GRAIN MARKETS IN NIGER

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I. Introduction

The Nigerien grain producer was originally to be the main focus of this study--the factors influencing his production and marketing decisions, the options available to him, and the mechanisms used for carrying out those decisions--but after a short time in the field, it became apparent that attention would have to be given to the whole marketing system and not just producers, to fully understand the dynamics of Niger's food grain situation. The "problem" that needed definition was not just how producers market their grain, but how grain is marketed in general, what production levels are, what effect producer prices have on marketing decisions, what market prices reflect, and what consumption levels are.

In addition, it quickly became evident that the government of Niger has perpetuated a number of suppositions that are commonly believed in by many people about the structure of the grain marketing system and the behavior of those acting in it. But observed facts contradict these widely circulated suppositions that have never been fully challenged and pose questions as to the structure of the grain markets, how they function, who benefits from them, and who if anyone controls them.

The study team spent the month of October 1982 in Niger. This is hardly enough time to prepare a study of any great depth. The team has indicated, at several points in this report, what kinds of information are needed and, where possible, the manner in which this information can

be obtained to increase the depth, precision and reliability of its analysis. This report should, therefore, be seen as a framework for further analysis of the Nigerien marketing systems.

Two members of the team, a sociologist, Abe Waldstein, and an agricultural economist, Michael Cullen, were supplied by the Agency for International Development (AID) centrally funded Small Farmer Market Access Project. The third team member was an agricultural economist, Ray Waldron, attached to the Agricultural Development Office of USAID/Niamey. The team is referred to in this study as the SFMA team.

The first two weeks of the study were spent in Niamey. The team made contact with Nigerien officials in the Ministry of Planning, the Ministry of Rural Development, the Union Nationale de Credits et de Cooperatives (UNCC), the Office de Produits Vivriers du Niger (OPVN), the Centrale d'Approvisionnement and the Ministry of Commerce. In addition, the team was able to discuss marketing issues with directors and staff members of several development projects, such as Niamey Department Development and Niger Range and Livestock. Between personal contacts the team carried out relevant documentary and statistical research.

During the third week two members of the team, Cullen and Waldstein, visited food markets in Zinder, Maradi and Tahoua to gather information on prices, sources of supply, and destinations of the grains on sale there. The team also discussed relevant issues with UNCC personnel in the three cities. The final week of its mission the team spent in Niamey writing a draft of its report to AID.

Further information was collected by Cullen when he returned to Niger in March of 1983, to carry out a food aid needs study for the AID mission.

The same markets were visited--Zinder, Maradi, and Tahoua--to gather price information and interview merchants, in some cases, the same merchants who were interviewed in October. The study was greatly enhanced by the second visit since more price data were collected and more time was spent addressing the performance of OPVN, the parastatal charged with marketing grain.

II. Responsibilities of Food Marketing and Distribution System in Niger

The food marketing and distribution system has to perform certain functions to assure the food security of the entire Nigerien population. It appears that most of the necessary functions can be carried out by private trade, although this is not necessarily the view of the government. Still there is a legitimate role for the government to perform several functions, but a balance must be struck between the private and public sectors' involvement to allow all the requisite functions to be performed. The functions may be summarized as follows:

A) Assure rural food supply. The population of Niger is overwhelmingly rural. According to projections made from official 1977 population data, in 1983, 72 percent of the national population dwells in the rural areas. The problem of meeting rural food needs is complicated by low densities of rural occupation and difficulties of access of many sites from national centers. It is, however, eased by the fact that the rural population meets a large share of its food needs through its own production. In an average year many parts of the country produce food surpluses in varying amounts.

B) Assure urban food supply. Residents of urban areas of over 5,000 inhabitants accounted for only 10.65 percent of the Nigerien population in 1977. These people are dependent on the marketing and distribution system for virtually their entire food needs. The annual growth rate for this period is assumed to be the same as that recorded between 1960 and 1977. These data are taken from the current Niger Five Year Plan.

The marketing and distribution system must meet the food needs of the urban areas, and it must do this at prices acceptable to the mass of consumers. This problem is more serious in urban areas than in rural areas because the urban population is so much more dependent on the marketing and distribution system for its food supply than is the rural population. At the same time, its power to command supplies in the market is largely a function of cash incomes over which levels it has little control.

C) Collect and store national food security stocks. In the past 10 to 15 years Niger has experienced several climatic shocks which have placed national food self-sufficiency in question. In order to protect the nation from future shocks of this nature the marketing and distribution system will have to accumulate stocks to constitute a national reserve. These reserves should be of such a volume and in such locations as to supply the marketing and distribution systems in time of crisis long enough to permit external food stocks to begin arriving in the region.

D) Maintain linkages with international food commodities trading networks. The marketing system must be able to channel excess production into the international trading system in order to maintain a level of domestic producer prices that encourages produce to be marketed and to earn foreign exchange. At the same time, the marketing and distribution system must maintain its links with the international trading system to secure food stocks in time of national deficits.

Table 1--Population by group

	1978/79	1979/80	1980/81	1981/82	1982/83
			Thousands		
Rural Sedentary	3,941.2	4,037.0	4,135.1	4,235.6	4,338.2
Urban	692.7	743.1	797.1	855.1	917.3
Pastoral	761.3	772.2	783.2	794.4	805.8
Total	5,395.2	5,552.3	5,715.4	5,885.1	6,061.3

Source: Ministry of Rural Development. Totals do not agree due to rounding.

III. Structure of Markets

A) Private Grain Trade

Grain markets in Niger are highly fragmented, involve a large number of participants who trade relatively small quantities of grain, often under 1,000 sacks per year, and whose margins appear to be quite small. This is typical of markets in the Sahel. But also there are merchants who import large quantities of grain from Nigeria and deal little, if at all, with local production. These merchants sell grain wholesale through their own networks and stores, and there appears to be a high turnover of stocks with little grain being stored for very long, since they have neither the space nor the available capital to tie up in stocks. These merchants are part of the Hausa trading network that has been extant for many years, but they do not appear to deal with other products such as livestock, leaving that to an entirely different set of traders. Exit and entry into the market is free, since the only requirements are to procure supplies and be able to transport them to the relevant market. Observed prices of the imported grain conform consistently across the country for millet and sorghum so collusion on prices seems not to occur. Exchange rates, market prices in Nigeria and transport costs determine these market prices and they seem to be consistent in the larger urban markets where this grain is distributed to retailers.

Thus the necessary conditions for a smoothly and efficiently operating market are fulfilled by a homogeneous product, free entry into and exit from the market, large numbers of buyers and sellers, and well

disseminated market information. But to a government which observes widely fluctuating intra-seasonal market prices, many buyers and sellers, conspicuous large traders and grain shortages from year to year, such a marketing system seems chaotic and inefficient and demands regulating. This need is based on the supposition that the middle men collude to set prices and thereby control the market. A shock of some sort, it could be argued, would easily disrupt such a system and demonstrate the need for government regulation. The 1968-72 drought was just such a shock that compelled the government to intervene in order to stabilize stocks and consumer prices, in short, to regulate the marketing system.

Other Studies

It must be noted that the CRED study 1/, written in 1977, referred to work by Hays on grain markets in Nigeria and inferred that the same marketing structure was extant in Niger. Three levels or functions were discerned: assemblers, transporters, and wholesalers, of which any two could be performed by the same people or "firms", and this delineation is part of a well articulated patron-client trading relationship. This system described by Hays 2/ and later by Clough 3/, is one in which money is leant by the patron merchants to clients who purchase grain during the loan period, re-sell it making relatively small profits on each transaction, but eventually making enough money and amassing enough grain to deliver a set amount and repay the interest on the loan at the end of a designated period. Thus, money to finance trading is available throughout the year and stocks are amassed by larger merchants for their

own purposes. Turnover is high and it was implied that merchants deal in other products besides grain since profit margins appear to be small. However, little evidence has been found to support the assertion that such a system exists in Niger. Marketed quantities of locally produced grain appear to be far less abundant in Niger than in Nigeria and the necessary commercial network has not evolved to the extent it has in Nigeria simply because the grain is unavailable. In fact, it appears that the small quantities of locally produced grain that make their way into the rural markets are sold predominantly by producers themselves, with much of the urban demand being met by imported grain.

B) Role of the Government

OPVN (Office des Produits Vivriers du Niger) was born from the experience of the drought years which demanded grain reserves be established, price and supply fluctuations be stabilized and relief supplies be distributed. When it was established in 1970, OPVN was given a double mandate:

a) "to organize the marketing of the local agricultural food commodities (millet, sorghum, rice) intervening on the market and creating regulating stocks in order to stabilize producer prices, as well as to ensure a stable food supply balance during the lean season and between regions;

b) to ensure food security, at the national level, by establishing annual forecasts of availability and requirements, by proposing a programme for storage imports and exports, by participating in the preparation of national and international food aid programmes and following up their execution", (FAO report on Niger's Food and Agricultural Situation, January 1982).

OPVN was originally given monopoly control of grain marketing by licensing traders and designating buying agents such as village and canton chiefs who purchased grain and sold it to OPVN for its various stocks. Over time, the means by which it bought grain have changed from licensing private traders or village or canton chiefs, to the present system of buying exclusively through the co-ops that are scattered throughout the country. Its functions remain the same, despite the change in its operations.

1) Stabilization Stock

To carry out its mandate, OPVN maintains stabilization stocks (Fr: stock de stabilisation) with which it regulates consumer prices and supplies the urban areas and grain deficit zones in the north. This stock presently stands at 58,000 tons. A policy of uniform consumer pricing is maintained as the GON attempts to discourage grain speculation by private traders and provide grain at a more affordable price, mainly to urban consumers. Most of the grain involved in regulatory stock operations makes its way to Niamey, where fonctionnaires (who are largely concentrated in the capital) are allowed to buy it with a system of ration cards, and other consumers are given an opportunity to buy it as well.

With storage capacity in Niamey of 25,000 tons, a good portion of the grain OPVN purchases is shipped to Niamey, where there is an annual turnover of 50,000 tons. Some supplies are shipped northward into the deficit pastoral zone in an effort to moderate consumer price fluctuations for non-grain-producing herders, who often are compelled to buy grain in the dry season at enormously inflated prices. But because such a small portion of locally produced grain is sold to OPVN in the first place, and because its top priority is to satisfy demand in Niamey, OPVN ships only modest quantities of grain northward to the pastoral zone. Of this grain, local fonctionnaires take a large share, leaving little for the local herding population, Typically, quantities of grain for the herders and other local residents to buy at controlled prices are so limited, that OPVN offers no alternative to the commercial market. and they thus derive little benefit from OPVN's stabilization policy. Furthermore, the cost of transporting grain to this area is high particularly with only several thousand tons being moved. Still the government chooses to bear this cost because politically it wants to maintain a presence with the nomads even if it can sell only small quantities of grain. This is a political choice which costs dearly.4/

2) Reserve Stock

In addition, OPVN maintains a reserve stock (Fr: stock de reserve) that presently stands at 45,000 tons, and should be expanded to 65,000 tons by the end of this year. Roughly one-third of the stock is rotated into the market each year, as OPVN imports grain and buys what it can

locally through UNCC. In the event of a food shortfall, this stock would serve as a buffer to supply grain until commercial imports or food aid imports arrived. The level of the stock is calculated using the following formula: 700,000 urban dwellers, plus 800,000 herders, plus 500,000 marginal farmers, times 200 kg/person/year times .5 years equals 200,000 MT. Providing one-third of this need has been determined on political grounds. The reserve stock is supposedly left untouched, although it has been depleted in recent years at various times during the marketing campaign. It is always reconstituted, however.

IV. The Marketing Problem in Niger

Given the responsibilities of the Nigerien marketing system and its structure, it is now important to define the marketing problem in Niger that requires solution. The approach taken here is to analyze an array of phenomena that constitute the "marketing problem" in Niger.

A) The Middle Man

The Nigerien Government, as other governments do, conveniently blames speculating of middle men for the intra-seasonal price fluctuations observed in markets. The normal pattern is for low post-harvest prices, with a noticeable increase as the dry season progresses, of up to 75 percent; these prices begin to fall quickly as the next harvest starts to come in during October and November. The accepted belief is that middle men buy grain cheaply at harvest time from producers, store it and

re-sell it later in the year, notably during the dry season when prices are higher, thus making huge profits from consumers. It is not explained how the retention of stocks and later release pushes up prices, unless they collude to set prices at high levels, thus gouging the consuming public. But normally, if merchants are releasing large stocks into the markets, prices would fall. The logic of the Government's argument seems to be specious.

What was observed in the field is that it appears traders store very little grain because it is too costly and inconvenient--they have neither the financial resources nor the physical space to do so. Thus it does not appear to enter their strategies. This contrasts with what the CRED study implies about a similar marketing system to that in Nigeria. 5/ Further, the intra-seasonal price fluctuations are not caused by the merchants, but are a normal occurence observed throughout the Sahel that reflects supply and demand conditions in the market place.

B) Supply

1) Production and Yields

The actual level of cereal production in Niger during any given year is unknown. Although the Agricultural Statistics Office in the Ministry of Rural Development (MDR) has an elaborate and well established system for estimating production, its estimates appear higher than would be reasonably expected. Errors may result from unsystematic sampling of areas cultivated and yields and from taking those yield samples at an inappropriate time of the season, or perhaps neglecting to include areas

which have been sown but on which no crop has grown.

Although MDR insists that its method is sound and renders accurate results, its yield calculations stretch credibility. In comparison with other Sahelian countries, Niger's yields are consistently higher than in countries where rainfall is often more abundant, and where production takes place on lands that are of somewhat better quality than those in Niger. The result of such over-estimation is to give a picture of grain availability that is too optimistic. Of course, there is a political element to these estimations since the Government wants to demonstrate that its efforts to boost agricultural production and development are succeeding.

Unfortunately, there exist no alternative national surveys that can refute the government figures--only small-scale village level studies are available that report yields for one or two seasons. It is difficult to extrapolate on a national basis from these diverse studies, carried out with varying methodologies, each testing different elements in the farming system. Nevertheless, given the normal climatic conditions, often inadequate and poorly distributed rainfall, and the predominance of agricultural land in areas where production varies tremendously from year to year, national average yields must be revised so they reflect more realistically what occurs during the growing campaign.

Table 2--Comparison of Yield Estimates, Kilograms/Hectare

1	2	3	4	5	6	7
Millet; Village A: With 500 mm of rainfall, Local Variety: 190 Village B: With less than 500 mm of rainfall Local Variety: 165	Maradi Area, Millet Ganda Fields: 436 Gammana Average: 282 Gammana Men's: 353 Gammana Women's: 237 Average: 350	Daudawa village Northern Nigeria Sorghum Indigenous Variety 1973: 436 + 172 1974: 845 + 112 Improved Variety 1973: 1161 + 385 1974: 1530 + 245	Niger, GON 1981-82 Millet: 432 Sorghum: 327	Niger, SFMA Millet: 218 Sorghum: 200	Upper Volta 1980; Unimproved variety with 790 mm rainfall: 200	Niger Average for 1976, 1977, 1978 with approx. 500 mm. of rainfall: 300

(1) ICRISAT study on crop production in Niger; preliminary results from 1982-83 season; 27 farmers in each village; 95 percent confidence value.

(2) From USAID Agriculture Sector Assessment, Social Analysis of the Nigerien Rural Producer, John W. Sutter, page 37 Ganda = collective fields, gammana = individual plots; 1977/78 growing season.

(3) From D.W.Norman, Technical Change and the Small Farmer in Hausaland, Northern Nigeria, African Rural Economy Paper No. 21, 1979 MSU, KSU, ABU, Zaria, Nigeria, page 92, Table 5-2. 95% confidence limit. Rainfall in northern Nigeria is considerably higher than in Niger. It averaged over 1000 mm during the study 1973-76 and the previous year.

(4) GON official estimates

(5) Small Farmer Marketing Accrss Project Team Estimates. This study has used a figures much below the GON estimates, based on yields from other studies, rainfall distribution, type of seed used, knowledge of typical success of crops in Niger. Much of the area cultivated in millet and sorghum receives less than 500 mm of rain per year so that yield must naturally be lower than 400/ kg/ha. Information was also used from conversations with agronomists on various AID projects and economists in the Ministry of Plan.

(6) From ICRISAT study area, see writings of Peter Matlon.

(7) From C.I.Raynaut, Recherches Multidisciplinaires sur la Region de Maradi: Rapport de Synthese, D.G.R.S.T., Paris, October 1980, page 55. Research done in four villages in Maradi Department

Table 3--GON productior estimates for millet and sorghum, 1978-83

Crop	1978/79	1979/80	1980/81	1981/1982	1982/83*
Millet					
Area: ha	2,746,800	2,922,085	3,072,420	3,259,406	3,065,680
Yield: kg/ha	409	430	444	415	414.5
Production: tons	1,123,400	1,256,500	1,364,200	1,323,780	1,295,400
Sorghum					
Area: ha	795,900	716,660	768,070	788,308	1,130,817
Yield: kg/ha	466	489	479	408	406
Production: tons	370,890	350,450	367,910	321,630	365,565
Total production (scrghum & millet)	1,494,290	1,606,950	1,732,110	1,635,410	1,660,965

Source: Ministry of Rural Development. 1982-83 estimate; lcsses and seed use not deducted.

Table 4--SFMA revised national millet and sorghum production estimates

Crop	1978/79	1979/80	1980/81	1981/1982	1982/83
Millet					
Area: ha	2,746,00	2,922,085	3072,420	3,037,600	3,065,680
Yield: kg/ha	200	215	225	218	215
Production: tons	549,340	628,250	691,290	662,208	659,121
Sorghum					
Area: ha	795,900	716,660	768,070	982,320	985,000
Yield: kg/ha	240	240	235	200	198
Production: tons	183,060	172,080	180,508	196-460	195,030
Total production	732,400	800,330	871,330	858,668	854,151

Losses and seed not deducted.
Source: SFMA team; 1982/83 sorghum area from FAO.

The SFMA revised yield figures could be considered a lower limit to the possible situation. They are not based on actual surveys, only the consideration of yield estimates cited in Table 2, so they are simply estimations of what may more reasonably be the case for Niger's millet and sorghum production. Actual yields may in fact be above these revised figures, but below those the Government commonly uses. Of course, it would be preferable to make estimates based on more exact data to take an average yield for each department, perhaps based on temperature, rainfall and potential plant development, but that is not possible. A very rough estimate or informed guess will have to suffice.

2) Marketing and Producer Prices

The variability of yields, and thus production, translates to fluctuations in marketed supplies which is confirmed by market price fluctuations. But it is difficult to judge these price fluctuations since it is nearly impossible to discern what effect producer prices have on production in the first place. Moreover, it is unknown what portion of a crop is marketed commercially by producers, what portion is kept for on-farm stocks, and what portion circulates to pay back loans and meet social obligations. 6/

The effect that producer prices can have on production is therefore unknown, since the influence of marketing options have not been thoroughly studied. Although there exists a substantial body of literature on the price responsiveness of African farmers 7/, much of this literature pertains to cash crop production, so it is difficult to

make valid inferences about the price responsiveness of Sahelian grain farmers. While it is true a higher producer price may lead to more product being marketed, it is not clear that this increase in marketed supplies is due to higher production, since that production depends on so many other uncontrollable and unpredictable factors. As in other Sahelian countries, the volume of agricultural production is most closely correlated with the volume and distribution of rainfall. Relative producer prices, therefore, may influence the farmer's decision to allocate resources among various crops, but are believed to stimulate production only indirectly. In fact in the CRED study 8/, Kohler, states that marketed production varies much more than the total production because the decision to market crops depends on other factors besides production, such as on-farm stocks. Producer prices are thus one factor that influences the decision to market a portion of a crop, but they are not the only determining one.

Because the foremost need for farmers is to replenish their on-farm stocks, it is unproven whether higher producer prices can compel them to market increased portions of their harvest. Furthermore, the notion that farmers must sell off a portion of their crop at harvest time to meet certain immediate cash needs has not been proven either. In fact, some research indicates that with the increasing monetization of the economy and the possibility of earning money from other non-farm sources 9/, the need to sell off grain may have diminished, if in fact it even occurred to any large degree. And too, if grain is to be purchased later in the season, some families are able to do that as well with funds available

from other sources--sale of livestock, for example. But it must be underscored that so little farm-level research has been carried out to discern trends and document the decision-making undertaken by most farmers, it is nearly impossible to say how conditions have changed over the past few years. Much more work needs to be done on production decisions, marketing options and the effect the outside economy has on the village. For this, accessible data on on-farm stocks and other variables are essential. Without such research, making inferences about economic changes is a haphazard endeavor.

Table 5--OPVN producer prices, 1/

Crop	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
			FCFA/kg.			
Millet	30	40	40	40/45	70	80
Sorghum (White/Red)	30/20	40/35	40/35	40/35	70	80
Rice(Paddy)	45	45	45	45	70	70

1/ These are guaranteed prices paid by OPVN through their various channels, but prices paid to producers by traders or some other local arrangement fluctuate often lower than those stated here. Costs of transport or interest on loans may lower the price received by the producer.

Source: Ministry of Agriculture

3) Market Prices

The available studies nevertheless show some striking patterns and indicate what kinds of other data need be collected. First, price fluctuations occur in all markets during the year, with prices at their highest in June and July. Prices begin to fall as the growing season progresses, decline to their lowest point in October, November and December, and then start rising, often steadily, until the next harvest. There are some variations in this pattern, but for the most part it holds throughout most of Niger, and in most of the Sahel.

Another observation about prices is that during some years price differences between markets remain fairly consistent. If these price differences are seasonal, they may only reflect local production and marketed supply conditions, which of course are both highly variable. If they hold consistently across years they may reflect differences in transport costs, access to supplies from certain localities, or preferences for certain markets since there appears to be some specialization in markets for specific products or kinds of transactions. These preferences often have their roots in historic fact--certain markets dominate a given region because of their size or location. 10/ Preferences for these markets do shift over time, but in the short term, price data should effectively indicate which markets are favored and for which products. However, without data from a number of consecutive years it is difficult to determine if patterns are anomalous or consistent.

Table 6—Sample of average market prices in two departments, 1982-83

	Maradi		Zinder	
	Millet	Sorghum	Millet	Sorghum
	FCFA/kg.			
September	91.2	80	124	115
October	90	76.2	-	-
November	85	73.8	-	-
December	83.8	71.2	110	90
January	83.8	71.2	89	76.1
February	83.8	70	85	74.8
March	65.2	58.8	74.8	66

Source: OPVN field offices. Weekly surveys were conducted in five markets in Maradi and four in Zinder.

Table 6 gives an idea of the normal price decline following the harvest, but a continual decline into March and likely April and possibly May is very unusual.

4) Marketing Margins

One important element in the marketing chain that has been little investigated is the spread between producer price and market price. If such a spread could be calculated, the efficiency of the local markets could be judged in passing along costs and calculating the profits of those selling grain. Data are needed on prices actually paid to farmers and on whom they sell to, to discover what they receive and how costs are portioned out in the marketing system. With these price data, it would be possible to discern the pattern of sales, how marketing decisions are

made, and what the options are for a farmer to sell his product. This kind of data collection and analysis at the farm level on marketing decision-making has been undertaken by ICRISAT, but nothing else of a systematic nature has been done on marketing margins. 11/

5) Marketing Options

Farm-level decisionmaking on marketing thus needs to be more fully understood. Presently, producers can sell to the cooperatives which guarantee a price that is presumably competitive with merchants' prices when transport and other costs are deducted by the merchant. But the price offered by a merchant will be determined by the location relative to the market or a road, the credit arrangement made by the farmer, and any number of other factors. The cooperative may be theoretically a good option, but it may be inconvenient or impractical for other reasons. Moreover, a producer has other options in disposing of his crop. Other necessities and obligations may require a quick sale for a low price, or gift giving, which nets him no financial gain, but enhances his social status. Such transactions may take a portion of the marketable surplus, so even if production is of a high level, the marketable surplus may not increase accordingly. Grain shortages could still occur in some markets. 12/

6) Imports

The fluctuations in local market prices reflect, more accurately than almost any other indicator, local supply and demand conditions. But data

are needed, as was stated earlier, on how much of a crop is marketed and on household consumption patterns, so that a notion of cash and consumption needs can be constructed. Without such data predicting consumption needs becomes complicated since in most of Niger local production is insufficient to meet local needs and supplies must come from elsewhere. (An attempt has been made, nevertheless to estimate consumption needs.)

If production is as low as the SFMA team estimates, then very little local grain is available for marketing and movement elsewhere in the country, leaving many markets in Niger in deficit. Such a deficit is made up with grain from other sources, notably imports.

It appears that in most years a significant quantity of grain is imported from Nigeria. The quantities involved may change according to market prices and production in Nigeria, on the black market exchange rate, and on the quantities demanded in the local markets, but if the SMFA team's estimates are accurate on domestic consumption needs, then substantial imports are made every year. There is no way of knowing what these quantities have been in past years, but one indication of the flow may be the black market exchange rates, which at least indicate in principle in whose favor the trading would be.

Table 7--Market exchange rates, FCFA to Naira

	1975	1976	1977	1978	1979	1980	1981	1982
Official Exchange Rates	328.22	381.38	381.13	355.27	352.92	386.61	442.7	482.48
Recorded Black Market Exchange Rates	243.33	279.40	240.67	199.92	203.13	232.57	296.64	293.86
Parity Exchange Rates	243.33	281.20	234.34	209.94	221.0	255.43	320.24	326.27

Sources: Official exchange rates and CPI figures from IMF, International Financial Statistics; black market exchange rates from Pick's Currency Yearbook, 1979, and averages from Pick's Monthly Bulletins; parity exchange rate calculated by using the black market rate reported by Pick's Currency Yearbook in the following formula: exchange rate times Nigerian CPI/Nigerien CPI. 1975=100 for CPI.

Note: 1982 black market and parity exchange rates are based on ten months of observations; CPI figures for Niger are estimated from first two quarters of data for 1982, and for the entire year in Nigeria.

The comparison of these exchange rates reveals similar movements from year to year. The parity exchange rate is consistently higher; it theoretically indicates the real buying power of the FCFA vis a vis the Naira, since it is deflated by the CPI. It curiously increased in 1982 over 1981, despite the fact that the black market exchange rate declined over this period. The decline in the latter was confirmed by money changers interviewed by the SFMA team.

These rates are clearly not the most important determinant of the direction of trade, but may set the magnitude of trade which is determined more directly by local production and demand. The inter-annual fluctuation in these rates could conceivably induce trade, but it may be more reasonable to look at quarterly or monthly fluctuations in these rates. In any case, this aspect of cross-border trade needs to be more fully investigated, since these rates contribute to the movement of grain.

7) Nigerian Prices

Another aspect of this trade is price data in Nigeria. Presumably if production is sufficient in Niger to allow some to be exported and the price is attractive in Nigeria, the grain will be exported. Conversely, if supplies are ample in Nigeria, which is more often the case, with a favorable exchange rate for Nigerien merchants, grain will be imported from Nigeria. Such was the case this year.

It would be useful to have Nigerian market prices for grains to compare them in the same currency, but they are unavailable. In the

absence of these prices, producer prices have been used instead to give only a rough indication of the profitability of this trade. They are only a crude indicator of the actual market price, since they are the official guaranteed price, while in fact market prices may fluctuate around them. Still, for the sake of comparison, Nigerien producer prices have been converted to Naira to provide an indication of the theoretic attractiveness for Nigerien merchants to sell in Nigeria or buy there as well.

Table 8--Millet Producer Price Comparison between Nigeria and Niger

	1976	1977	1978	1979	1980	1981	1982
Nigeria (Naira/kg)	.80	1.10	1.10	2.20	2.20	3.21	3.30
Niger (FCFA/kg)	30	40	40	40	40	70	80
FCFA to Naira	.84	.94	.84	.88	1.15	2.56	2.61

Notes: FCFA to Naira is calculated using parity exchange rate.
1982 Nigerian producer price is estimated.

Sources: IBRD and Nigerien Ministry of Agriculture.

In nominal terms, it is obvious that market prices are much more favorable to producers in Nigeria than in Niger. Such favorability would support the GON's contention that much of Niger's grain is exported and would easily draw stocks into the Nigerian markets if such grain were available. But if supplies are as limited as the SFMA team estimates, then it is unlikely that sufficient quantities are available for export, particularly not to the extent that the GON claims.

It is possible that in some recent years, with high production levels in southern Niger, some grain was sold into Nigeria. Such a case is, however, likely to be an exception to the more general pattern of grain moving northward rather than southward. The question that comes to mind is why, if market prices are presumably higher in Nigeria, merchants would want to export grain to Niger. Up until 1981, when Nigeria enjoyed very high oil export earnings, the parity exchange rates show that the trade was not unfavorable to the merchants in Niger. It has only been during 1981 and 1982 that the rate changed drastically, and since then the rate has resumed its former attractiveness to merchants in Niger. Despite the perturbations of Nigeria's economy, the grain trade continues, based to a degree on black market exchange rates.

Part of the answer, however, must lie in the fact that demand is fairly constant in Niger and that, because the grain trade is part of the larger Hausa trading network, it will continue despite the shocks and distortions introduced by the two governments. Now with the exchange rate more favorable for Nigerien merchants, grain in Nigeria is quite

affordable, particularly with falling market prices there. The higher production and abundance in local Nigerian markets, access to these markets, and the high demand for hard currency in Nigeria all make the proposition an attractive one. In fact, given the patterns of production and consumption in Niger, where local stocks have not been reconstituted over the last few years and supplies in local markets have been insufficient, grain must be procured from outside the local markets. Nigeria is the only possible source of such grain. It is unfortunate that time series data on market prices in both Niger and Nigeria were unavailable for this study because the profitability of this cross-border trade could then have been calculated and some measure of its direction made.

8) Other Evidence

Merchants interviewed in markets by the SFMA team in October reported that the black market exchange rate had dropped from 275 FCFA/Naira in 1981 to 250 FCFA/Naira in 1982. At this time, the Nigerian market price was reported to be 40 Naira per 100 kg bag, converted at 250 FCFA/Naira, this was 10,000 FCFA. Merchants reported that the transport cost from markets in Kano, Sokoto, or Kaduna to southern Niger was 1,000 FCFA per bag, thus making the "landed" price in Zinder or Maradi 11,000 FCFA. At this time of year, the middle of the harvest, the local price was at or near the season's supposed nadir, of 10,000 FCFA per bag, 1,000 FCFA below what grain from Nigeria would have cost in the same markets.

But the merchants interviewed claimed they could easily sell their grain at 11,250 or 11,500 FCFA per bag, indicating that the grain was being bought by merchants who shipped it farther north to deficit areas where the price is always higher and such an initial price can be easily recouped. 13/ These merchants also indicated that they deal almost exclusively with Nigerian grain. Moreover, the amounts that they deal with seemed only to be available from Nigeria, not from local production and stocks. And furthermore, they claimed they suffer little loss in storage since they apparently move their supplies very quickly, even at the apogee of the harvest when local supplies are plentiful.

In March, merchants interviewed said the market price of millet and sorghum in Nigeria had declined to between 28 and 30 Naira per 100 kg sack, and the black market exchange rate had fallen to between 212 and 215 FCFA per Naira. Thus the "landed" price in Zinder or Maradi, the large markets to which much of the grain is shipped, was approximately between 6930 and 7450 FCFA per sack, after 1000 FCFA is added for transport. What is curious is that the price had fallen from October, when in fact it should have been rising. Such an occurrence implies that there is likely a large crop in Nigeria, but also that demand has possibly fallen since there are other staple starches available in local markets: cassava, cocoyams, yams, rice, potatoes and maize. Also, the demand for hard currency foreign exchange for trading purposes, in the light of trading restrictions enacted by the Government and a concomitant fall in the value of the Naira, may have compelled merchants to sell much more grain than normal to Niger. In addition, the fact that OPVN agreed

to purchase directly from merchants at a price of 8500 FCFA per sack delivered to its warehouses, compelled traders to import large quantities of grain and thereby reap tremendous profits. The presence of very large surpluses has been confirmed by the low market prices, even in March for millet and sorghum. These low prices are unheard of for this time of year and indicate a virtual flood of grain in the market, particularly in Zinder and Maradi, where the main grain markets are located that handle grain from Nigeria.

Table 9--Average market grain prices for March 1983

Department	Millet	Sorghum	Rice
		FCFA/KG.	
Niamey	98.7	93.4	180
Dosso	103.4	90	205
Tahoua	80.6	71.2	232.2
Maradi	65.2	58.8	220.7
Zinder	74.8	66	225
Diffa	90	80	200
Agadez	120	--	237.5
Average	96.4	76.6	214.4

Note: These are prices taken from four or five of the largest markets in each department, visited each week by OPVN field personnel. Rice prices do not fluctuate seasonally since most rice consumed is imported.

Source: OPVN Field Offices

C) Summary

Although Niger's main marketing problem seems to be a function of physical geography, with low crop yields and poor production and centers of consumption great distances from areas of production, some of these difficulties are overcome by the marketing system itself. Imports from Nigeria make up the deficits in most years so the deficiencies of the local production system can be corrected by the availability of grain from northern Nigeria. Guaranteeing low grain prices for urban consumers, i.e. government workers, the most vocal and visible single political force in the country, has been the main objective of the Government's policies, along with establishing and maintaining an emergency reserve stock. Still, for the majority of consumers, OPVN has typically had little direct influence on prices in the markets since it controls a relatively small portion of the crop and it is only this year that its large stocks have effected market price movements.

V. Regional Specialization in Niger

For purposes of this study, Niger can be divided into three regions according to economic specialization. The differentiation is based on the basis of population size, density and growth rate, production, and consumption needs. These zones are the overall sedentary agricultural zone, the pastoral zone and the urban zone.

A) Zones of Production and Habitation

1) Agro Pastoral Zone

Much of Niger's agricultural production takes place in the southern belt where annual rainfall averages between 350 and 700mm. Three departments account for almost 60 percent of total production and contains much of the cultivable land, it is the area where OPVN buys most heavily, when it is available, to stock its urban warehouses. If there is any noticeable surplus, it usually comes from this region. Approximately 70 percent of Niger's population lives in this zone, and they are predominantly sedentary grain producers. Population density in the zone averages above 40 people/km.^{2} Although most farm households possess animals—mostly small ruminants--the dominant activity is crop cultivation. Incomes, however, derive increasingly from off-farm sources: migrant labor, sale of local crafts and other sources. 14/ With more funds being invested in the rural economy as a result of the uranium export revenue, new opportunities have arisen over the past few years for many rural dwellers to earn money from off-farm sources. Tastes and preferences have changed to an extent with changes in incomes, but still

in relation to other groups in the national population, rural inhabitants have the highest per capita grain consumption. A figure of 210 kg./person annually is projected in this study.

2) Pastoral Zone

There exists no clear demarcation of the pastoral zone in the southern part of the country, since livestock raising is common throughout all of the agricultural zone. There is some limited crop production throughout much of the pastoral zone, but livestock production dominates the regions with less than 400 mm of annual rainfall, and stretches well into the arid zones of the country. Population density of this zone is often below 20 inhabitants/km^2. Diets are dominated by animal protein, in the form of milk and supplemented by grains and other food products purchased with receipts from animal and animal product sales. It is a grain deficit area and requires supplies to be shipped long distances to centers of distribution, causing prices to be high throughout much of the year.

The relationship between the pastoral population and the sedentary population of the zone which deals commercially with them has been little studied and presently not enough is known about these relationships to understand how they have been evolving in recent years. But research is now underway to explore these relationships and to detail the movements of herders, to analyze herd structure, along with the economic and social forces that have brought about change in these societies. Undoubtedly, changes in herd size and composition have taken place resulting not only

from the droughts, but from other economic and physical conditions. The extent of these changes is not well known, but it appears that the terms of trade for many pastoralists have declined over the past few years. Their position in the marketplace and their ability to buy the food products they need may well have been eroded by the changes in relative prices of the products they sell and those which they consume.

Per capita annual cereal consumption for the pastoralists is thought to be between 130 and 150 kg, based on various studies and observations made by anthropologists working on a USAID livestock project. The range of this figure depends on which group of pastoralists is considered. For this study, a figure of 140 kg/person was used.

3) Urban Areas

The urban population of Niger was estimated at 917,300 at the end of 1982. This represents 15.1 percent of total national population. Urban population is growing at an annual rate of 7.27 percent. The department of Niamey had a population estimated at 1.33 million at the end of 1981. Probably one quarter of this population lives in the city itself.

Consumption in Niamey and other urban areas is subsidized by the Government which buys grain throughout the country, transports it, stores it, and sells it to urban residents at a price below cost and often below the open market price. The present study team projects a per capita cereal consumption figure of around 180 kg. Other products—animal protein, pasta and fruits and vegetables—are available for consumption, as many urbanites consume less cereals than do rural residents.

VI. Demand

A) National Cereal Consumption Needs

Table 10 presents various estimates of per capita grain consumption in Niger. An attempt is made in the table to differentiate sedentary cultivators, pastoralists and urban dwellers since they each have different consumption patterns according to caloric needs, availability and habit.

Table 10— Estimates of per capita cereal consumption in Niger

	Source of Estimate						
Group	1	2	3	4	5	6	7
				KG/YEAR			
Sedentary cultivator	212.8	480.11	—	225	—	—	210
Pastoral	120	290.3	—	225	140	—	140
Urban dweller	140	364.3	—	200	—	—	180
Overall	190.5	—	220	—	—	190	—

Sources:
1. SEDES, Les Produits Vivriers du Niger, Paris, 1963;
2. Eddy, E., Labor and Land Use on Mixed Farms in the Pastoral zone of Niger, (CRED, University of Michigan, 1979);
3. Kohler, op. cit., p. 92;
4. Current factor used in Government of Niger calculations;
5. John Sutter, 1982;
6. FAO estimate cited by Kohler, op, cit., p. 92;
7. Estimate accepted by the present study team based on table.

The per capita grain consumption table is a composite of information taken from a number of sources. The estimates used by the SFMA team seem to be more realistic than others. In fact, preliminary results from the anthropological research carried out on nomads shows that grain consumption varies tremendously, but yearly per capita consumption averages between 130 and 150 kg. 15/ According to work now under way in grain producing villages in the south, an average annual per capita intake would be realistically 210 kg. 16/ Urban per capita consumption is estimated lower at 180 kg, since as was previously mentioned, many other foods are available, making the share of grain as a percent of caloric intake less. Preliminary results from the work of a nutritionist, indicate that these estimated levels could realistically satisfy caloric needs for people in each category. 17/ Although these estimates cannot be confirmed by empirical work, they seem to be more realistic than the figures currently used by the government to estimate needs.

Need and Availability

Table 11--GON estimates of per capita cereal consumption by group

	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Rural Sedentary (225 kg/person/year)	886,770	908,325	930,397	953,010	976,095
Urban (200 kg/person/year)	138,540	148,620	159,420	171,020	183,460
Pastoral (225 kg/person/year)	171,292	173,745	176,220	178,740	181,305
Total	1,196,602	1,230,690	1,266,037	1,302,770	1,340,860

Note: This table takes the GON's estimates of per capita consumption and calculates need for each group according to population figures presented in table 1.

Source: Ministry of Rural Development

Table 12—Niger cereal imports, 1978-1983

Cereal	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Wheat flour or wheat equivalent 1/	14,617	18,438	37,768	37,769	10,000
Rice 2/	42,380	56,672	77,729	91,850	46,000
Sorghum 3/	33,128	10,787	34,899	35,861	25,988
Millet 4/	731	14	86	5,000	12,800
Total	90,856	85,911	150,482	170,480	94,788

1/ Wheat flour and wheat: Wheat figures converted to wheat flour equivalent. Source: UN Trade Figures, French wheat export figures, FAO estimate for 1982/83. These are commercial and food aid shipments.

2/ Rice: Both commercial and food aid imports were made. These figures include estimates of unrecorded trade, 1978/79: 28,500; 1979/80: 30,000; 1980/81: 33,000; 1981/82: 37,000; 1982/83: 33,000. Estimates and other figures provided by CIPRIC, the government parastatal that imports rice.

3/ Sorghum: Figures include commercial imports made by OPVN and food aid shipments delivered to OPVN. Estimates of unrecorded trade furnished by OPVN:1978/79: 8,000; 1979/80: 10,000; 1980/81: 7,000; 1981/82: 2,000; 1982/83: 25,000. These estimates are not not included in availability totals because they appear to be arbitrary and too low.

4/ Millet: Figures include official imports by OPVN. Estimates of unofficial trade are not included. Those estimates are: 1978/79: 13,000; 1979/80: 4,000; 1980/81: 0; 1981/82: 2,000; 1982/83: 13,000.

Table 13--GON estimates of national cereal availability and consumption needs

	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Production 1/	1,270,116	1,365,907	1,472,293	817,751	1,411,820
Imports 2/	90,856	85,911	150,482	170,480	94,788
Total Availability 3/	1,361,002	1,451,818	1,622,775	988,231	1,506,608
Consumption Need 4/	1,196,602	1,230,690	1,266,037	1,302,770	1,340,860
Difference 5/	+164,400	+221,128	+356,738	-314,539	+165,748

1/ Production: Government estimates from table 3 minus 15 percent allowance for seeds and losses.

2/ Imports: Figures from table 12 Niger Cereal Imports.

3/ Total availability: (1)+(2).

4/ Consumption need: Government per capita consumption figure from table 11.

5/ Difference: (4)-(5).

Table 14--SFMA estimates of per capita cereal consumption by group

Group	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Rural (210 kg/person/year)	827,652	847,770	868,371	889,476	911,022
Urban (180 kg/person/year)	124,686	133,758	143,478	153,918	165,114
Pastoral (140 kg/person/year)	106,582	108,108	109,648	111,216	112,812
Total	1,058,920	1,089,636	1,121,497	1,154,610	1,188,948

Source: SFMA team

Table 15—SFMA estimates of national cereal availability and consumption needs

	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Production 1/	622,540	680,280	740,630	729,867	726,028
Imports 2/	90,856	85,911	150,842	170,480	94,788
Total availability 3/	713,396	766,191	891,472	900,347	820,816
Consumption needs 4/	1,058,920	1,089,636	1,121,497	1,154,610	1,188,948
Difference 5/	-345,524	-323,445	-230.025	-254,263	-368,132

1/ Production: SFMA production estimates from table 4, minus 15 percent allowance for seeds and losses.

2/ Imports: Figures from previous table 12.

3/ Total availability: (1)+(2).

4/ Consumption need: SFMA per capita consumption figures from table 14.

5/ Difference: (4)-(5).

Table 16—Comparison of Cereal Availability and Consumption Estimates

Estimator	1978/79	1979/80	1980/81	1981/82	1982/83
			Tons		
Government of Niger	164,400	221,128	356,738	-314,539	165,748
SFMA Team	-345,524	-323,445	-230,025	-254,263	-368,132

Source: Row 5 of tables 13 and 15.

Tables 11 and 14 show cereal consumption needs for each group using the government's per capita consumption estimates and the SFMA team's estimates. When these are combined with production estimates described earlier (tables 3 and 4) in the study and import figures (table 12), national needs and availability (tables 13 and 15) are shown to be strikingly different (table 16). The GON's figures show a surplus in all but one of the most recent five years. It must be noted that the production figures in either case are limits and actual output may be between those limits. The deficits systematically calculated by the SFMA team seem to be very high, but they do not seem to be inconsistent with the observed fact of imports throughout Niger's markets

The picture of food production and marketed quantities is a complex one, with little statistical information of good quality. But if interpreting the production and marketing trends is difficult, it is much

more difficult to determine what the picture is with regard to imports. First, because there is much debate about production levels, it is difficult to determine what supplies are and what per capita consumption may in fact be. Without extensive studies to demonstrate consumption levels, it is almost impossible to determine national need and thus the demand for imports, which are made to fill the gap between local supplies and needs.

Furthermore, the difference between the quantities officially reported as imports and the much larger quantities which are actually imported, suggests that the shortfall between local production and needs is much greater than is officially admitted. The quantities that make their way into the Nigerien markets, particularly from Nigeria, bespeak a food situation far worse than the government's calculations indicate.

B) Consumption and Imports

Table 16 shows a picture of grain availability and need that deviates substantially from that of the government. High and chronic deficits are apparent and although the SFMA team's estimates of production are a lower limit and import deficits are an upward limit, these calculations demonstrate that serious annual shortages in Niger appear to be commonplace and that these deficits are filled by clandestine imports from Nigeria. The observed fact of the trade and the corroboration by merchants in several markets confirm that the trade is substantial, that it has been going on for many years and it is the normal pattern for Nigeria to satisfy some of Niger's grain demand. The large harvests in Nigeria--combined

millet and sorghum crops are usually above six million tons--are sufficient to allow 200,000 to 300,000 tons or more to be exported without affecting local market conditions. The demand for foreign exchange, notably FCFA is a large factor in determining this trade.

VII. The Present Situation

The calculations presented above show a situation different from what is commonly believed to be the case in Niger. Up until this year, it seems the government was reluctant to change its view or to officially recognize the import trade. However, this year, it was forced to buy from merchants who as the Government knew were importing the grain from Nigeria. A recapitulation of the buying campaign is necessary to demonstrate how the government intervenes in the market, how its policies are carried out, and how it was forced to accept the reality it has typically chosen to ignore.

A) Recapitulation of OPVN's Purchasing Campaign 1982-83

OPVN announced its purchase price in September after it made an initial assessment of this year's crop. The price was increased by 10 FCFA, to 80 FCFA per kg, this price being set by an inter-ministerial committee. It is unclear just what the committee took into consideration to establish this price, but somehow it decided to increase the price. The crop assessment done by MDR reported there would be a surplus of 70,000 tons, in Zinder and Maradi Departments, and consequently, OPVN's buying quota was established at that level. When the campaign opened, OPVN had on hand 43,000 tons of

sorghum and 40,000 tons of rice which it had purchased commercially during 1981-82 because of a poor harvest. In addition, 40,000 tons of food aid were also in storage that had been supplied by various donors during 1982. Total reserves stood at 133,000 tons with both the reserve stock and stabilization stock replenished to their maximum limit, 123,000 tons. At most, OPVN needed to purchase 30,000, the one-third of its reserve stock that it normally turns over during the year, but its buying quota was set much higher, at 70,000 tons, apparently by Presidential fiat.

In addition to setting a new high purchasing price of 80 FCFA/kg, OPVN relied on the cooperatives to buy grain from farmers rather than purchasing it through the village and canton chiefs or licensed merchants. Easier access to OPVN through the co-ops would presumably allow more grain to be commercialized and find its way into OPVN's stocks. But as the buying campaign progressed, little locally produced grain was purchased through the co-ops. The abundant harvest that MDR predicted turned out to be a mediocre one, and late at that, since many farmers were forced to re-seed and few had harvested grain in time to sell at the beginning of the buying campaign.

By late November only 15,000 tons of local production had been purchased of the 70,000 ton target. As a result, the President along with several ministers became alarmed about meeting the target and maintaining food supplies as the President has continuously asserted he would do. At the same time, representatives of the merchants union called on the President and volunteered to supply the needed grain by importing it from Nigeria and selling it to OPVN. The merchants responded very quickly,

selling all supplies they had already imported and imported even more. These purchases from merchants began in early December, and OPVN paid 8500 FCFA per sack delivered to its warehouses.

At the same time, UNCC purchases began to increase, as farmers began to deliver the delayed harvest to the co-ops, and by the end of January, OPVN had purchased over 47,000 tons through the co-ops. Purchases from merchants amounted to more than 38,700 tons, over 40 percent of total purchases. The income transfer from the Government to the merchants amounted to 3.23 billion FCFA.

Table 17--OPVN purchases, 1981/82 and 1982/83

Department	1981/82		1982/83	
	UNCC	Traditional Chiefs	UNCC	Merchants
Niamey	--	5,568	1,557	--
Dosso	--	3,541	2,775	--
Diffa	--	535	2,388	--
Zinder	--	9,894	21,000	7,600
Maradi	--	7,788	17,590	19,688
Tahoua	--	4,260	2,500	11,500
Agadez	--	--	--	--
Total	--	31,586	47,810	38,788

Source: OPVN, UNCC.

Most importantly, the GON was compelled to take out loans, amounting to 10 billion FCFA, 3 billion more than the entire development budget, in order to finance OPVN's buying campaign. The loans were made at 10.5 percent but will increase to 17.5 percent after nine months, sometime in July. In light of the fact that OPVN now has on hand 221,000 tons of grain

it sorely needs storage capacity and it must sell some of its grain to defray the cost of its loans and interest payments, it has asked the donors to buy some of this surplus grain and to help finance its debt with financial support. The Germans have agreed to buy some of the surplus grain. In any case, OPVN now has much more grain than it needs or can afford to keep.

B) OPVN Sales Campaign

OPVN begins its sales campaign each April, to sell to fonctionnaires and other consumers. It is obliged to sell at 120 FCFA per kg to recoup transport, storage, and administrative costs. But because market prices have been kept low due to an overabundance on hand, OPVN has sold very little to date. Selling grain at above the market price has made OPVN uncompetitive, and it therefore is expected to lose money if it is obliged to store the stocks it presently has on hand.

C) Question Raised by this Year's Purchasing Campaign

The first question that this year's campaign raises is why when necessary purchases were only 30,000 tons, enough to rotate into the reserve stock, did OPVN establish a buying quota of 70,000 tons? Several factors appear to have contributed to this. During the previous year, the President indicated that Niger was to be self-sufficient in grain, according to MDR's estimates of crop production. But when this turned out not to be the case, food aid and commercial purchases became necessary. This year when MDR estimated a surplus of 70,000 tons, the President

wanting to stand behind his promise of grain self-sufficiency and wanting to satisfy the pledge that OPVN would buy any surplus grain produced in Niger, the quota was set at that level. The decision was taken without consultation with OPVN's staff, only its director general, who must go along with the President's wishes. So the limit was set by fiat. It was an uninformed decision that OPVN was obliged to accept.

The next question is why when UNCC finally began buying its grain from local producers didn't OPVN stop buying grain from the merchants until it could take account of what it had bought? Apparently, the accounting system is so poor, and managerial capability so lacking that OPVN was incapable of tallying up its purchases quickly. It simply kept on buying, not knowing what quantities it was amassing at its various depots. Again because the President had pledged that all stocks offered would be purchased and became merchants had been expressly asked to import grain to sell to OPVN, the GON wished not to risk its political credibility. The government's wish to purchase grain when it can is a reasonable one, to ensure that the reserve and the stabilization stocks are full. But to make a loan and then purchase far and above what is necessary and what can be stored, turned out to be a costly blunder.

D) Ramifications

To say the least, these conflicting political and economic demands translate into policies that are formulated and executed in a haphazard and disjointed manner. Since political necessities often dictate the decisions made for OPVN, the economic and financial ramifications of these decisions

are often disastrous. Many decisions are made with little consultation with OPVN's staff, and they neglect common sense. They appear arbitrary and even contradictory, but still OPVN is expected to carry them out just the same. This all leaves OPVN with an uneven and unpredictable set of policies. The President can intervene to make decisions on pricing and purchasing policy, thereby frustrating and demoralizing OPVN's staff. Without full control over its policy making, OPVN can hardly be expected to be self-financing as the government recently decided. It may be however, that if OPVN can be limited in its objectives and its role, and if it can be put in a relatively less vulnerable political position, or insulated a bit more, then perhaps it can fulfill some of its legitimate functions of maintaining reserve stocks and supplying areas when possible, where private commercial sales are too expensive for most consumers.

E) Special Case

The large stocks OPVN now has on hand, could potentially be used to stabilize market prices throughout the year. Although it may not sell very much grain at 120 FCFA/kg, the market price has been kept below this level since merchants wish to undersell OPVN rather than keep unsold stocks. As long as privately held stocks are maintained, it is likely that the market price will be below OPVN's and the fact that the market price continues at this level confirms there is no collusion since merchants appear to be price takers for the time being. By amassing such large stocks, OPVN is inadvertently holding consumer prices lower than normal for the entire population, rather than just for a select group of urban dwellers. If

OPVN's system can be revamped to sell to merchants rather than just through its own stores, and thereby release stocks directly into the market, than it will be able to stabilize prices and incomes for most consumers on a regular basis. Its stocks should last one to two years.

The array of OPVN's policies is not the central focus of the discussion here, suffice it to say that a reconsideration of its policies is necessary if the government is going to allow the markets to function smoothly, or if its costly and inefficient policies will be allowed to continue. It is clear that except for this year, OPVN has had a marked positive effect only for those urban consumers who have access to the ration system, namely, the government workers and the army. For the majority of consumers, OPVN has hardly touched them, nor has it noticeably enhanced the country's food security. The fact that it satisfies and subsidizes certain urban consumers at great cost is a choice that must be confronted. This paper could not fully look into these questions since that was not its intended purpose, nor was the information readily available from OPVN.

VIII. Conclusion

Niger is an interesting case of a food deficit country that is able to meet much of its food needs through the active private trade that imports from one of its neighbors. In addition, it has a parastatal agency that attempts to regulate producer and consumer prices while providing for urban consumption and setting aside an emergency stock. Its activities take place almost entirely outside of the private sector. But to date, the Government has been unwilling to reconcile the reality of the extensive and essential private trade with its own necessity to maintain its parastatal to satisfy urban food grain demand and thereby fulfill certain political objectives. Until this year, it has refused to acknowledge the extent of the commercial grain trade taking place, preferring to perpetuate a set of mistaken suppositions and assumptions about the structure and performance of the markets and the behavior of those participating in them. These assumptions have been the basis of policy decisions to regulate the market and in many cases, they have turned out to be costly and usually inefficient. So in discussing the grain market system in Niger, these assumptions must be challenged as they have been here, and evidence to support an alternative view must be presented to provide a more realistic picture of the grain markets.

At first glance it appears that the main marketing problem in Niger is the great distance of the largest consumption area from the main source of supply. This is true to the extent that local production is purchased and made available to OPVN and transported to Niamey, at a great cost and usually at a loss to the Government. But the market for much of the rest

of the country functions more or less smoothly and benefits from the abundance of Nigeria's production which is imported in substantial quantities. These imports bespeak large annual deficits to which the Government, until this year, has refused to admit. The argument stressed here has flowed from the fact of these imports which prompted a re-thinking of the marketing system, of production and consumptin levels, and of pricing policy.

Niger's grain marketing system is interesting too because its marketing parstatal which was created for legitimate economic reasons in the early 1970's, has become increasingly inefficient and unreliable in its operation. Only this year has it had a noticeable effect in setting remunerative producer prices and indirectly controlling market prices through its holding of surplus stocks. But the price stability for most of Niger's consumers has been secured at a very high cost—burdensome loans amounting to over 8.8 billion FCFA that must be paid back shortly. Such a high price demonstrates the inefficincies that OPVN perpetuates in stabilizing incomes and providing for the welfare of the country and speaks to a set of policies that are haphazardly created and unpredictably carried out. The benefits in relation to the costs of its policies are very low and call into question the decisionmaking of OPVN and the Government.

There is no doubt that providing grain at affordable prices and accumulating security stocks are worthwhile objectives, but these political necessities seem not to be balanced against economic ones. It is legitimate for a government to satisfy the demands of a vocal and powerful constituency, the urban dwellers, but it must be asked at what cost can this be done. For a government such as Niger's, that cost may be too high,

particularly in light of the fact that there is a vibrant and extensive private grain trading system that can normally satisfy most of the local demand. Niger's marketing system exemplifies the tradition of lively commerce operating beside a parastatal created by government policy that distorts and inefficiently intervenes on behalf of a select segment of the population. It is a case where effects are apparent of inefficiencies, inequities and distortions that are introduced by government policy interventions.

FOOTNOTES

1/ Center for Research on Economic Development, Marketing, Price Policy and Storage of Food Grains in the Sahel, Vol. II, University of Michigan, 1977.

2/ Hays, H.M., Jr. The Marketing and Storage of Food Grains in Northern Nigeria, ABU, Zaria, 1975.)

3/ Clough, Paul, "Farmers and Traders in Hausaland, Development and Change, vol. 12, 1981, p. 273-292

4/ OPVN does not make public its costs, but it does show an operating deficit in the Government's budget. Its high overhead and operating costs indicate that it operates very inefficiently, particularly in transporting grain long distances.

5/ Kohler infers that the structure of the markets in Niger are the same as in Nigeria. It may have been true in 1976 whwn the study was done, but it seems unlikely that the structure of the market would have changed with merchants importing grain rather than exporting it.)

6/ See appendix II for a further discussion of marketing options.

7/ See for example: J.K. Mathia, "A Supply Function for Kenyan Coffee", in E. Af. Econ. Review 1, no. 1, 1969; or Edwin Dean, The Supply Response of African Farmers: Theory and Measurement in Malawi, (Amsterdam: North Holland, 1966).

8/ CRED, op. cit.,p.6

9/ See Raynaut, 1982, Maradi area study.

10/ See Arnould dissertation and Baier, for example

11/ The Agricultural Sector Assessment's Marketing section addressed this in a cursory fashion.

12/ See appendix II for a more thorough discussion.

13/ The margins reported in October of 250 to 500 FCFA per sack seem a bit low compared to what was reported in March. Therefore, it may be that the black market exchange rate was actually lower than 250 FCFA/Naira and that a difference in volume between sorghum and millet (sorghum is sold in 110 kg. bags) could have made the "landed" price lower.

14/ See Raynaut 1982 for example of these recent changes.)

15/ These estimates were confirmed in conversation with Cindy White, who is carrying out research among the Wo'Daa'Be'Be herders in Tahoua region.

16/ Such an estimate is consistent with preliminary results from ICRISAT. This was confirmed in conversations with John McIntire, who is carrying out village level production, marketing and consumption surveys.

17/ A level of 180/kg. annual per capita grain consumption is consistent with preliminary findings of Christine Babcock, a nutritionist who participated on the Niger Food Aid Needs Assessment, conducted by Michael Cullen and Phil Steffen, in March of 1983.

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Appendix I

Macro-Economic Cha..ges

Economic Growth in Niger

During the past 5 years, uranium production and exports have spurred economic growth in the Nigerien economy. As of 1980, 37 percent of government revenues and 100 percent of budgeted capital outlays have emanated from royalties, taxes and dividends from the uranium industry. Revenue available for investment has amounted to $40 to $60 per capita.

The recent uranium wealth has caused GDP at current prices to increase at an average annual rate of 16 percent. Total government investment increased by 57 percent from 1979 to 1981, while public investment in the agriculture sector has risen by 27 percent over the past 3 years.

Appendix I, Table I—Nigerien Macro-Economic Data

	1978	1979	1980	1981	1982
			(Millions of FCFA)		
GDP at constant 1976 prices	270.4	307.1	322.2	325.7	329.0 1/
GDP at current market prices	362.1	442.6	528.5	597.6	658.0 1/
Consumer price index 2/ (1976 = 100)	306.1	336.3	361.0	450.2	518.3 3/
Total Investment	—	87,570.2	110,784.2	137,677.5	NA
Investment in Agriculture, Livestock, and Rural Infrastructure	--	9.8	10.85	12.52	NA

1/ Estimate
2/ For Africans in Niamey
3/ Up through November 1982
Source: IMF

The effects of this vast economic change have been felt in increase in incomes and the rate of urbanization which has been infrastructure and increasing its services and necessary functions. Incomes have risen in the urban areas altering consumption patterns inducing increased imports of some cereals and processed products. The opportunities resulting from growth in the Nigerien economy have undoubtedly led to increased monetization in the rural economy and perhaps caused some of the changes in crop production and exports that have recently taken place. The infusion of investment funds into the agricultural sector has offered some new opportunities for employment and influenced certain commercial patterns in both crop and livestock production.

Economic Growth in Nigeria

During the same period, the economy of Nigeria underwent similar but much more fundamental changes, resulting from the oil wealth at the disposal of the country. From 1975 to 1980, GDP in Nigeria increased at an average rate of nearly 20 percent declining only recently because of the world oil glut. The wealth has infused the entire economy in every sector as investments have been made by the Federal Government and by each state government as well. Employment opportunities have grown, urban migration has increased and incomes have likewise been enlarged as a result of the revenues spread through the economy.

Opportunities for semi-skilled and unskilled labor have increased in Nigeria, drawing large numbers of Nigeriens often for seasonal work. The phenomenon has been insufficiently investigated to determine whether the migration compels many Nigeriens to remain permanently or whether they

return to fulfill responsibilities for planting and harvesting in their own areas. However, the research that has been conducted, preliminarily, has demonstrated that most migrants return to their home villages rather than remain in Nigeria or any of the other coastal countries to which they are attracted by the potential for pecuniary gains. 2/

The demand for food products has increased sharply in Nigeria as incomes have risen, compelling imports both legal and illegal to be made from many neighboring countries, Europe and the U.S. Despite the large government investments being made in the Nigerian agricultural sector, the country is far from its goal of food self-sufficiency and must depend on other sources. This necessity has drawn much of the Nigerien production of cowpeas and caused demand to increase for livestock products supplied often from Niger.

The attractiveness of Nigeria as a market for Nigerien labor and some agricultural products results in benefits for the Nigerien economy, rather than in disadvantages. The funds that remittances offer, the growing markets for exports and the possibility of importing certain products from Nigeria made the economic relationship a vital and necessary one, an indisputable fact of life. Moreover, as pointed out in Baier 3/, for at least the last several centuries, the greater part of long distance trade in West Africa overall, has been oriented in a North-South direction. The orientation has been built upon the comparative advantages of the Sahelian and Sudanic zones. While the colonial era caused certain changes in the participants in trade, the terms of trade and the products trade, the rationale for the orientation

of the trade has remained unchallenged and, consequently, the pattern of North-South trade continues strong with a set of actors particular to contemporary circumstances. Historically the Hausa states coalesced around trading activities linking the desert areas with the Sudanic zones. Early adherence to Islam helped create a network of contacts that permitted Hausa merchants to situate themselves in a brotherhood, however distant from the comforts of their kin group. Muslim clerics, to this day, are disproportionately responsible for furnishing the traders and brokers to man Sahelian marketing systems in general and Nigerien systems in particular. Their importance is greatest in interregional as opposed to local trade.

Footnotes: 1/ World Bank, Agricultural Sector Paper, Feb. 1981, p.8.

2/ Information from conversation with Tom Painter, anthropologist, doing research on labor migration from Dosso Department.)

3/ See Baier 1974.

Appendix II

The Present Situation

Sedentary Rural Grain Cultivators

As mentioned above, the most productive areas of the agro-pastoral zone are in the departments of Dosso, Maradi and Zinder. Insofar as grain surpluses are produced in Niger in a given year to feed the marketing system they would tend to come from these three departments.

It is very difficult to estimate the amount of grain available to the marketing system on a national basis. Studies are spotty and no national level data are available. Appendix II table 1 presents data from the 1981 harvest taken in a sample of 119 households in villages in Dosso Department to illustrate the allocation of the harvest.

Appendix II,Table 1--Allocation of 1981 grain harvest in Dosso Department

Means of Disposition	Percentage
Stored for household consumption	87.70
Sold	
in market	.07
to outside merchants	.19
to cooperatives or canton chiefs	.88
to private individuals	.86
Given	
to Muslim clerics	3.71
to relatives	1.37
to friends	.64
to traditional leaders	.45
to elderly persons	.90
to repay debts	.27
for services of blacksmith or herder	.17
to land owner	.12
Stored for later sale	.40
Other uses	2.00
Total	99.73

Source: "Resultats de l'Enquete sur la situation de depart dans les Districts de Harikanassou, Koygolo, Tibiri, Guecheme, Diandiou et Kara-Kara" Republique du Niger, Ministere du Developpement Rural, Project de Developpement Rural de Dosso, Section Suivi Evaluation, Document S.E. No. 24, Dec. 1982, Table 12. (Survey of 119 households).

Several points should be kept in mind when interpreting this table. First of all, Dosso, among the more productive areas of the country, would tend to be able to satisfy producer household consumption needs with a lower portion of household harvest than in most other areas. However, 1981 was not a good crop year in general in Niger. This implies that, in Dosso and elsewhere, people were storing larger portions of their harvest than they did in say, 1980. Another point is that after storing the largest part for household consumption the remainder is allocated to a number of takers, few of whom receive a share of any significant size. Almost a third of this remainder, however, goes to Muslim clerics. A somewhat smaller share of the remainder is either sold, put aside for future sale or given in repayment for debts.

The hypothesis suggests itself that these clerics and assorted buyers are the first link of the marketing chain. Together their share of the harvest of the 1981 Dosso sample was 6.38 percent. This hypothesis is consistent with the historical role Muslim clerics have played in Sahelian West Africa. Moreover, in the Senegambia area, for example, clerics are still the most prominent actors in rural marketing systems for a wide range of goods. Finally, it is not possible to determine from table 1 which recipients of cereal gifts would be inclined to store their grain for future sale. It seems likely that as many recipients of gifts would be relatively well-to-do as would be impoverished. The conclusion is that, in 1981, in one of the most productive areas of the country, between 6 and 9 percent of the harvest found its way into the marketing system one way or another.

The same Dosso Department survey shows 1981 production per capita for the sample families of 243.5 kg. These families apparently felt their food security needs were met by setting aside 213.5 kg per capita for home consumption.

The quantity of grain available to the national market varies as a function of two factors. Most importantly it is a function of production. Producers will tend first to safeguard a vital stock to meet their family's annual consumption needs. other requirements may intervene, of course. A producer will have to pay his debts; he will have to meet his several responsibilities to the local cleric, to his more distant relatives and to the friends and neighbors with whom he maintains reciprocal relations.

Kohler 1/ states that a given family will have certain stable needs for grain supplies and will market what remains for cash needs, making fluctuation in marketable surplus greater than fluctuation in annual production. At the same time it may be possible that the increased monetization that has taken place in the economy since Kohler did his research has meant that cash needs must be met for loans or various social obligations. This need would compel many producers to sell off a given quantity each year in order to meet their pecuniary needs. In either case, so little is known about marketable surpluses at the village level that it is difficult to draw any solid conclusions. Both Raynaut 2/ and Sutter 3/ assert that exchanges of grain are a local phenomenon, with a small number of transactions being made outside of the village, reaching commercial channels. If this is the case for most of domestic

production, then available commercial supplies from local production are small and would be insufficient to cause the large scale speculation that is commonly believed to take place.

After securing the family's vital stock and meeting his other responsibilities a producer will deploy his remaining stocks more or less as a function of the market price. If market prices are low he will tend tc store more; if market prices are high he will tend to sell more. Indications are that as much as they would like, in the abstract, to build up long term reserve supplies of grains, few producers have been able to reconstitute the reserves attributed to them in the pre-drought period. Indications are that virtually all the grain from a given harvest is either consumed, sold or distributed before the succeeding harvest.

Based on the material from PDR de Dosso base-line study and from field work done for the present paper the following sketch emerges. At the present time a producer has two marketing options for quick sales. He or she can sell either to private parties or through Government channels. This year's grain sales through government channels are being handled exclusively through the cooperative system. Market prices for grain sales in Zinder and Maradi during the week of October 18, 1982 were 100 FCFA per kg. In villages 35 and 53 km west of Zinder on the paved road prices of 85 FCFA per kg were reported. Given the cost of transport from the villages to Zinder plus the opportunity cost of a person's time during harvest, many household heads would find it more advantageous to sell in the village than to sell in Zinder. Villagers maintained they paid transport charges of 300 FCFA per 100 kg sack of grain to take their

produce to market in Zinder. This does not include the cost of the producer's round trip travel.

Meanwhile, the cooperative is offering 80 FCFA per kg at all its buying centers. Government channels are therefore very competitive at this time of this year in the rural areas. The farther from central markets, moreover, the more competitive the cooperative system. On the other hand, the further into the dry season, the higher the price paid by the merchants or available in markets, and in such a case, family heads would be impelled to sell through private marketing channels, even if they have to transport their produce to market themselves.

Grain sold on the market at harvest time or shortly thereafter represents only part of the grain that circulates in the national marketing system. Muslim clerics are apparently accumulating stocks of grain that considerably exceed their food requirements. They are in a position to hold onto a large portion of their stocks awaiting a propitious moment. Likewise, sales to private individuals within the village account for transfers equal to sales through the cooperative. It is unclear whether these quantities are also held in reserve for future sale. There is also some forward sale of grains although, but judging from the PDR de Dosso study, less than expected. A small amount of grain, in the Dosso study, is given to individuals in repayment of money advanced during the year to the producer; the forward price of grain in these cases is generally prejudicial to the producer. Finally, a certain amount of grain given in gift should be viewed as tribute in a patron-client relationship. A large share of this finds its way into the marketing system. It is difficult to estimate the shares or quantities involved.

There is the question of where the stocks of grain are stored that enter the market between the height of the dry season and the following harvest. Interviews with large merchants in Zinder, Maradi and Tahoua all point to small margins, in the range of 250 to 500 FCFA per sack, per transaction. These merchants are, of course, dealing in large quantities of grain and, therefore, make large absolute profits. They maintain they have limited storage capacity. Given the low margins their interests are best served by high turnover rates of stock. Who then is storing the grain? The hypothesis that is suggested by the available evidence is that the vast majority the Muslim clerics and of those private individuals who are well enough off at harvest time to buy excess production of fellow villagers in need of cash or who manage, in the course of the year, to accumulate stocks thanks to their socio-political position in the village.

Cash needs impel a number of villagers to part with a portion of their vital stocks at harvest time. They are anticipating enough cash income by the time remaining vital stocks run out to be able to replenish them at the current price. This problem becomes more and more serious as one proceeds north into the less productive agricultural areas of the country. The price to replenish stocks is often very high. The problem is that the factor determining the price is the cost of transporting it back from the central market at time of need. If there were a means of storing in the village the cost of replenishment in the dry season would be considerably reduced.

It would be worthwhile investigating the possibility of a secured loan program at the cooperative level. Under such a program, a producer in exchange for cash would deposit a quantity of grain with the cooperative. In the dry season he would have the right to take back his grain by repaying the original loan plus a sum that takes into account the cost of storage, handling and the use of the money. Presumably this would cost less for grain stored locally than for grain, in effect, stored in a central town.

Grain Supplies in Non-producing Areas

There are two classes of zones in the country that do not produce significant amounts of cereals. There are the urban areas and the pastoral zone.

Grain supplies are delivered to these zones through two channels, the private merchants and OPVN. OPVN is a Nigerien parastatal agency. It has two major functions. Its first national grain reserves are kept in case of food emergencies. This has been elaborated on earlier.) The second function of OPVN is to stabilize national grain prices but especially to stabilize prices in the urban areas where people are entirely dependent on the marketing system for their supplies.

The most important supply centers of the country, whether from domestic production or from grain importation from Nigeria, are Maradi and Zinder Departments. During the 1979-80 buying campaign over 90 percent of the millet bought by the UNCC for national distribution came from these areas. Even during the previous, following, less productive year, UNCC acquired over 80 percent of its supplies there.

During the week of October 18, 1982 large quantities of millet identified as coming from Nigeria, were seen in the Maradi and Zinder markets. While estimates are hard to make, several hundred tons were seen in the open. OPVN was paying farmers 80 FCFA per kg at its buying centers wherever they may be. Nigerien grain in the Zinder and Maradi markets was selling for 100 FCFA per kg. Nigerian grain was selling for 11,000 to 11,500 FCFA per 100 kg sack. However, Nigerien grain was available only in much smaller lots than Nigerian grain. A large scale buyer would be willing to pay something of a premium to save the time assembling a shipment. On the other hand, one Nigerian trader was complaining it did not pay this week to bring grain in from Nigeria. This price differential is probably a short lived phenomenon connected with the arrival in bulk of the Nigerien harvest on the market.

The cities of Maradi and Zinder are the most important grain assembly points in Niger, whether it be for grain controlled by OPVN, by domestically supplied merchants or by merchant importers (it appears that the latter two are generally different persons and conduct their operations in different parts of the market). Distribution from these assembly points takes grain to urban zones, pastoral zones, and other deficit areas all over the country.

Who pays the cost of distribution? OPVN buys grain at 80 FCFA per kg and sells at 120 FCFA kg nationally. The buying and selling price do not vary from Maradi and Zinder to Bilma. Yet the OPVN director general told the study team it costs OPVN 25 FCFA per kg to take grain from Agadez to Bilma alone and Agadez is about 750 km on the paved road from Maradi.

Niamey, by far the biggest market in the country, is about 650 km from Maradi. In the OPVN case the cost of distribution in the case of most of the grain distributed far exceeds the 40 FCFA margin. The government, therefore, picks up a large share of the cost of food distribution.

However, in cases of private distribution either domestically produced or imported grain the consumer pays the cost of distribution. One objective of OPVN is to be able to intervene at several critical distribution and consumption points, principally Niamey, Agadez, Maine and N'Guigmi, with sufficient quantities of grain to drive down the prices for local consumers in those markets and for outlying consumers whose cereal supplies pass through those markets. These markets are the hubs of regional distribution networks and it is theoretically sufficient to intervene in them to have wide ranging impact on village retail markets.

The danger is, assuming OPVN can control the grain necessary to have the impact it desires, that it will succeed in driving the retail price in a given retail marketing system below the level private merchants can recoup their costs. Then the private merchants will withdraw from the market requiring OPVN to meet all the cereal needs in a given area. OPVN is not designed to fulfill this function.

More likely, a two tier market will have to be accepted. A privileged group will buy at OPVN prices. The majority of people will have to buy at the free market price high enough to permit a profit for the merchants. In fact this is more or less the current marketing system

in urban areas and the pastoral zone. The problem with this system is in the economic costs of subsidies to OPVN and with the social cost of creating two classes of consumers.

Civil servants have the right to buy one sack of millet per month from OPVN at the official price of 12,000 FCFA per sack. This right may be considered a benefit of employment with the government. A large share of OPVN sales is made up of these purchases by civil servants.

Footnotes: 1/ See CRED study.

2/ Raynaut, 1982.

3/ Sutter's section of the Agricultural Sector Assessment, 1979.