le Développement et la Santé (AEDES)*. Bousso in the prefecture of Chari Baguirmi is about 300 kms from N'Djamena. Assuming even a very high cost of 8 CFA per bag per km, the cost of transport of a 100 kg bag from Bousso to N'Djamena will be at most 2,400 CFA. Yet in August of 1986 pearl millet was selling in Bousso at 2,400 CFA while the price in N'Djamena was 9,000 CFA, a difference of 6,600 CFA with a tremendous profit potential. Smaller but still potentially profitable discrepancies were found in these reports for Bousso, as well as for other provincial markets.

Some caution is needed in investigating these price differences. The very large differences in prices between small isolated and widely separated pockets of respective surpluses and deficits of grains may be, in a sense, illusory. If the demand in the deficit area is inelastic, as it unfortunately is likely to be in a small impoverished group with very low purchasing power, then the arrival of a single 30-ton truck of grain may cause a sudden drop of price, thus removing the commercial incentive for a commercial supplier. It must, therefore, be recognized that in a country of long distances, costly transport, sparse population and extremely low purchasing power, the profit-seeking mechanism of private-sector trade may not be able to move all the commodities at all times from the points of surplus to the points of shortage. Indeed, it is a hard challenge to the free market system in such

conditions to perform the services which it renders routinely in better endowed environments.

CONCLUSIONS ON PRICES

We now turn to finding answers, in light of the above research, to our all-important question: What is the potential for the private sector, as opposed to the public sector, to move cereals from surplus to deficit areas in the country?

The answers are twofold: First, cereal prices have not failed to reflect the dramatic increase in harvests due to the cessation of drought. Whether the bumper crops of the two recent years were fully reflected in the lower prices to the consumer, or whether some of the windfall was siphoned off into profit margins is impossible to say.³

Second, while the private sector is superior to the public sector in its effectiveness of response to price differentials and changes, its absolute potential is subject to the following constraints:

- The severe constraint of transportation costs;
- The seemingly sluggish response to substantial price differentials between not nearby markets; and
- The tendency inherent in any trade group for territory-sharing and similar trade-restraining arrangements. These tend to curb price signals.

Additional Studies

Daniel Kohler's study of Chad's cereal systems between 1968 and 1976, although more optimistic than our observations concerning the effectiveness of price signals, indicates that the basic situation with regard to prices across the vast territory of the country has remained very much the same over the years.

Kohler found that, over the 1968-1976 period, there was not much correlation between the up-and-down fluctuations of prices in N'Djamena and in other markets situated at large distances from the capital (Sarh - 550 kms; Abéché - 750 kms;

Moundou - 600 kms, for example). That finding would imply that the price system was not very effective in transmitting its signals to different locations.

Another set of calculations made by Kohler gave results which were rather contradictory to those just mentioned. According to these calculations, during the 1968-1976 period the absolute differences in prices between various geographical locations rarely exceeded the cost of transfer. The fact that the differences still remained very large (up to 100 percent), was due then as now in 1988 to the exceedingly high cost of transport. However, Kohler was as baffled as we were by some unexplained discrepancies. Moreover, he had serious doubts as to the accuracy of the primary information. He considered the possibility of "... a lack of information on prices prevailing in other markets, monopolistic practices of traders preventing the free flow of grain, and other conditions making it impossible to transfer grain," (cf. CILSS, Club du Sahel, "Marketing, Price Policy, and Storage of Food Grain in the Sahel," Center for Research in Economic Development, University of Michigan, August 1977, p. 38). One manner to interpret the seeming persistence of large price discrepancies is simply to dismiss them as errors in data collection or faulty methodology. Another method would be to ask whether the price signals are not rendered ineffectual by the fact that the separate markets of regions are not fully "contestable," i.e., having the ability to stimulate cost-effective production at prices equal to or close to marginal costs by means of competition.

COST STRUCTURE OF MARKETING OPERATIONS

Of interest to our study are only those operations which involve larger spatial movements, and above all those from surplus areas to deficit areas and from rural areas to major cities. We did not investigate the trade within small rural units, in which cereals move directly, or with at the most only one intermediary, from the grower to the local consumer. Substantial as that trade may be (the 1974 UNDP study estimates it at some 25,000 tons in the Southern zone alone), there does not seem to be much that can be done to rectify the situation.

With regard to the marketing costs that come within the purview of our report, their principal categories are quite obvious. They are as follows:

- Costs of contractual personnel at different stages, rural and urban, of buying, assembling, distributing, and retailing;
- Costs of labor involved in the above transactions;
- Costs of bags (jute or plastic) and strings;
- Costs of transport; and
- Costs of storage.

This last item -- costs of storage -- is a fluid category, because the conditions of storage vary from those of a reasonably modern warehouse owned or leased by the ONC and its "*commerçants agréés*," to a number of bags stored in a small trader's living quarters, to a pile of bags under the open sky or covered by a tarpaulin.

There is no doubt that the private sector enjoys its usual superiority over the public sector in the cost-effective use of human inputs whether the case is of simple labor or of commercial services. The cost of accessories is a stable factor upon which the trader, whether private or public, has little influence. The cost of storage escapes rigorous analysis at this time. There is certainly a trade-off between the cost of fumigation, insecticides and maintenance and amortization of a modern warehouse on the one hand, and losses to insects and rodents in primitive storage conditions on the other hand, but at present we lack data on that subject. Moreover, these considerations are only marginally germane to the objective of our study.

The most important category of costs, both for the private and the public sectors, are those related to transport. They are the subject of a subsequent chapter.

CHAPTER FIVE

TRANSPORT AND COMMUNICATIONS

TRANSPORT

In the absence of railroads, the principal means of moving cereals in Chad is animals (camels and donkeys) among the villages and motor vehicles for longer distances. The state of the roads, especially during the rainy season, has been sufficiently described in the documents of all major development institutions. They are among the world's most impassable ones.

Animal Transport

The question of animal transport is a baffling one. The number of donkeys and horses, despite the many and prolonged droughts of the past several decades, has remained steady. The number of camels, on the other hand, in 1985 was five times that of forty years ago. A concrete example of renting a camel for transport may point out some of the perplexities of animal transport: A camel can carry at least four bags of 100 kg each. It can be rented in the areas near N'Djamena for 2,000 CFA per day, that is, for 500 CFA per bag. A round trip from Massaguet to N'Djamena -- 80 km -- can be done in two days. Accordingly, if a load for the return trip from N'Djamena to Massaguet could be found, the camel would be a much cheaper means of transportation than a small truck which would charge 1,000 CFA per bag from Massaguet to N'Djamena. Of course, the truck covers the one-way distance in some two hours (in the dry season), while the camel would take a whole day and would require overnight accommodation in N'Djamena.

Cost figures such as these are not easy to unravel and they are difficult to compare with the cost of motorized transport. It appears also that many watering points for medium- or long-distance caravans have been damaged during the war or have fallen into disrepair. More attention to the watering holes could result in at least marginal improvement in animal transport.

Motorized Vehicles

Motorized road transport in Chad is dominated by a semi-monopolistic association of truck-owners, Coopérative des Transporteurs du Tchad (CTT). This entity was created by the industry itself at the time of Chad's independence. Later, during the chaotic conditions of internal struggle, it was instrumental in assuring a modicum of vital supplies. CTT was subsequently fully recognized by the government and now possesses considerable power in allocating freight to its members and in influencing official government-approved freight rates. The role of the organization is a subject of controversy, criticized by many as semi-monopolistic, defended by others as useful.

The rates fluctuate for various zones of the country, the sandy areas in the north of course commanding the highest rates. In the opinion of some people, the official freight rates (which have not been changed since 1984) are not excessive. Other informants think that the rates are too high and that they allow the truck owner to amortize the cost of the vehicle within barely two years. Such a short period of amortization, however, is not unusual in such countries as Chad.

The rates are not universally adhered to and it is possible to strike a deal with the trucker, especially if he is not a CTT member.

The association currently claims to control nearly 1,000 trucks, the majority of which are 30- and 40-ton vehicles. The CTT office acts as a clearinghouse by receiving commodity demands from shippers and then allocating them among member truckers. The number of non-association truckers is much smaller than that of CTT members. They contract with shippers directly, or through brokers (*commissionnaires*); however, they are obliged to pay CTT the same amount of association dues per trip as the CTT members pay. As a result, they cannot easily offer much cheaper transport than CTT members.

It seems that the number of larger trucks is sufficient to take care of the present volume of trade. On the other hand, some observers think that the number of small pick-ups and one- to one-and-a-half-ton vehicles is not sufficient to

respond to all commercial demands. That opinion finds an indirect confirmation in freight charged by these small vehicles on short distances. The freight charged on a 100 kg bag of grain, 80 kms from Massaguet to N'Djamena, was given as 1,000 CFA. This calculates out to 12.5 CFA per bag per km as compared with about 5.0 CFA charged by a larger truck over a longer distance. The charge for a 35 km haul from Linia to N'Djamena was even higher: 500 CFA per bag or over 14 CFA per bag per km.

The decisive negative impact of the cost of transport on Chad's grain trade is determined by the following factors:

- The country is very large and distances are long;
- The population is sparse, thus both production and consumption are thinly spread out; and
- The roads are very bad and in the rainy season many long stretches are impassable.

The team discussed the cost of transport in detail with a number of traders including two groups in N'Djamena -- the *commerçants agréés* and independent traders; and two groups in the smaller markets of Massaguet and Linia.

The picture that emerged was discouraging. In the first place, the freight rates are substantial when compared with the price of grain. Secondly, there is a number of heavy payments that shippers must make for various official and non-official reasons at exit points from towns where the shipment originates and at numerous roadblocks. Some of these checkpoints are manned by representatives of four or five public services (Agriculture, Natural Resources, Livestock, etc.).

Table 12 illustrates the cost of transport and other charges for the haul from Moundou to N'Djamena, a distance of 605 km.

TABLE 12
 COST OF TRANSPORT AND RELATED CHARGES
 MOUNDOU-N'DJAMENA, 605 KM VIA DOBA

Cost/Item	10-Ton Truck (100 bags) in CFA	30-Ton Truck (300 bags) in CFA
Freight (at 51 CFA ton/km)	308,550	925,650
Handling (loading and unloading 1 CFA per kg at each end)	20,000	60,000
Subtotal	328,550	985,650
Subtotal per 100 kg bag	3,286	3,286
Informal Charges:		
Tax TCA 4% of freight rate (<i>Taxe sur Chiffre d'Affaires</i>)	12,340	37,030
<i>Laissez passez</i> at the city exit	4,000	4,000
Exit permit from the prefecture 500 CFA per bag	50,000	150,000
Roadblocks (<i>barrières</i>)*	100,000	100,000
Subtotal	166,340	291,030
Subtotal per 100 kg bag	1,660	970
Cost per 100 kg bag per km	2.7	1.6
Total cost per truckload	494,890	1,276,680
Total cost per 100 kg bag	4,949	4,256
Total cost per 100 kg bag	8.2	7.0

* There were 62 roadblocks along the route. Total cost indicated is only an estimate.

The above cost table supports the statements by the traders with whom we talked (both *agrées* and *non-agrées*), that as of January 1988 it was uneconomical to buy grain from Moundou and haul it to N'Djamena. At that time, the price in Moundou was about 3,000 CFA per bag and the N'Djamena price was about 6,500 CFA per bag. With the transfer cost of at least 4,250 CFA per bag (on the most economical, 30-ton truck), there is no commercial sense in the transfer. As mentioned above, the traders with whom we talked were buying grain in the markets at about 300 km, that is, one-half the distance to Moundou.

Another example was provided by informants in the rice industry. An 80 kg bag of rice produced at the OMVSD or CARE projects in the Lai area, in the prefecture of Tandjile, costs between 2,000 CFA and 2,500 CFA to deliver to N'Djamena (400 kms away). OMVSD's or CARE's cost, however, is 12,000 CFA per bag (15,000 per 100 kg) delivered to N'Djamena. Additional storage, handling charges, and the retailer's margin will bring the cost to 14,000 CFA per 80 kg bag, or 175 CFA per one kg sold retail. By contrast, Cameroonian rice, which costs only 750 CFA per bag to bring to N'Djamena across the border, sells retail for 150 CFA per kg.

This "cut-off point" mechanism beyond which it is not profitable to haul grains over the long distance seems to be working on most of the routes across the country. It is often complicated by two other considerations: availability of freight for the return trip, and calculations for a minimum economical load for a large truck.

As mentioned above, small grain traders near N'Djamena are willing to pay much higher fees to the drivers of pick-up trucks and small one- to three-ton trucks for shorter-haul distances. It seems that they are willing to pay more for transport in order to turn their capital faster.

Reducing Transport Costs

We have made some approximate calculations to show to what extent reductions in the cost of transport would make hauling grain possible over larger

distances. Private-sector traders would be able to move cereals from the areas of surplus to the areas of deficiency more effectively in this manner.

The following table shows these potential beneficial effects of the reduction in the costs of transport. In the table, we assume four different levels of differences in prices of cereals between two localities. We also assume that the traders expect a 700 CFA profit margin on one bag.

TABLE 13
HAULING DISTANCES ACCEPTABLE TO THE TRADER
AT VARIOUS LEVELS OF TRANSPORT COST
(distances in kms)

Transport Cost	<u>Differences in Prices between Localities</u>			
	1,000 CFA	2,000 CFA	3,000 CFA	4,000 CFA
8.0 CFA	38 kms	163 kms	288 kms	413 kms
7.0 CFA	43 kms	186 kms	329 kms	471 kms
6.0 CFA	50 kms	217 kms	383 kms	550 kms
5.5 CFA	55 kms	236 kms	418 kms	600 kms
5.0 CFA	60 kms	260 kms	460 kms	660 kms

The above table explains why in January 1988 wholesale buyers of grain for N'Djamena markets did not go further than 300 kms to supply the capital. They bought their grain within that radius mainly at the markets of Bokoro, Boussa and N'Gama. At that time the margin of difference between the prices at these markets and that of N'Djamena was about CFA 3,000 per bag. The cost of transport in January 1988 was between CFA 7 and CFA 8 per bag per km. The table shows that at 8 CFA, the largest acceptable distance was 288 km, while at 7 CFA that distance was 329 km. Accordingly, the approximate acceptable distance was 300 km.

The table also shows that if the cost of transport was brought down to CFA 5.5 per bag per km, the trade over the distance of about 600 km, from Moundou to

N'Djamena would have been possible, because at that time the price differential was about CFA 4,000 per bag.

What would the impact on transportation costs be if truckers decided to amortize their vehicles in three rather than two years? If we assume that a 30-ton truck costs 27,000,000 CFA and annual kilometrage is gauged at 50,000 km, then amortization in two years would put a charge of 9 CFA per one ton per km, or 0.9 CFA per one bag per km. If truck owners amortize their vehicles over three years, then the charge would be 6 CFA per one ton per km, or 0.6 per one bag per km. Accordingly, the longer amortization period would lower transport costs by 0.3 CFA per bag per km.

Comparing the result with the above table, we can show the result on a few illustrative situations, as follows:

Supposing that the elimination of the payments at roadblocks has already brought down the cost of transport to 6.0 CFA per bag per km, then the lower amortization rate will extend the acceptable haulage distance even more:

Price Difference	Hauling Distance
1,000 CFA	from 50 to 53 km
2,000 CFA	from 217 to 228
3,000 CFA	from 383 to 404
4,000 CFA	from 550-579

While these cost reductions would not be negligible, they are not of a very high order compared to those that would be achieved by the reduction of charges on the roadblocks.

COMMUNICATIONS AND INFORMATION

There is at present no information or communication system in Chad designed expressly to serve the private-sector grain trade. There are, however, various statistical branches of the government departments working to develop a regular

system of agricultural and commercial statistics. Similarly, there is a number of Chadian and international agencies engaged in devising ways to gather advance information on, and prepare contingency plans for, possible recurrence of drought-caused crop failures.

But what we are concerned with here is a steady stream of cereals marketing information to be made available to any consumer, grower, trader, or potential trader. The objective, no matter how distant it may appear at present, would be to provide the market with the maximum information available so that the formation of prices and the movements of grains may take place in conditions as nearly competitive as possible.

At present, the most practical instrument of communications in Chad is the radio. ONDR makes use of the radio to encourage the growth of production and to disseminate technical advice. A weekly broadcast for farmers on the prices of the principal cereal and non-cereal products would surely stimulate the imagination of young enterprising farm people. The grain trade would then gain some new blood, new ideas, and perhaps new methods all for the ultimate benefit of the consumer. In addition to resourceful individuals, marketing cooperatives might also be able to benefit from these kinds of broadcasts.

Other Chadian communications systems include the *Système d'Alerte Précoce* (SAP) and the *Système d'Alerte Rapide* (SAR) with the assistance of the Famine Early Warning System (FEWS). The information collected by these groups is, for a number of reasons, very sensitive. In our opinion, as long as the information on future harvest prospects and the prospects of localized food availabilities or shortages is divulged to all, without special privileges and without coloring in either over-pessimistic or over-optimistic hues, such openness would be of use to all market participants in their pursuits.

CHAPTER SIX

FARMERS' STORAGE AND MARKETING ASSOCIATIONS

INTRODUCTION

While the single-trader or single-family firm is very abundantly represented in Chad's cereal commerce, another important element of the private sector, that of farmers' marketing cooperatives or associations, is almost entirely missing. This entity is important and desirable in every market. Its presence and efficient operations would be especially beneficial in Chad, a country of small farmers, to assure more bargaining power for the multitude of very small and economically weak sellers vis-a-vis economically stronger and usually more business-wise buyers.

We are fully aware of the dismal record, in country after country, of farmers' cooperatives and/or organizations that were brought into existence simply by fiat of public powers. We believe that unless these associations spring from below, from within mature and fully motivated peasant groups, they are doomed to atrophy at best or to become vehicles for fraud at the worst. However, unless the process of promoting cooperative marketing starts, there will never be effective farmer cooperatives in Chad.

THE SECADEV PROJECT

The most active organization in the field of cooperative associations, building on the existing tradition of *groupements*, is Secour Catholique et Développement (SECADEV). SECADEV has been working with rural *groupements* for several decades in many areas of the country, and at present claims many thousands of small farmers involved in its projects. These projects aim to strengthen grain storage practices at the household and village level, a practice which has largely disappeared during the last fifteen years of civil wars, invasions, and droughts.

The most important objective of SECADEV in its dealings with the *groupements* is the development of the capability of management without external assistance which at present is still quite inadequate. SECADEV promotes openness and "transparency"

in the financial operations of its *groupements* in order to create favorable conditions for integrity in management.

At present, there is no external credit available for the *groupements*. Members buy equipment and supplies in common. This indicates that there is sufficient motivation and understanding of their rational interest among the members. In general, the atmosphere at SECADEV seems to be one of realism and cautious optimism.

THE "PROJET DE COOPERATIVES"

We were also told about a much more recent project, sponsored and funded by UNDP and carried out by the Division of Industry and Coopératives of the Ministry of Commerce and Industry, which boasts a component of cooperative farmer grain storage and marketing. The project, named "Projet de Cooperatives, Notamment de Groupements à Vocation Coopérative" covers a broader group of objectives that those within our interests. However, commercialization of agricultural products is one of its principal aims.

The first phase of the project consisted mainly in survey work and discussions with existing *groupements* in the areas of Pala (in the prefecture of Mayo-Kebi), in Ba-Illi (in the prefecture of Chari Baguirmi), and in Karal (near Lake Chad in the northern extreme of the prefecture of Chari Baguirmi).

The second phase of the project, budgeted at \$680,000, has already been discussed between UNDP and the Ministry of Commerce and Industry; it now awaits UNDP approval.

These projects ought to be closely watched. If they prove clearly that the interest of participating peasants is genuine, that the members are willing to invest their own money and effort, and that there is a chance for effective management to be put in place, then conservative support would be indicated. The most important part of the support would be skilled advice rather than financing, although limited funding for storage credit could be also considered.

CHAPTER SEVEN

GOVERNMENT REGULATIONS AND POLICIES

REGULATIONS

Unlike many other Sahelian or other governments, the Government of Chad has not overregulated the domain of cereal trading. Its involvement has been limited principally to two regulations: the creation of the Office National de Cereales (ONC) and the creation of a group of *commerçants agréés*, a group of traders who are approved as a list of "preferred customers" for dealings with the ONC.

The ONC is the successor of other parastatal agencies and the fact of its existence is by itself neutral. What is of importance are the policies followed by the agency. These policies are discussed later in this chapter.

The group of *commerçants agréés*, despite their status, seems to contribute little to the effectiveness of the private-sector trade in moving grain from the areas of surplus to the areas of need, which is the only legitimate function of trade. On the contrary, the existence of that group introduces one additional bottleneck into the movement of grain and thus adds to the cost of transactions and ultimately to the consumer price.

Generally speaking, government regulations of the cereal trade should not differ in essence from the regulations of other, non-cereal marketing activities as concerns order, probity of transactions, enforcement of contracts and the prevention of restraint of trade. However, special attention ought to be paid to this latter area-- the prevention of restraints of trade -- in that the cereal trade does play a crucial role in the well being of the low-income populations.

Cereal trading, including the ability to buy from and sell to the ONC, ought to be open to any person who satisfies the general requirements of the commercial code, as long as that person has the means to engage in transactions on the level on which ONC operates.

It is important to remember that certain regulations, such as sanitary regulations for storage facilities, can easily become instruments of discrimination. The most important thing, regulations notwithstanding, is to have an efficient trade sector capable of moving grain fast from where it is in surplus to where people urgently need it.

POLICIES

A clear distinction ought to be made between the issue of food security and preparedness for climatic and other adversities on the one hand, and the issue of effective commercial cereal trade on the other hand.

With regard to commercial marketing of cereals, there seems to be a continuing debate over ONC policies. Partisans of intensive governmental intervention argue that the ONC ought to establish floor prices for its purchases in order to encourage production. There is also the view expressed that a ceiling price ought to be established for ONC sales in order to help the consumer. Advocates of such views do not seem to have considered thoroughly how long such a policy could be sustained before the ONC's funds ran out. Neither have they considered the possible misallocation of economic resources that could result from such policies.

In the past attempts at such radical interventionism by the ONC or its predecessor agencies have sometimes resulted in windfalls for the merchants who acted as intermediaries between the ONC and the market, rather than for the peasant producer or the consumer. When a floor price was established, with the hope that it would increase the peasant's income, merchants who previously bought at much lower prices unloaded their stocks to the government for the higher floor price. Thus, the governmental policies were frustrated, as they often will be when heavy state machinery confronts astute market traders.

We were pleased to observe that the present management of the ONC is not in favor of those kinds of strongly interventionistic activities; rather, it tries assiduously to conserve its capital and to act as a commercially-oriented market participant.

It is our opinion that the government cereal policy should aim at maintaining a free competitive market and should limit its interventions to smoothing out both excessive price fluctuations over time and abnormal geographical price differences (see Chapter 8, Recommendations).

Undoubtedly, it would benefit the Chadian economy if the ONC could continue its existence as the government's principal instrument of market stabilization. Ideally, the ONC ought to be a self-supporting entity guided by its profit and loss statement. It should buy at market prices, from anyone who can meet its terms, when the price is judged to be low and likely to rise; and it should sell on the free market when it judges the price to be high. There should be no privileged clientele of *commerçants agréés* but, rather, transactions should be made through bids and tenders open to everyone.

Additionally, the ONC should not set any fixed prices or price targets. Its stabilizing role would result simply from its acting as a "flywheel" upon the market. It is in this manner that the ONC will be able to do the most good in a permanent, self-sustained manner and will be less of a recurring need of "rescue operations" to make up for its accumulated deficits due to market interventions.

The role of a self-sufficient agency that we might envision for the ONC is, emphatically, an idealized one. Is it realistically possible? Judging from the overwhelming evidence from many other countries, it would be very hard to answer that question in the positive. The only manner in which ONC could continue a self-sustained existence is by becoming as competitive as the average private-sector trader, that is, by reducing its costs of operation to the level of a private merchant. And that is not a realistic possibility.

A more realistic possibility is that if both the Government of Chad and its principal donors judge that the attempts to stabilize the cereal market constitute a worthy economic and social policy objective, then an explicit decision could be made to subsidize, within a certain stated limits and for a certain stated period, commercial operations of the ONC. Of course, such a decision should not be an invitation to inefficiency. Any subsidy would have to be made conditional upon a cost-effective performance. Certain cost-accounting benchmarks should be

established and their observance would be obligatory for each subsidy installment. Indeed, the benchmarks ought to become more and more exacting as time goes on. In fact, it would be a worthy objective for the USAID Mission in Chad together with the ONC to make a review of such benchmarks as used in other Sahel countries and on that basis then to establish a set of guidelines for cost-effectiveness.

An alternative to the above-suggested compromise solution would be to limit the activities of the ONC exclusively to that of managing the reserve stocks for food security in case of catastrophic shortages.

Our team was sufficiently impressed by the realistic and businesslike attitude of the present management of the ONC to feel that, within the above-stated conditions of cost-effectiveness and limited subsidy, the organization deserves to be given a chance to show if it can effectively cut its costs and begin to approach an acceptable level of competitiveness on the free market.

If the ONC is successful in its trading and accumulates profits, it will acquire the means to increase its stock of cereals. It may then be desirable to put a ceiling on the size of this commercial stock. A ceiling of some 25,000 to 30,000 tons, or roughly a quarter of the total annual volume of the internal grain trade in Chad, should be amply sufficient to assure an effective stabilizing role.

Once the above-mentioned stock reaches its maximum level, as suggested above, the ONC should cease accumulating either grain or profits, except for money reserves required by prudent financial management. Further profits should be passed on to the public treasury to be used in the development of agricultural production, quality improvement of cereals and family- and village-level storage efforts.

The original financial resources of the ONC came from earnings on the distribution of food aid in previous years. This source could be used again to help the ONC reach a substantial level of stocks, but it should not to be relied upon too heavily. Ideally, the main sustainable source of funds for the ONC ought to be profits from skillful trading on the free market. In reality, we saw that trading is not likely to produce important surpluses unless it is helped by a limited donor subsidy.

The ONC may be asked to perform various operations in the domain of food security and/or food relief. In such cases, it ought to be treated as would any other commercial entity hired to perform the functions of transport, storage, and commodity management. For example, it has been suggested that in order to encourage local agricultural output, donors provide financing for buying grain in areas of surplus and moving it to areas of food shortage. The ONC would, of course, be qualified to act as the contractor in such cases. Even here, however, the ONC should not be a contractor by right, but only if it can do the work for a competitive price.

Ideally, the ONC should have no retail operations, because it is most unlikely that it could compete with sellers in the present market system who are, for the most part, undemanding hard-working women who tolerate extremely uncomfortable conditions and irregular hours, with no documentation or accounting expenses whatsoever. As a public institution with its standards of accountancy and salaries, the ONC would be bound to lose money on retail distribution. It was explained to us, however, that in real life, and with regard to certain groups of consumers, the retail function cannot be totally disregarded.

It should be noted that the ONC is not unique in its financial difficulties. Rather it follows the pattern of most parastatal organizations in other Sahelian and/or non-Sahelian countries.

The experience of recent years shows how difficult it is for a parastatal grain agency to make successful business decisions for its buying and selling and to contain its costs within limits that would permit the agency to compete with private-sectors firms. An example of Mali's trading board OPAM illustrates this problem clearly (see AID, Wilcock, Roth and Haykin).

At the same time, however, OPAM's example shows that it is not impossible for a state agency to reduce its costs. Between the seasons of 1980-81 and 1984-85, OPAM succeeded in reducing the deficit on its operations from 2,651 million CFA to 953 million CFA. This was achieved by tightening all management procedures, reducing the number of personnel, and compressing the cost of transport. The

donors continue to exhort OPAM to reduce its deficit further. Whether it will ever be able to operate as economically as a private firm remains no less doubtful than in the case of the ONC.

CHAPTER EIGHT

RECOMMENDATIONS

The team has divided this section into two parts: our fundamental observations and the conceptual bases for what we will recommend, and then our actual recommendations which are elaborated in some detail.

The fundamental idea that we used when formulating these recommendations was the observation that the Chadian private-sector grain trade, composed of private trading firms and voluntary farmers' marketing associations, would be the most efficient form of moving cereals from areas of surplus to areas of deficit. The role of parastatal agencies, to the extent that they can exist as self-sustaining entities, and specifically the role of the Office National de Céréales (the ONC), is to:

- Maintain food-security stocks and distribute them in times of need; and
- Stabilize the market and smooth out fluctuations of prices without interfering in the free determination of prices through the interplay of supply and demand.

Our more specific recommendations are formed within the above-defined conceptual framework and aim at being consistent with it:

1. **In order to make cereal marketing more efficient, the following is recommended:**
 - The most obvious, and at the same time the most important Chadian government task is to work on road improvement;
 - To make transport cheaper through the elimination or alleviation of the roadblocks and related payments;
 - To eliminate, or at least to significantly weaken the semi-monopolistic power of the CTT in road transport;
2. **In order to strengthen the cereals trade, the following is recommended:**
 - To give easier access of general commercial credit to merchants who are already actively involved in the grain trade, and to encourage the easier use of mortgages, credit for long-term loans, etc.;
 - Similarly, to make credit programs, of the kind VITA is now promoting, available to cereal traders, especially young ones, who desire to buy vehicles, increase their storage space, and generally modernize their operations;

- To investigate the availability of funds from PL-480 for the above purposes;
- As a stimulus and to strengthen the image of grain traders in the community, as well as to generate new ideas, to send a few young traders on visits to various nearby African countries where advanced trade systems can be observed;
- To encourage traders' cooperatives for the storage of grain;
- To utilize funds from the sales of international food aid for a cautious campaign on the national level in support of village cereal storage, under the commercial coordination of the ONC. The ultimate objective would be a revolving loan fund to serve storage and transportation facilities; and
- To involve the Ministry of Agriculture (ONDR), the Ministry of Commerce and Industry, and other relevant agencies into the promotion of processing and other activities to increase the value added of cereal products, and to stabilize the long-term level of demand.

Specifically, activities to be promoted would include small-scale rural processing facilities such as rice-milling and parboiling and small-scale urban food industries that add value to local cereals; the promotion of new cereal-based products such as crackers, snacks and beverages; community-level programs promoting improved and traditional home-made dishes through the means of ONDR radio broadcasts and posters.

3. In order to strengthen the competitiveness of the market, the following is recommended:

- To render the ONC more cost-effective as a large-scale commercial participant in the cereal market (see Chapter Seven on government regulations and policies). Among the means of achieving greater cost-effectiveness are the well-known performance measures used in many industries, such as volume of operations per employee, percentage of administrative overhead per unit of product, percentage of utilization of storage space, and so forth;
- To relax the present restrictions on dealing with the ONC (*commerçants agréés*) and to admit any *bona fide* merchant willing and able to sell to, or buy from, the ONC provided she/he can meet the minimum volume of transaction in which the ONC deals;
- To publish quarterly reports on ONC operations;
- To support with due caution (based on past negative experiences) the development of village-level grain storage and marketing cooperatives projects such as those that have been promoted by SECADEV and those more recently planned by the Ministry of Commerce and Industry (Division of Industry and Cooperatives) with the support of UNDP;

- To institute a regular weekly radio broadcast of information on cereal prices in various locations across the country. (This subject is of great interest to growers, traders, and consumers alike and the broadcasts are very likely to stimulate some trading ventures and thus contribute to the development of trading activities and competition);
- To continue, and if possible to intensify, the assistance for establishing a simple and workable system of collecting basic information on production, movement, and prices of crops, with the ultimate aim of assuring that the system can be operated entirely by Chadians, as regards both technical skills and administration and financing. A lead role in that effort ought to be assigned to the ONC as the agency most concerned with the global problem of cereals in Chad. However, financial support should come from the budgetary or donor sources that are involved in the support of statistical services;
- To work towards the relaxation of the semi-monopoly that the Coopérative de Transporteurs du Tchad (CTT) enjoys in the transportation service, the ultimate objective being a competitive setting of freight charges in cereal transport and a freeing up of independent truckers from the obligation of making payments to CTT, as is the current practice.

4. As regards ONC policy, we propose the following recommendations:

- As in the past, the ONC should be a participant in the cereal market, without any powers to set prices or issue any restrictive regulations of transactions to private traders;
- The ONC ought to continue its existence, with three principal purposes:
 - The management of security stocks,
 - The carrying out of marginally profitable commercial operations that do not attract private traders, such as commercial deliveries of grain to the area of Bol. However, the ONC should limit such operations to a set proportion of its total activities and ensure that if there is a risk of loss on the operation, it will be reimbursed by an appropriate agency such as the Ministry of Food Security, and
 - To the extent to which it is compatible with its financial self-sustainability, it should play the role of a major competitive player in the market and through its buying, selling, and storage facilities, alleviate the vulnerability of deficit areas;
- The ONC ought to be a financially self-supporting entity ultimately guided by its profit and loss statements, even if a limited subsidy is necessary for continuing operations. It should buy and sell at market prices, selecting its transactions to maximize net profit.

By cooperating closely with the early-warning systems present in the country (SAP, SAR, FEWS), the ONC should be able to plan its operations so as to attenuate the undesirable effects of fluctuations in production, while at the same time maintaining its market-oriented and profit-oriented posture;

- By its statutes, the ONC is required to manage two types of stocks: its own commercial grain stock, and security grain reserves for emergency purposes, to be used in case of droughts and other disasters.

For managing the second reserve and performing other functions related to emergency situations, the ONC ought to be reimbursed in the manner in which any commercial firm performing such functions would be reimbursed by donors or by the government;

- In general, it is recommended that the ONC's accounting reflect very clearly the separation of that agency's commercial activities in the grain trade from any other kind of non-commercial, humanitarian activities that the agency might be requested to perform;
- It is recommended that ONC not increase the number of its agencies but rather concentrate its activities on a small number of agencies that are capable of performing at minimum cost;
- Likewise, it is considered advisable for ONC not to build its own fleet of trucks as this would only add to operating expenses; rather it should use the services of commercial trucks when needed; and
- The ONC could be financially strengthened if it were entrusted with the distribution of non-cereal commodities shipped to Chad as food aid, such as cooking oil and powdered milk. The ONC could sell these commodities for the account of the Government of Chad and obtain a commission for the service of storage and handling. It must, however, be emphasized that the amount of commission earned by the ONC on such transactions should not exceed a reasonable percentage determined by food trade specialists.

5. We offer the following guidelines for the formulation of cereal policies in Chad:

- A global approach that links the production system with consumer behavior is necessary to uncover the interactions within the commodity system;
- Close coordination is necessary between all organizations involved in the cereal system, from production to processing, and from marketing to consumption;
- In managing the national security stocks and in negotiations with donors, the ONC ought to follow a global analysis of market demand, of regional stock policy, and of dietary habits across various regions; and

- In negotiations with donors, the determination of the size of the national security stock ought to be flexible, and should depend on climatic and economic conditions. In addition, attention should be paid, and encouragement given, to family and village storage capacity and practices.

6. **The following recommendations relate to further investigations:**

The situation in Chad requires prompt action rather than lengthy studies. The present report and its recommendations have been elaborated with that sense of need for practical steps.

At the same time, however, it must be recognized that any continuing program of strengthening the cereal commodity system in Chad, if it is to be rational and effective, will require a considerable amount of information and analysis based on that information. Most of that basic information is missing at this time.

In summary, the following are points of special importance for understanding the cereal system in Chad and for shaping decisions regarding it:

- Volume, value, seasonality, and directions of the cross-border trade in cereals;
- Dietary habits regarding the cereals; who are the consumers and in which zones of the country are they located; what kind of cereals do they prefer and what quantities do they consume during the various seasons of year;
- What determines peasants' decisions to store grain; have they really lost the habit of storage; and is that loss reversible;
- Small farmers' decisions to change the proportions between subsistence consumption and sales of grain in response to changes in grain prices;
- Does the small farmer understand the potential gain he could obtain from storage-credit programs; how much would he be willing to invest of his own resources in such schemes;
- How to develop the management capability among the small farmers to operate grain storage and marketing associations;
- The feasibility of ONC advance contracting for grain with *groupements*; and
- An examination of excessive differences in the prices of cereals between various locations: Why do they arise; how long do they persist; and what kind of traders close the gaps.

BIBLIOGRAPHY

NOTE: A number of publications in the present bibliography were published under joint sponsorship of various international or national institutions. In each such case, a choice had to be made in grouping them under the heading of one among these institutions. We present our apologies to the reader, if our choice appears arbitrary.

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

Grain Storage and Marketing Short Course, Project AID/CSD-1588, prepared by Food and Feed Grain Institute, Kansas State University, 1971.

Evaluation of Proposed Marketing Intervention for Chad, Project AID/TA-C-1162, prepared by Dr. Roe Borsdorf, Food and Feed Grain Institute, Kansas State University, 1974.

Analysis of Grain Marketing in Chad, Project AID/AFR-C-1149, prepared by R. Maxon, Multinational Agribusiness Systems, Inc. (MASI), Washington, D.C., August 5, 1976.

Grain Marketing in Chad, Project AID/AFR-C-1149, prepared by H. Graetz and R. Maxon, Multinational Agribusiness Systems, Inc. (MASI), Washington, D.C., July 13, 1977.

Grain Marketing Liberalization in Mali: An Economic Policy Reform Assessment, prepared by David Wilcock, Alan Roth, and Steve Haykin, submitted by Robert R. Nathan Associates, Inc. to AID, Bureau for Africa, Office of Development Planning, February 1987.

Famine Early Warning System (FEWS) Country Report, *Chad: Poor Crop Prospects in North and East*, prepared for AID Africa Bureau by Price, Williams & Associates, Inc., September 1987.

CAMEROON, Republic of

Ministère du Commerce et de l'Industrie, *Organization de la Commercialisation du Riz au Cameroun*, April 1984 (pp. 12 and 14 on the rice market in Chad).

CHAD, Republic of

Ministère d'Etat à l'Agriculture et au Développement Rural, CONACILSS, *Bilan-Programme des Productions Végétales Pluviales et Irriguées du Tchad*, September 1984.

Présidence de la République, Ministère Délégué à la Présidence de la République Chargé du Plan, *Réunion de Suivi de la Table Ronde de Genève de Décembre 85, Tome 1, Secteur Agro-Sylvo-Pastoral*, 1986.

Ministère de la Lutte Contre les Calamités Naturelles, Office National des Céréales (ONC), *Les Activités de l'O.N.C. en 1985: Commercialisation de l'Aide Internationale et de la Production Locale*, prepared by SEDES (Société d'Etudes pour le Développement Economique et Social), Paris, March 1986 (in two parts).

Ministère de l'Agriculture et du Développement Rural, Office National de Développement Rural (ONDR), *Rapport Annuel, Campagne 1985-1986, Zone Soudanienne*, 1986.

Ministère de la Sécurité Alimentaire et des Populations Sinistrées, Assistance Technique: AEDES (Association Européenne pour le Développement et la Santé), *Système d'Alerte Précoce*, monthly bulletins, the most recent available: "Situation fin Novembre 1987."

CILSS (COMITE INTER-ETATS DE LUTTE CONTRE LA SECHERESSE DANS LE SAHEL) and OECD (ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT)/CLUB DU SAHEL

Marketing, Price Policy and Storage of Food Grains in the Sahel, submitted by Center for Research on Economic Development, University of Michigan, financed by AID, August 1977.

Cereals Policy Reform in the Sahel, a report prepared for OECD/Club du Sahel/CILSS, Synthesis by Elliot Berg, Elliot Berg Associates, Alexandria, Virginia. (Note: There are three versions of the report: two under identical cover pages, each dated April, 1986; the third marked "Copyright OECD, 1986".)

Cereals Policies in Sahel Countries, The Mindela Conference, Republic of Cape Verde, 1-6 December 1986, Final Recommendations.

Cereals Policies in Sahel Countries, Acts of the Mindelo Conference 1-6 December 1986, 1987.

A Protected Regional Cereals Market: An Initial Exploration of a New Idea, Jean-Jacques Gabas, Jacques Giri, Gilles Mettetal, marked "Sahel D(87)311," November, 1987, Or. Fr., Copyright OECD, 1987.

The End of Utopianism, A Proposal for a Realistic System of Stabilizing Cereal Farmers' Income in the Sahel and of Increasing Food Security, by Gerard Gagnon, Canadian International Development Agency, Sahel D(87)303, December, 1987, Or. Fr., Copyright OECD, 1987.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

Etude pour la Définition et l'Elaboration d'une Politique Céréalière au Tchad, Role de l'ONC, Project GCPS/CHD/018/NET, T. de Kerros, October 1986.

Système Mondial d'Information et d'Alerte Rapide sur l'Alimentation et l'Agriculture, Rapport d'une Mission d'Evaluation des Cultures de la FAO au Tchad (6-18 Octobre 1986), Rome, December 1986.

Global Information and Early Warning System on Food and Agriculture, Preliminary Assessment of 1987 Cereal Production in Western Africa, Rome, 16 November 1987.

UNITED NATIONS

Groupe de Conseillers en Développement d'Afrique Centrale, Production et Commercialisation des Céréales, Volume I Tchad, July 1974.

WORLD BANK

Elliot Berg, Why Don't LDC Governments Liberalize Agricultural Marketing?, paper prepared for the Economic Development Institute of the World Bank, May 1985.

Henri L. Beenhakker, Issues in Agricultural Marketing and Transport Due to Government Intervention, Transportation Department, Operations Policy Staff, Report No. TRP 7, May 1987.

Report No. 6785-CD, Chad, Economic Situation and Priorities, October 26, 1987.

ANNEX A
SCOPE OF WORK

STATEMENT OF WORK

A TWO-PERSON TEAM OF SENIOR CONSULTANTS, WITH RELEVANT EXPERIENCE AND BACKGROUND IN ECONOMICS AND CEREAL MARKETING, IS SOUGHT FOR THE STUDY. THE CONSULTANTS WILL TRAVEL TO, AND IN, CHAD TO COMPLETE THE STUDY.

TASKS TO BE PERFORMED INCLUDE:

TASK 1. FIELD STUDY

THE TEAM WILL:

A. REVIEW EXISTING REPORTS ON CEREALS MARKETING IN CHAD AND CONTACT APPROPRIATE GOVERNMENT AGENCIES FOR BACKGROUND INFORMATION.

B. DETERMINE AND RECORD THE MAJOR MARKETING NETWORK FOR CEREALS IN CHAD.

C. EXAMINE CROSS-BORDER MOVEMENT (INFORMAL AND FORMAL) OF CEREALS AND ASSESS ITS EFFECT ON CEREALS MARKETING.

D. ASSESS THE POTENTIAL FOR THE PRIVATE SECTOR, COMPARED TO THE PUBLIC SECTOR, TO MOVE CEGCLS FROM SURPLUS TO DEFICIT AREAS IN THE COUNTRY.

E. DETERMINE THE PROPORTION OF CEREALS MARKETING COVERED BY THE PRIVATE AND PUBLIC SECTORS AND PROVIDE DATA ON QUANTITY OF FLOWS OF CEREAL WITHIN CHAD FOR THE TWO SECTORS.

F. DETERMINE THE EFFECT OF GOVERNMENT REGULATION AND POLICY ON CEREALS MARKETING.

TASK 2. RECOMMENDATIONS

THE TEAM WILL PREPARE RECOMMENDATIONS FOR STRENGTHENING CEREALS MARKETING IN CHAD BASED ON THE RESULTS OF THE STUDY.

TASK 3. REPORTS

THE TEAM WILL PROVIDE USAID WITH A DRAFT REPORT OF THE STUDY AT THE END OF ITS 30-DAY PERIOD OF WORK AND WILL SUMMARIZE ITS FINDINGS/RECOMMENDATIONS DURING AN EXIT INTERVIEW WITH THE AID REPRESENTATIVE/CHAD. A FINAL REPORT IN ENGLISH AND IN FRENCH WILL BE SENT TO THE AID REPRESENTATIVE/CHAD WITHIN 60 DAYS AFTER COMPLETION OF THE STUDY.

ANNEX B
RURAL AND URBAN MARKETS

RURAL AND URBAN MARKETS

Préfecture de Mayo-Kebbi

- Sous-Préfecture de Bongor Bongor (Monday) Magao, Moulgou (Tuesday)
Moundani (Wednesday) 20 km from Bongor
Gournaria (Friday) 30 km from Bongor
Bariam (Saturday) 10 km from Bongor
- Sous-Préfecture de Fianga Fianfa, Tikem, Nimbakri or Daoua
- Sous-Préfecture de Pala Pala, Torrock, Gagat, Koumi or Salamata, Bissi Keda, Pont Karroual
- Sous-Préfecture de Lere Lere, Binder
- Sous-Préfecture de Gounou Gaya Gaya, Leo, Djodogassa

Préfecture de la Tandjile

- Sous-Préfecture de Lai Lai, Guidari, Derressia, Banga, Ninga, Djar, Dòmoungou, Bourmai, Tchere, Gabrigolo, Manai, Goular, Dila, Koutoun
- Sous-Préfecture de Kelo Kelo, Tchire, Siminon, Djerra, Bologo, Dogou, Kolon, Giringa, Baguai, Marba, Berde, Djelbe
- Sous-Préfecture de Bere Bere, Delbian, Tamio, Nandjere, Nango, Koumbou

Préfecture du Logone Occidental

- Moundou, Deli, Bade, Bao, Krim-Krim, Mbalakabra
- Sous-Préfecture de Benoye Benoye, Kaira, Doher, Bebalem
- Sous-Préfecture de Beinamar Beinamar, Tapol

Préfecture du Logone Oriental

- Sous-Préfecture de Doba Doba, Bodo, Beboto, Koutoutou
- Sous-Préfecture de Bebedjia Bebedjia (Thursday and Sunday), Mbikou (Friday and Sunday) Beboni (Sunday) Doungabo (Monday)
- Sous-Préfecture de Gore Gore, Donia, Boro, Baikoro, Miladi
- Sous-Préfecture de Baibokoum Baibokoum, Bessao, Mini, Larmanaye

Préfecture du Moyen-Chari

- Sous-Préfecture de Koumra Koumra, Bedaya, Goundi, Bessada, Bediondo Bekamba, Peni, Derguigui, Yomi
- Sous-Préfecture de Moissala Moissala, Beboro, Bouna, Dembo
- Sous-Préfecture de Sarh Sarh, Djoli, Goro
- Sous-Préfecture de Maro Maro, Danemadji, Moyo, Bendane
- Sous-Préfecture de Kyabe Kyabe

Préfecture du Chari-Baguirmi

- Bougoumoro, Bouram, Sabilgarme, Bousso, Kiaoh, N'Djamena, Boudamassa, Ba-Illi, Boay-Kéba, Djangta, Motingara, Dera
- Sous-Préfecture de Massenya Massenya, Massakory, Bokoro

Préfecture du Guera

Mongo, Bitkine

Préfecture du Ouaddai

Abeche, Goze-Beida

Préfecture du Kanem

Mao, Moussoro, Michemire, Nokou

Préfecture du Salamat

Amtiman, Amdjolat, Aboudeia

Préfecture de Biltine

- Sous-Préfecture d'Am-Zoer Am-Zoer, Tiktike, Bara-Matouk
- Sous-Préfecture d'Arada Arada

- Sous-Préfecture d'Iriba Iriba (Thursday and Friday)
- Sous-Préfecture de Biltine Biltine, Abjerte, Mata, Diker, Yaoda and Toigna
- Sous-Préfecture de Guereda Guereda, Kounongo, Djemeze, Dakalaka, Kassine, Kekerke, Ouaddi Gourat, Rafatane

Préfecture du Batha

- Sous-Préfecture d'Ouadi-Rime Djedaa (Monday), Aradip (Wednesday)
- Sous-Préfecture d'Ati Ati, Koudjourou, Gambir, Yao, Alifa Am-Djemena
- Sous-Préfecture d'Oum-Hadjer Am-Sack, Assafick, Koundjar, Adjop Dop-Dop, Assartini, Assinct

Préfecture du Bet

Largeau, Fada, Oum-Chalouba, Kalait, Ounianga

Source: UNDP and the ONC

ANNEX C
PERSONS INTERVIEWED

PERSONS INTERVIEWED

U.S. Embassy

- Ambassador John Plane
- Robert Ayling, Deputy Chief of Mission

USAID

- Dr. Bernard Wilder, Representative
- Lester McBride, Food Aid Officer
- Paul Djimdjani, Assistant to Mr. McBride
- Kurt Fuller, Agricultural Officer
- Dr. Haroun Kabadi, Assistant Agricultural Officer
- Leroy Jackson, Project Development Officer
- Cary Kassebaum, Program Officer
- Charlotte Sharp, Famine Early Warning System (FEWS)

Government of Chad, Ministries and Parastatal Institutions

- Office National de Céréales (ONC)
(National Cereals Office)

Brahim Tidei, Director General

Pornaye Beleloun, Chief, Division of Administration and Finance

Zakaria Ali Bonye, Transport and Stockage

Koun Thor Son, Coordinator, FAO, Transport and Stockage

Taher Hassane, Accounting Office

- Ministère de la Sécurité Alimentaire et des Populations Sinistrées
(Ministry of Food Security and Population Groups in Danger)

Ndikibeulngar Bassounda, Director General

- Ministère de l'Agriculture: Office National du Développement Rural (ONDR)
and Office National du Développement de l'Horticulture (ONADEH)
(Ministry of Agriculture, Office of Rural Development [ONDR] and National
Office of Horticulture Development [ONADEH])

Sinki Sonillanieba, Deputy Director General, ONDR

Philippe Robert, FAO/UNDP Vegetable Production Project, ONADEH

- Ministère du Plan et de la Coopération
(Ministry of Planning and Cooperation)

Hassan Adoum Bakhit Haggar, Director General

- Ministère du Commerce et de l'Industrie
(Ministry of Commerce and Industry)

Dadi Madjermi, Director General
Yamtebaye Nadjitangar, Director of Industry and Cooperatives

- Bureau Inter-Ministériel d'Etudes et de Programmation du Développement Rural (BIEP)
(Inter-Ministerial Bureau for Programming of Rural Development)

Moussa Mahamat Aggrey, Director General
Jean-Claude Levasseur, FAO Project Coordinator
Philippe Le Grontec, FAO Agriculture Economist

- Office de Mise en Valeur de Sategui-Deressia (OMVSD)
(Office of Development of the Sategui-Deressia Region)

Elhadj Ahmed Madiengue, Director General

- Office National des Routes (OFNAR)
(National Road Office)

Mihai Alimanestianu, Counsellor

- Coopérative de Transporteurs du Tchad (CTT)
(Cooperative of Truckers of Chad)

Guelina Nguetoye, Director of Operations

- Programme des Nations Unies pour le Développement (PNUD)
(United Nations Development Program [UNDP])

Blanche de Bonneval, Director
Bettina Fuhrman
Mariam Pangah

- Association Européenne pour le Développement et la Santé (AEDES)
(European Association for Development and Health)
Système d'Alerte Précoce (SAP)
(Early Warning System)

Dr. Jean -Pierre d'Altilia, Chief of Project

- Radio Chad

Moussa M. Daggo, Chief Editor

Merchants

- Members of the Coopérative de Consommation de Céréales
(Cooperative of Cereal Consumption)
(N'Djamena Grain Market)

Adoum Bichara, President
Mohamad Adou, Vice President
Djazouli Adouri Bichara
Abakotou Morazi
Oumar Faroukh Bouzua
Hassan Ahmad Dacko

- *Commerçants Agréés* (Merchants approved by the ONC)

Idriss Abakar
Almad Mohamad Seid
Mohamad Djokore Kode
Trabit Tor
Abak Ahamat

- Massaguet Market

Elhadj Taher, President of Massaguet Merchants Association
Two local grain traders

- Linia Market

Hadj Boukosso
Three local grain traders
One farmer

- Other Businessmen

Brahim Adoudou, trucking entrepreneur and wholesale trader
Carlos Gilvan, buyer of gum arabic for French company Iranex

Non-Governmental Organizations (NGOs)

- CARE

David Girven (in charge of transportation)
Jean-Philippe Audinct (in charge of the rice project)

- Secours Catholique et Développement (SECADEV)

Pierre Faure, Director

- VITA

Projet d'Entreprises Privées (Project of Private Enterprises)

Richard Slacum, Director

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APPENDIX D
ACRONYMS

ACRONYMS

AEDES	Association Européenne pour le Développement et la Santé
CILSS	Comité Inter-Etats de Lutte Contre la Sécheresse dans le Sahel
CTT	Coopérative de Transporteurs du Tchad (Chadian Transporters Cooperative)
FAO	Food and Agriculture Organization of the United Nations
FEWS	Famine Early Warning System
GDP	Gross Domestic Product
OECD	Organization for Economic Cooperation and Development
OMVSD	Office de Mise en Valeur de Sategui-Deressia (Office of Development of Sategui-Deressia Region)
ONC	Office National de Céréales (National Cereals Office)
ONDAR	Office National du Développement de l'Agriculture Rural (National Agricultural Development Office)
ONDR	Office National du Développement Rural (National Rural Development Office)
OPAM	(Malian Cereals Trading Board)
SAP	Système d'Alerte Précoce (Early Warning System)
SAR	Système d'Alerte Rapide (Rapid Warning System)
SECADEV	Secours Catholique et Développement
UNDP	United Nations Development Program

ANNEX E
PUBLIC STORAGE CAPACITY IN CHAD

PUBLIC STORAGE CAPACITY IN CHAD
(in metric tons)

REGION	AGENCY	CAPACITY	STOCKS	AVAILABLE	OBSERVATIONS	
=====						
CHARI-BAG.						

N'djamena	ONC	2,600	2,600	0		
	MSAPS	9,400	11,033	0	6500 in CHAGOUA and 2900 in SONACO	
	MSAPS/PAM	600 (1 tent)			600	
		2,000 (5 tents)			2,600	
	PAM	10,000	2,500		7,500	
	LEAGUE	2,500 (baches)	1,500		1,000	
	CARE	3,750	3,750		0	
		-----	-----	-----		
		30,850	21,383	11,100		
Dourballi	ONC	600	600	0		
BATHA						

Ati	ONC	600	600	0		
		200	0	200		
		-----	-----	-----		
		800	600	200		
Oum-Hadjer	ONC	600	600	0		
		200	0	200		
		CARE	135	135	0	
		-----	-----	-----		
		935	735	200		
Kanem						

Mao	ONC	600	600	0		
		PAM	1,500	800	700	
		-----	-----	-----		
		2,100	1,400	700		
Moussoro	ONC	600	400	200		
Nakou	ONC	600	900 sorghum	CARE 0		
Lac						

Bol	ONC	(600)	under	under		
Bol			improvement	improvement		
Baga Sola						
Sorrou						
Moh Madira		(1300)	under	under		
			improvement	improvement		
Ouaddai						

Abeche	ONC	1,000	500	500		
		PAM	6,000	2,027	3,973	
		-----	-----	-----		
		7,000	2,527	4,473		
Adre		500	0	500		
Goz Beida		500	0	500		
Abougoudam		1,500	0	1,500		
Am Oan		500	0	500		

REGION	AGENCY	CAPACITY	STOCKS	AVAILABLE	OBSERVATIONS
Bitlinc					
Bitlinc	ONC	600	200 ble MSAPS	400	
Guereda		400	0	400	
Iriba		400	0	400	
B.E.T.					
Faya		250 (tent)	UNDRO	250	
Kera Toro	ONC	(500)	under improvement		under improvement
		(600)	under improvement		under improvement
Guera					
Mango	PAM	2,100	900	1,200	
Salamat					
Am-timan	ONC	1,000	1,000	0	
Moyen-Chari					
Sarh	ONC	600	600	0	
Lagone Occ.					
Moundou	ONC	600	600	0	
	PAM	2,000	700	1,300	
Mayo-Kebbi					
Pala	ONC	200	200	0	
Bangor	FDAR	300	(?)	(?)	
Totaux		55,155		23,823	
TOTALS					