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NIGER RANGE AND LIVESTOCK PROJECT

The Market for Livestock from the Central Niger Zone

by

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PREFACE

This is the main report of the CRED Livestock Marketing Study team. It presents the conclusions reached after three and one-half months of fieldwork in the Niger Range and Livestock Project (NRL) zone, interviews with project and Livestock Service personnel, a review of relevant literature, and some analysis of existing statistics.

Marty Makinen was the principal researcher in this study. His counterpart in Niger was Oumarou Alpha Noma of the NRL. They visited livestock markets in and around the project zone from Arlit to Zinder. Edgar Ariza-Niño joined the study team for visits to markets in northern Nigeria and added his considerable experience to the writing of both the preliminary report and this final report.

Two CRED researchers contributed to the study with their comments and advice: Ken Shapiro and Randy Thomas. CRED staff members, Patricia Johnson who typed the final report, Carol Wilson who edited the text, and Jane McCormick who produced the graphics, were indispensable.

Special thanks go to the Niger Peace Corps volunteers who gave their hospitality to us so willingly during our field visits. Many project persons have participated in our work, but special mention needs to be made of: Issa Maida, Yacouba Issa, Yacouba Ado, Marion Shepherd, Randy Senock, Georgette Parisot, Yvonne Alzouma, Mohamadoun Ahmed Rissa, and Mohamadoun Abdowiahi. NRL researchers in the Socio-Economic and Range Management units have been a continuous source of information and ideas. Dr. Ali Dankintafo (Project Director), Ray Waldron, and Dan Stillman took a personal interest in helping to carry out this study. Finally, thanks go to all of the herders, butchers, traders, and dillalis who cooperated as informants to make this study possible.

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INTRODUCTION

The market for livestock in the Projet de Gestion de Paturage et Elevage (PGPE) or Niger Range and Livestock Project zone has experienced considerable change over the past several years. This report outlines and analyzes the livestock marketing system, while highlighting the major changes which should be carefully considered in designing subsequent project activities. Four major influences are affecting the livestock market:

- (1) the recovery from the drought of the early 1970s;
- (2) a revolution in the transportation system linking the project zone to its major consumption markets;
- (3) a growing demand for meat in Nigeria; and
- (4) an apparent rapid increase in demand for young male cattle, principally for animal traction and cattle fattening.

Recovery from the drought should change the focus of activities in the pastoral zone from how to reconstitute herd sizes, to how to increase output levels from present herds. The radical improvement in the road system in both Niger and Nigeria has shortened the marketing chain and improved marketing efficiency. Increasing population, urbanization, and income in Nigeria -- the principal market for Niger's livestock -- has aided drought recovery and is a source of strength of Niger's livestock system. Finally, it appears that there has been a significant increase in the use of young male cattle for animal traction and growing out with crop residues by both Nigerien and Nigerian farmers which would have favorable consequences for the pastoral economy.

Each of these major influences is discussed in detail in the following sections. Subsequently, other sections deal with a discussion of markets visited and attendant slaughter infrastructure; Niger's restrictive cattle export policy; market power of intermediaries; and the tanning sector. Three appendices provide additional information on the costs of transporting cattle to Lagos, an in-depth study of slaughter data from Maradi, and finally, a proposal for a market monitoring unit for the next phase of the project.

DROUGHT RECOVERY

The drought of the early 1970s is now over in the PGPE zone. Cattle numbers and offtake appear to have regained their predrought levels. In the case of goats and camels those levels seem to have been exceeded too. Livestock Service statistics estimate the national cattle herd at 3.4 million head in 1981, a 28 percent increase since 1976, equivalent to an annual growth rate of 5 percent. Cattle slaughter in both Niger and Nigeria have reached and exceeded the levels of the early 1970s. Further evidence of this is shown in Appendix B, where Maradi's meat consumption is discussed.

The PGPE was conceived and designed at a time when the primary goal of Niger livestock policy was to reconstitute the national cattle herd. To the extent that this goal has been accomplished, future project activities warrant a careful rethinking of priorities. Efforts to help herders to increase herd size, for example, might not be needed.

Species Composition

Although the national herd has been reconstituted to the predrought UBT (Unité Bétail Tropical) level, the species composition is not the same as before. There are now relatively more small ruminants than cattle. The desired species composition may have been modified by the drought experience as herders are more aware of the greater survival capabilities of small ruminants. Hence the species balance may never return to the predrought composition, but remain biased towards sheep and goats (See Appendix B). Nevertheless, over the past few years a high exploitation rate of the small ruminant herd may be expected while the bovine herd continues to grow.

Importance of Marketing

Since the national herd has reconstituted to predrought levels attention should be increasingly focused on marketing animals, as the herd productivity that went into herd growth may now be turned over to offtake.

In this regard, it is important that pressure on the range be monitored over the next several years, and the long-term equilibrium carrying capacity of the project zone be estimated (plus or minus some adjustments to reflect normal year-to-year variations). Beyond that point herd productivity must be marketed to assure that

appropriate numbers are not exceeded. Similarly the market must be flexible enough to absorb more animals in poor-pasture years when there will be greater offtake and fewer in better years.

As the long-term carrying capacity is approached, livestock owners might begin to remove females from their herds at an earlier age than now. The marketing system will perceive the greater numbers of younger cows being presented for sale. In this way careful monitoring of animal presentations will be useful in determining when and if this behavior occurs.

NIGERIAN MARKET

Dominance

Nigeria is the dominant ultimate destination for cattle from the project zone. A distant second is the regional domestic market in major towns like Maradi and Tahoua, but also includes sporadic slaughter in villages on market days. Beef consumption by herder families themselves is limited to last-resort killing of dying animals and during the annual rainy season get-together of their clans. Algeria receives a few truckloads of small ruminants during Tabaski. Arlit and the uranium mines are a glamorous but insignificant market for cattle from the project zone.

Nigeria not only attracts the largest number of animals but also those with greater carcass yield and better meat quality. Large and fat animals are ordinarily exported, except for a few fattened bullock and bulls for the first-quality market in Maradi, Tahoua, and Zinder. Over sixty percent of cattle head slaughtered in Maradi, for example, are old cows of 8 years or more.

Future

Continuing and steady growth in Nigeria over the past few years and in the near future guarantees an expanding demand for Nigerian cattle. Major cities in Nigeria such as Lagos, Ibadan, Kano and Port Harcourt have increased in population at rates exceeding 7 percent per annum for several years, and show few signs of abatement. Income per capita has similarly increased, particularly in the urban sector, despite the lower rate of expansion in oil revenues over the last couple of years. Since beef consumption is particularly concentrated in urban centers, the prognosis over the 1980s is for beef demand to expand faster than the livestock herd. Beef imports from South America were made between 1975 and 1979, but have virtually ceased since then and are not likely to be resumed. Resulting high meat prices in Nigeria have redounded to the benefit of Niger pastoralists, although of course they have also led to higher prices for Nigerian urban consumers. Meat prices in Nigeria are presently attractive enough that even cattle from western Mali and northern Upper Volta enter Niger, at Ayorou for example, for subsequent export to Nigeria.

Fears that high Nigerian prices for cattle and meat will cause Niger to sell off its breeding stock are unfounded. As Nigerian prices rise, so does the value of holding

onto breeding stock. To the Nigerian herder, they are future producers of high-priced items. He knows it, so he will not sell them. Indeed, a strong Nigerian market is a positive force for the livestock sector development. It allows Niger the flexibility to export more or fewer animals as local circumstances warrant, without significantly affecting prices. With the exception of a drought, though, the worst possible event for the Niger livestock sector would be a Ghana-like collapse of the Nigerian market.

Recent economic developments in Nigeria introduce a note of uncertainty in an otherwise optimistic panorama in the near horizon. A drastic decline in the price of crude oil in the world market has led Nigeria into serious balance of payment difficulties. As a result, severe import and currency exchange restrictions have been imposed by the Federal government. So far, these policies have affected mainly international trade that uses banking channels to clear payments. The open-door policy toward her neighboring countries has so far been maintained, but the value of the naira has declined drastically. Since the well-being of the Niger livestock sector is so closely tied with the economic health of Nigeria, further developments in that country would have predictable impact on the Niger Range and Livestock Project zone.

TRANSPORTATION

Introduction

Changes in the transportation systems in both Niger and Nigeria have dramatically affected the livestock marketing system. Future changes in the transport sector and in livestock policy affecting transport could have similar far-reaching consequences. The extensive Nigerian road construction in the 1970s has reduced the cost of trucking animals from the Niger frontier to the coastal consumption markets, so that long-distance trekking has been virtually replaced by trucking. The construction of the "Uranium Road" from Birni N'Konni to Arlit in Niger has revolutionized economic communications within the PGPE zone. The zone will be further influenced by additional road construction. In addition, some policy changes could allow greater exploitation of the benefits of the road already in place.

Nigerian Roads

The Government of Nigeria has spent some of its booming oil revenues on a network of high quality highways crisscrossing the country. The consequent reduction in trucking costs (abetted by low fuel costs) has had a considerable impact on the movement of northern cattle to southern markets. Trekking of animals long distances within Nigeria has disappeared; rail transport of animals is greatly diminished. The almost month-long trek or several-day train ride from border markets has been replaced by a 24- to 36-hour truck trip. The advantages of this form of transportation over trekking are underlined by the observation that loading ramps are a prominent feature of the Niger-Nigeria frontier assembly points at Illela, Jibya, and Maigatari. No cattle destined for coastal markets walk beyond these points; it does not pay. Weight losses involved in trekking are avoided and turnover time for capital invested is greatly reduced.

Trucking of cattle imported from the PGPE zone begins at the three assembly points mentioned above which serve animals passing through the Konni, Maradi, and Zinder areas in Niger, respectively. The importance of these three assembly points was confirmed by actual visits of the study team. Three other assembly points were mentioned by informants but their importance was not established by actual visits. They are Shinkafe, south of Madaoua; Dambarta, south of Matameye; and Babura,

south of Magaria. Many of the animals assembled in Illela come from outside the PGPE zone, namely from the Abala area and from Mali by way of Ayorou, Niger. Similarly, many of the animals assembled in Maigatari come from the region of the World Bank Livestock Project zone.

Cattle loaded at these points are mainly large, mature males with a few relatively-healthy old cows. They are destined for slaughter in the markets of Lagos, Ibadan, Enugu, Port Harcourt, and others along the densely populated Nigerian coast. Lagos is the dominant destination. Nigerian authorities in no way impede the flow of cattle from Niger into their country, but are strict in requiring imported cattle to report to the nearest control post for vaccination and to get a transport permit. Processing costs for these are minimal -- the equivalent of 300 CFA per head. Vaccination certificates issued by the Niger Service d'Elevage are honored in Nigeria. Transport costs from Illela to Lagos vary from 3,600 to 4,500 CFA per head depending on supply and demand conditions for trucks, or about 2-3 percent of the purchase price of the animal.

Nigerien Roads

Within Niger, trekking remains the dominant form of livestock transport. There is trucking of sheep during the legal export period before Tabaski. Most of this sheep trade goes to Nigeria, with some going to Algeria. Some reports of trucking of animals within Niger were heard by the study team, but trekking is much more common.

Nonetheless, the "Uranium Road" has affected the livestock trade within Niger. The road gives traders direct access to the pastoral zone, especially the PGPE zone which is cut diagonally by the road from Tahoua to Agadez. Export traders are now able to penetrate easily into the pastoral zone to assemble their herds. Similarly, the road has made possible greater penetration of trucked-in consumer goods into the pastoral zone. The combination of more buyers for their output and greater availability of goods for their consumption has attracted herders to markets along the road, notably Abalak.

Abalak is a market which did not exist until 1975, yet it has become one of the most important in the project zone. It was mentioned prominently by export traders in the Birni N'Konni, Illela, and Maradi areas as an important source of export herds. Abalak was also cited frequently by herders as a good place to find a variety of consumption goods. Abalak is now at least on a par with the traditionally important nearby pastoral markets of Kao and Tchín-Tabaradene, which are less accessible because of their distance from the road.

Continued growth of the Abalak market is to be expected. A similar magnet effect will likely affect other markets along the road. The project should encourage Service d'Elevage to monitor these developing markets as it already does for many other, often less important, markets around the country. Abalak is currently monitored erratically; it merits regular surveillance. As other markets develop or become important, they too should be under regular observation.

Marketing Chain

The penetration of export traders into the pastoral zone has caused changes in the marketing system. It is now possible for one export trader to buy animals directly from herders in the pastoral zone, have them trekked to the Nigeria border, load them into trucks for shipment to the coastal consumption market, and sell the animals to butchers. This is a marketing chain with far fewer links than in earlier times. There are essentially only three links: the herder, the trader, and the butcher, with dillalis acting as brokers in the herder-trader and trader-butcher transactions.

The shortening of the chain has almost surely had a favorable impact on the prices received by producers for their animals. Fewer middlemen in the system means that there are fewer people taking their share out of the transactions. It also appears that competition has been enhanced by this improved access. The Nigerian livestock service post in Illela, which issues transport permits for trucks taking animals to the coast, reported that nearly all new permits were issued to Nigeriens from the Tahoua Department and that there were at least 20 new entrants into the business in 1981. The combination of a shorter marketing chain, increased competition among buyers, and shorter capital turnover time should improve producers' share of final sale price.

Price Communications

An additional benefit from the improved transport system is in the communication of price and other demand information from coastal markets. It is now possible for information about price changes to pass from the coast to the pastoral zone within 48 hours as traders, transporters, and convoyers return by taxi-brousse from the coast. This allows a quicker response to price changes which acts to smooth fluctuations as high prices can be quickly met by increased supply and low prices by a holding back of animals.

Lost Benefits

The study team believes that potential benefits from improvements in the road system are being lost because of Niger's export restriction policy. The export restriction policy is ineffective in limiting livestock exports (see section on export policy), but it does succeed in affecting the mode of export. In order to escape detection, exporters take their herds across the border on foot, far away from control posts. This clandestine activity is relatively easily accomplished because of the difficulty of patrolling such a long frontier. However, it is almost impossible for trucked animals to cross the border undetected, since they must follow the highways. If there were no restrictions on exports, animals that are currently transported on the hoof could be trucked directly from the pastoral zone to the coastal consumption markets.¹ This would have several advantages for the livestock sector and economy as a whole. The capital turnover time for livestock traders would be further reduced (the nine-day trek from Abalak to Birni N'Konni could be reduced to a truck trip of several hours). Animal weight loss during trekking would be avoided; market communications and response time would be improved. Conflicts between herders and sedentary farmers would be reduced as the trampling and eating of fields would be avoided. Trucks delivering goods into the pastoral zone could be used to back-haul animals, and fuller advantage will be taken of the road. As indicated in the section on export policy, the goals of the export limitation have now been achieved so that there should be no obstacle to freeing exports, thus allowing these improvements in transportation efficiency.

Planning

With all of the advantages that road construction has already brought and potentially could bring to the PGPE zone, the project should be sure that any new road construction in the zone be planned with its impact on the pastoral economy in mind. Additional north-south axes would appear to have the greatest utility to the zone, especially routes linking pastoral areas with the domestic consumption markets of

¹There are reports of some trucking of sheep and cattle from Abalak to the Guidan Ider market north of Birni N'Konni already. It is assumed that those animals destined for export are walked from Guidan Ider across the border. It should also be noted that during the legal (pre-Tabaski) period for sheep exports, sheep are exported by truck.

Maradi and Zinder and their export points. If the trucking of cattle becomes a reality the project may want to assist the construction of loading ramps at markets along the road or roads.

The transportation system in and around the PGPE zone has undergone a dramatic transformation since the early 1970s, improving the efficiency of the marketing system. A relaxing of export restrictions would allow Niger to take fuller advantage of the improvements in its own road system. Future road construction could have similar positive consequences for the pastoral economy, especially if planned with its impact on the livestock sector in mind.

ANIMAL TRACTION

Increase in Use

The use of animal traction in and around the PGPE zone has increased in recent years. Animals are used for pulling and carrying water within the zone and for pulling carts and plows in the agricultural zones of southern Niger and northern Nigeria.

Farmers in the southern agricultural zone of Niger have dramatically increased the use of cattle in their farms. Animal traction to pull ox carts was much in evidence at the time of the field visit (February 1982). During the growing season oxen are probably used in plowing and other heavy field work. These developments have created a growing demand for young males of 2-3 years that are trained and kept until 5-6 years of age. Farmers benefit further from the increase in value of the animals kept in the meantime. The use of crop residues to feed these young bullocks or to fatten cattle during the dry season is now widespread in the southern zone.

Young males are also being exported to Nigeria. Farmers in northern Nigeria, like those in southern Niger, are rapidly expanding animal traction, growing out, and embouche activities. This has generated a lively trade of young cattle flowing south. Many such cattle undoubtedly originate in Niger. In the Illela market, across the border from Birni N'Konni, a large portion of animals presented are young males which are then trekked south for sale to farmers and villagers throughout Sokoto State.

Azawak Breed

The Azawak breed seems to have been the main beneficiary of the demand for young males. Bororo males are considered inadequate for animal traction (attelage) because of their temperament, huge horns, taller stature, and lanky conformation. By contrast, Azawak bullock are stockier, milder in character, and easier to train and lead.

As a result, the market for Azawak cattle has undergone a major transformation in the pattern of sales. Whereas cattle owners in the pastoral zone formerly sold adult males for slaughter, they are now selling young castrated Azawak males to small traders who trek them south for sale to farmers. Southern livestock markets like Maradi and Sabon-Machi thus have many young males for sale to farmers. The price for young Azawak males has presumably increased sufficiently, relative to the adult

price, to induce livestock owners to sell at an early age. Farmers sell later on the same animals either for slaughter or export. In contrast, the sales pattern of Bororo cattle does not seem to have changed significantly; males are sold by herders when adult size is reached at 6-7 years of age. Purchasers are mainly traders who export them to Nigeria. (See Markets section for censuses of animals presented in Illela and Maigatari.)

This apparently spontaneous stratification of cattle production in the case of Azawaks, with herders producing young males in the pastoral zone for growing out by farmers in more agricultural regions, if confirmed, should be a welcome development. It provides evidence of how rapidly livestock owners and farmers can adjust their economic behavior to changing conditions. The fact that it occurred without explicit direct interventions would confirm the power of the livestock marketing system to bring about substantial changes when circumstances warrant. This experience in central Niger could provide valuable guidance in designing stratification programs elsewhere in the Sahel.

Policy Measures

Recommendations for project measures to discourage herders from selling young males should be carefully considered before implementation. The underlying assumption that such sales are made under duress needs close examination. It is possible that farmers' demand has raised the price of young males to make it attractive for herders to sell Azawaks at 2-3 years.

The fact that a similar behavior is not observed in Bororo breed males adds plausibility to the above argument. It is not as likely that the Bororo breed would benefit from the movement toward stratification. Azawaks will probably increase in popularity vis-a-vis the Bororo over the next few years. Measures to facilitate the diffusion of Azawaks and their crossbreeds might be considered.

Evidence on whether these differences in herd management and sales pattern between Azawak and Bororo cattle are taking place at the herd level in the project zone is inconclusive. The differences are postulated based on observations of age/sex composition of market presentations at Maradi and Sabon-Machi in Niger, and Illela and Maigatari in Nigeria. In the first two markets two- and three-year old castrated Azawak males are presented in large numbers. In Maigatari, on the other hand, most bovines presented are 5-8 years old Bororo bulls. In Illela the market was mainly young Azawaks but adult Bororo males were also present and made up most of the cattle

being loaded in trucks for Lagos. Additional details about these markets are presented in the next section.

There is unfortunately no comparable data on age/sex structure by breed among herds in the project zone. The structure of Fulani herds in the area south of Agadez reported by Ibrahim Tourawa would indicate that young Bororo males are also being extracted in substantial numbers.

Given the importance of these issues in the possible orientation of future project activities, it is recommended that additional market observations be made to verify and complement those made during this brief survey. More importantly, a herd composition survey in the project area would be highly desirable to provide information about the bovine population structure. An effort in this regard over the next few months as part of Phase I activities is strongly recommended.

LIVESTOCK MARKETS

Introduction

This section describes each of the markets visited during the study period (see Table 1 at the end of this section for a summary of these visits). A description of the sources and destinations of the animals presented; the types of animals presented; an assessment of the market's importance, whether it is growing or expected to grow; and a description of the slaughter facilities is presented. Map 1 indicates the livestock flows among the markets. A total of seventeen markets were visited: six in the PGPE zone; one northern market, Arlit; seven southern markets within Niger; and three export-herd assembly markets along the Nigerian border. Since only a single visit was made to each, the descriptions are necessarily impressionistic.

Tahoua

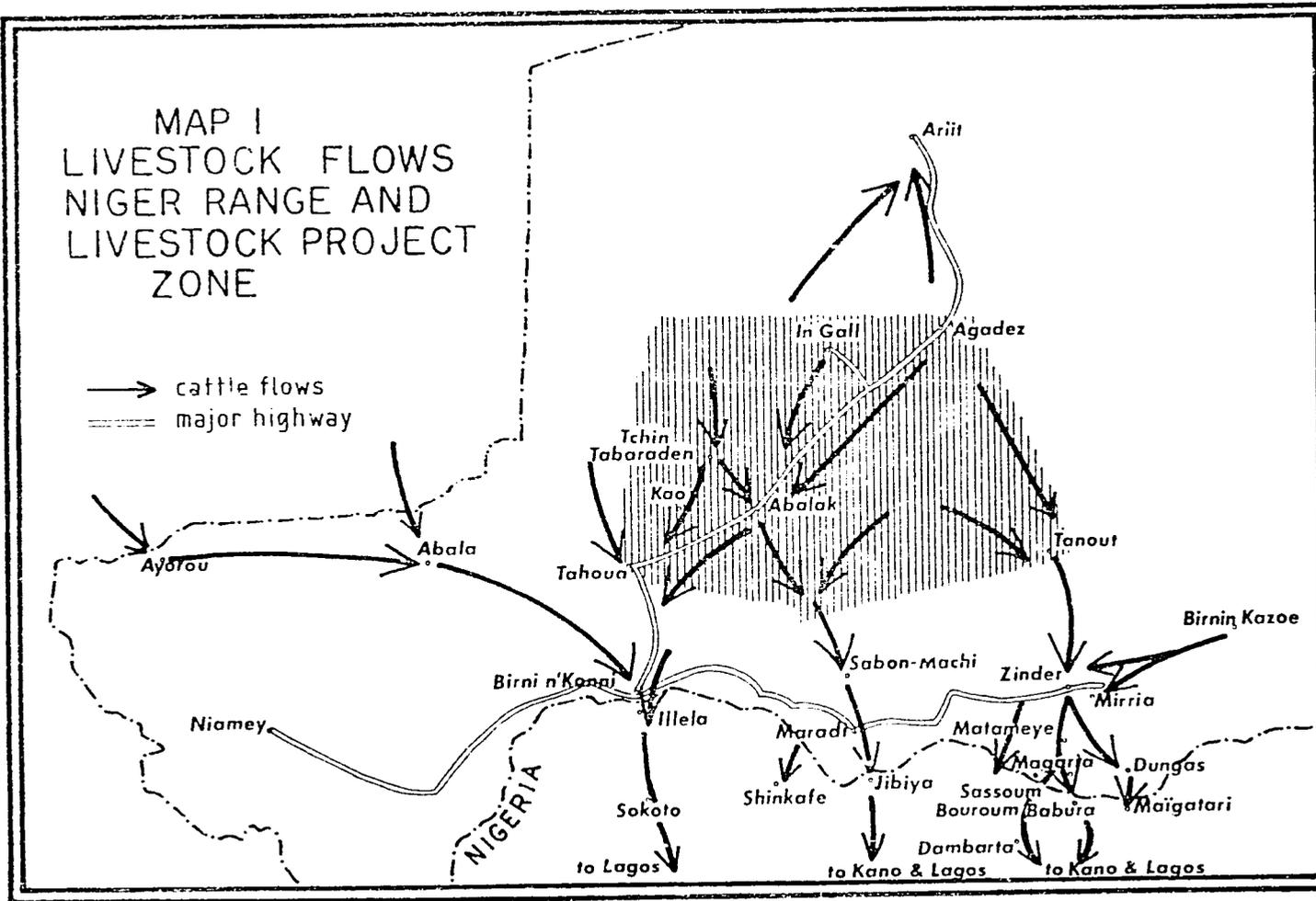
Tahoua is an important consumption market as well as an assembly point for export herds. It attracts animals from the Kao, Tchín-Tabaradene, and Abalak areas. On the day Tahoua was visited, most of the animals presented had been brought to market by small traders or herders who were not the actual owners of the animals, but representatives of a herder group who had been given charge of the animals for sale. Few individual herders with their own animals were present.

There is a significant amount of slaughter for local consumption, principally of small ruminants, though some old cows and camels are also slaughtered here. Many of the animals are destined for export to Nigeria, to cross the border near Birni N'Konni where the mature males will be loaded onto trucks. Because of its location on the road, between the agricultural and pastoral zones, the importance of Tahoua as both a consumption market and an export assembly point is expected to grow. Its location could make Tahoua into a rapidly growing center for the exchange of agricultural products, consumer goods, and livestock. As a commercial center, Tahoua will experience population and income growth, which will translate into an even more rapidly growing demand for meat. If domestic truck transportation of livestock becomes feasible then Tahoua may lose importance to mid-pastoral zone roadside markets, like Abalak as an export-herd assembly point.

The abattoir at Tahoua is vastly inadequate for even current needs. The slab is too small to handle all slaughters, the water source is not adequate and far from the

MAP I
LIVESTOCK FLOWS
NIGER RANGE AND
LIVESTOCK PROJECT
ZONE

→ cattle flows
 = major highway



slab, and there are insufficient hooks for hanging both small ruminant carcasses and large animal quarters. Enlarging the slab, providing a close-by water source, and more hooks are recommended.

Abalak

Abalak is located on the "Uranium Road" in the middle of the PGPE zone. It is a young market, established in 1975, that has grown rapidly to become one of the most important in the pastoral area. Abalak attracts herders from the surrounding area and small traders from places like Tchín-Tabaradene and In-Gall as animal sellers. It has become an important site for the assembly of export herds, as long-distance traders have easy access to the market by car. Local consumption is relatively unimportant with slaughters made up of mainly small ruminants.

All types of animals are presented here as it is in the middle of the production area. There are mature male cattle destined for export; young male cattle for animal traction, fattening, growing out, and resale among herders; old female cattle for domestic consumption; small ruminants for local and other domestic consumption; and donkeys and camels for sale to herders for animal traction.

This market is expected to continue to grow and grow rapidly as it is attractive to herders because of the presence of traders who pay good prices for their animals and because of the availability of imported (e.g. tea, sugar) and manufactured (e.g. batteries, shoes, clothing) goods that are delivered to Abalak by truck. The slaughter slab in Abalak is small and will probably become inadequate to meet the local consumption needs, if the expected growth materializes.

Tchin-Tabaradene

The animals presented at Tchín-Tabaradene come from the surrounding area and farther north. There is little local slaughter demand, which is met almost entirely by small ruminants. Most cattle presented are destined for resale in Abalak, Kao, or Tahoua. All types of animals are presented in this market. Tchín-Tabaradene is an important market on the northwest side of the PGPE zone, but it will probably lose some but not all of its importance with the growth and attractiveness of Abalak. The slaughter facilities at Tchín-Tabaradene were not visited.

Kao

The Kao market receives animals from herders from the surrounding area and some from small traders who purchased animals in Tchín-Tabaradene and other markets farther north. Again local consumption demand is small and is met mainly by small ruminants. Animals purchased by traders in Kao generally are taken either to Abalak or Tahoua for resale. Kao is expected to remain an important collection market for herders in the surrounding area, but will probably lose some of its importance as a transit market to roadside markets like Abalak.

There is no slaughter slab in Kao. A small slaughter slab should be provided with a modest drainage system and nearby water source.

In-Gall

The In-Gall market had few animals in it when visited by the study team. Those animals presented had come from the area surrounding In-Gall. There were an insufficient number presented to justify the assembly of herds for even short-distance trading. The buyers were either local butchers or other herders. It is likely that In-Gall becomes much more important at better-pasture times of the year (it was visited on 3 January 1982 in a poor-pasture year), and during the Cure Salee. In-Gall is located on a tarred spur, off the "Uranium Road," so it is easily accessible to traders and could be an important collection market. Some of In-Gall's animals are sent northward, towards Agadez, but the strongest demand pull is still towards the south. The animals presented during the visit were mainly small ruminants, camels, and donkeys. Local slaughter demand is met by a few small ruminants daily. The slaughter facilities were not visited.

Agadez

Agadez is the farthest northern market with significant consumption potential. Still, the animals presented in Agadez are mainly destined for markets farther south. Most local meat demand is satisfied by small ruminants and a few cattle and camels. The animals come from the surrounding area. There is a weak demand for small ruminants to be resold in the Arlit market 240 km to the north. In the month preceding Tabaski there is some export activity in sheep towards Algeria. One trader interviewed reported that about eight traders engaged in this trade, each sending one

or two truckloads. The Agadez douane post reported collecting no export duties on sheep shipments. Service d'Elevage records showed only one shipment of 400 animals had been exported to Algeria in 1981.

This market will probably grow slowly in importance as the population of Agadez grows. It is possible that Agadez could become a site for the assembly of export cattle herds destined for Nigeria if trucking is opened up, because of its location on the "Uranium Road" at the northern end of the pastoral zone.

The slaughter facilities at Agadez were less crowded than most others visited but nevertheless were still crowded. The need for additional space will increase over time, but new construction here can wait.

Zinder

This is both a major consumption and transit market. Animals serving Zinder come from the Tanout and Birnin Kazoe areas. The interviews carried out in the market indicated that the Birnin Kazoe area (in the World Bank zone) was the principal supplier. Some animals are brought to Zinder after first being presented in Mirriah. All types of animals are brought to this market: large, mature male cattle destined for export to Nigeria; old cows for local slaughter; young cattle for animal traction; camels and donkeys for pack purposes; and small ruminants for fattening and local consumption. Animals are brought to Zinder by short-distance traders who buy animals in the pastoral zone, and herders and local farmers who have grown out animals. It was reported that the week before the Zinder market was visited, the UNCC-sponsored embouche program had come to buy 47 young animals.

On the east side of the PGPE zone it appears that export traders do most of their herd assembly in Zinder, rather than penetrating farther northward into the pastoral area as is done on the west side of the zone. The reason for this is probably the lack of good road access to the pastoral zone north of Zinder. A good road from Zinder to Tanout along with an easing of export restrictions would probably be followed by a diminishing of the importance of Zinder as an export-herd assembly point.

Export cattle herds assembled in Zinder were reported to follow generally three different paths to Nigeria. All three begin by following alongside the road from Zinder to Magaria. One splits off to the east, one to the west, and one continues due south. The eastern route passes through Dungas and enters Nigeria near Maigatari, which is a major truck embarkation point. The western route passes through Sassoumbouroum, Niger into Nigeria where it is reported that cattle are loaded into trucks at Dambarta.

Those cattle going straight south pass by but do not enter the market at Magaria, Niger and are loaded into trucks at Babura.

In all cases traditional cattle trails are followed. There were reports of increased conflicts between farmers and cattle convoyers over the use of these trails. Farmers were complaining of animals trampling and eating fields; convoyers complained of encroachment of cultivation into traditional trail areas. An easing of export restrictions would probably lead to trucking from Zinder into Nigeria, thus avoiding this conflict.

Zinder's population is sufficiently large that both large and small ruminants are slaughtered for local consumption. The abattoir has a raised cement slab that is covered by a roof. It is barely adequate for current levels of slaughter. Expansion of the same type of slaughter facilities should be considered. Given the impossibility of meat (as opposed to live-animal) exports, there is no justification for the provision of cold storage facilities for meat in Zinder. The meat from animals slaughtered for local consumption is all in the hands of retail butchers by early morning, and is generally sold by early afternoon. Cold storage facilities would stand largely unused if constructed.

Mirriah

Mirriah is a small town about 25 km east of Zinder, which has a large livestock market. Its animals come mainly from the Birnin Kazoe area in the World Bank project zone, but some come from the Tanout area too. Many of the animals presented here and not sold are later taken to Zinder for sale. Animals destined for export to Nigeria and animal traction dominate this market, with animals to supply meat for the small amount of local consumption a poor third. A disproportionately large number of goats are presented in Mirriah; the reason for this was not determined. One hypothesis is that the pastoral areas north of Mirriah are particularly suited to goat rearing.

Cattle exported from Mirriah pass principally through Dungas, Niger on their way to Maigatari, Nigeria. Some also may pass by Magaria, Niger on their way to Babura, Nigeria. An improved road between Mirriah and Zinder, and free exporting would probably make Mirriah into a major truck embarkation point.

Local slaughter demand is not expected to grow rapidly. The Mirriah slaughter slab is small but probably adequate for the time being. There is a need for an improved water source here.

Magaria

This Magaria is the one located in the Zinder Department, south of Zinder and north of Babura, Nigeria. The animals presented come from Zinder and the surrounding area. Small ruminants are more important than cattle as the market's function is mainly to satisfy local demand, including the needs of bush butchers who come to the market from the surrounding, relatively densely populated rural areas. Export herds assembled in Zinder pass by but do not enter the Magaria market.

A convoy of one such herd was interviewed during the market visit. He stated that the herd had been purchased in Zinder, was being taken to Nigeria, and was passing by Magaria in order to exchange a few weak animals for stronger animals. Two or three animals which were found to be weak in the 95 km trek from Zinder were being marketed in Magaria while stronger replacements were sought. Thus Magaria serves as a sort of replacement market for exports.

The potential for growth of the Magaria livestock market is limited to the growth of local demand, but for Magaria this could mean steady, substantial growth as it is located in a prosperous agricultural area on a good road connecting Zinder with Nigeria.

The slaughter facility was not visited while in operation, but it was of the standard concrete slab type and appeared to be adequate for current needs. The expected future growth of local slaughter may warrant adding to slaughter capacity in a few years.

Matameye

Matameye is similar to Magaria in that it is mainly a consumption market, receiving cattle and small ruminants from Zinder and other small ruminants from the surrounding farming area. There may be some replacement trade for export cattle in Matameye from herds exiting through Sassoumbouroum. Matameye is also located in a rich agricultural area with a fine road passing through it to Nigeria.

There is only a small slaughter slab which is used most of the day on market day by bush butchers. This slab appeared to be inadequate for this peak demand period, so support for an expansion might be considered.

Maradi

Maradi has two market days: Monday, which is supposed to be the "local" market, and Friday, which is the "export" market. The study team only visited the Maradi market on Monday. Maradi is a major domestic consumption market, taking 1,236 tons of meat in 1981. Over sixty-five percent of this was supplied by cattle slaughters, 30 percent by small ruminants, and the remaining 5 percent by camels. The bulk of cattle slaughtered in 1981 (58.4 percent) were old cows (eight years or older); the remainder were mainly mature males (22.2 percent) and young males (19.4 percent).

The animals presented in Maradi come from throughout the PGPE zone. Market informants told us that animals came from the Abalak, Dakoro, and Aderbissinat areas. All of the animals arrive on the hoof. A census of the cattle presented at Maradi on 8 February is shown in Figure 1. Nearly all of the females presented were old cows, probably destined for local slaughter. The male presentations were dominated by two- and three-year olds, nearly all of which were castrated. These animals appeared to be destined for use by local farmers in animal traction and for growing out. Most of these animals were of the Azawak breed. Among the more mature males, there was a higher proportion of bulls, indicating that they had not been raised for traction but only for meat production and reproduction. This pattern of presentations would be consistent with the claim that Monday is a "local" market day, the old cows and mature males being for local slaughter and the young steers destined for animal traction.

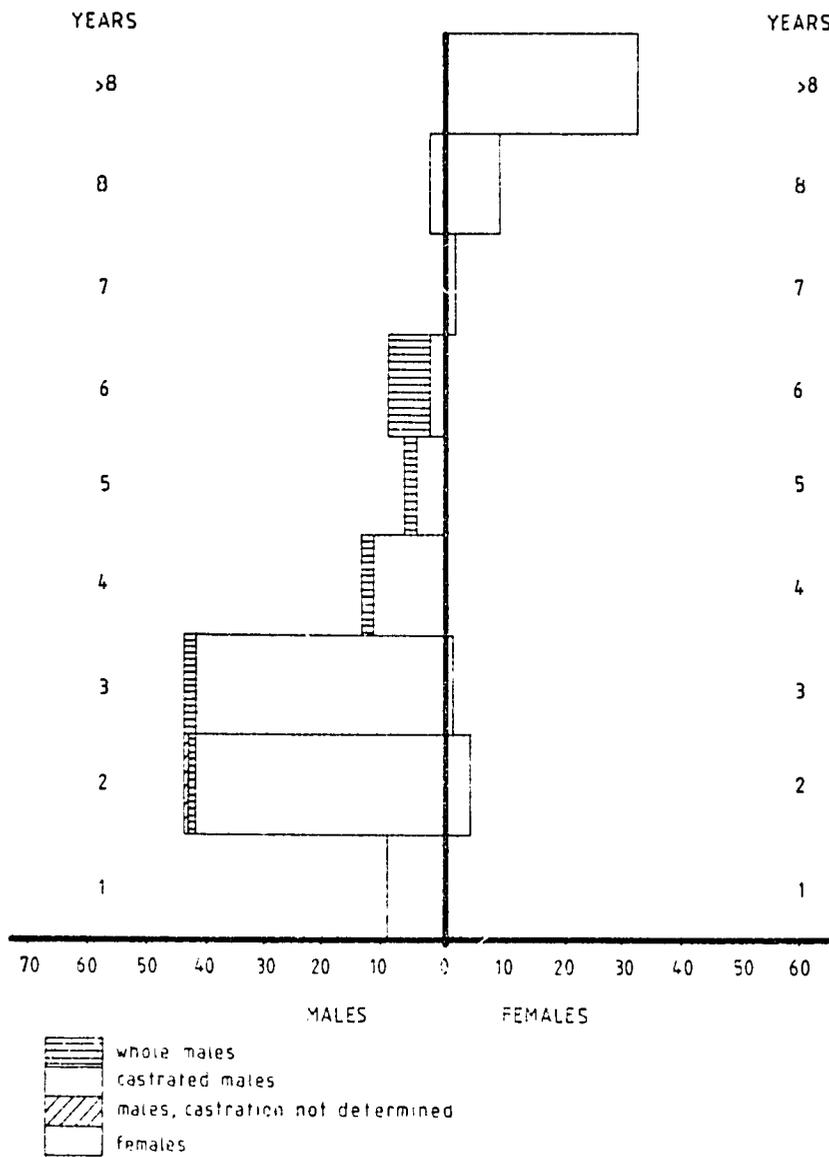
It was not possible for the study team to visit the Friday "export" market. A follow-up could verify whether it truly is an export market by doing a similar census of presentations. If it is an export market, the census should find a much higher proportion of four- to six-year old males relative to young males and old cows. If this were found, then Maradi would be classified as both a terminal and transit market.

As indicated above, the destinations of animals presented in Maradi include local consumption, animal traction, and exports. One curious finding by the study team was that one group of about ten young male Azawaks were presented on 8 February in Maradi, then again on 10 February in Sabon-Machi, a market farther north! It appears that while the movement of animals in Niger is basically north to south, there is some circulating of animals among markets looking for better deals, even in a northerly direction.

The Maradi market will continue to grow as local consumption will increase with population and income growth. There are some indications that farther north markets

FIGURE 1

SEX AND AGE OF
CATTLE PRESENTED AT MARADI, NIGER, MONDAY 8 FEBRUARY 1982



like Sabon-Machi may already be more important assembly points for export herds. Freeing of exports could lead to trucking of cattle from Maradi, but road improvements would probably move the embarkation point farther north.

The Maradi slaughterhouse is quite crowded yet adequate to meet current needs. There has been a dramatic growth in meat consumption in Maradi since 1976, but it appears that most of this growth has been due to greater availability of meat as the pastoral economy has recovered from drought. As shown in Figure 2 the total meat consumption in Maradi appears to have begun to level off.

There is no economic justification for the construction of a refrigerated abattoir at Maradi. As argued by Herman and Makinen in their 1980 report on Upper Volta's livestock marketing system,¹ it is unlikely that Sahelian countries can ever replace a significant portion of their live-animal exports by meat exports. The major reason is that the profitability of meat exports is constrained by the necessity of selling fifth quarter parts at the point of slaughter. If slaughter were done in Niger, this would depress fifth quarter prices in Niger and increase them in southern consumption markets. The more slaughter in Niger, the more attractive the export of the whole animal, fifth quarter intact, would become. Thus the scope for export of meat is self-limiting.

In order for any meat exports to be economic, the cost of transport of meat would have to be lower than the cost of transport of live-animals per kilo of meat delivered to the consumption market. It is not clear that even this condition would be met, as refrigerated trucks would have to be used to transport meat in place of the open trucks currently used to carry live-animals.

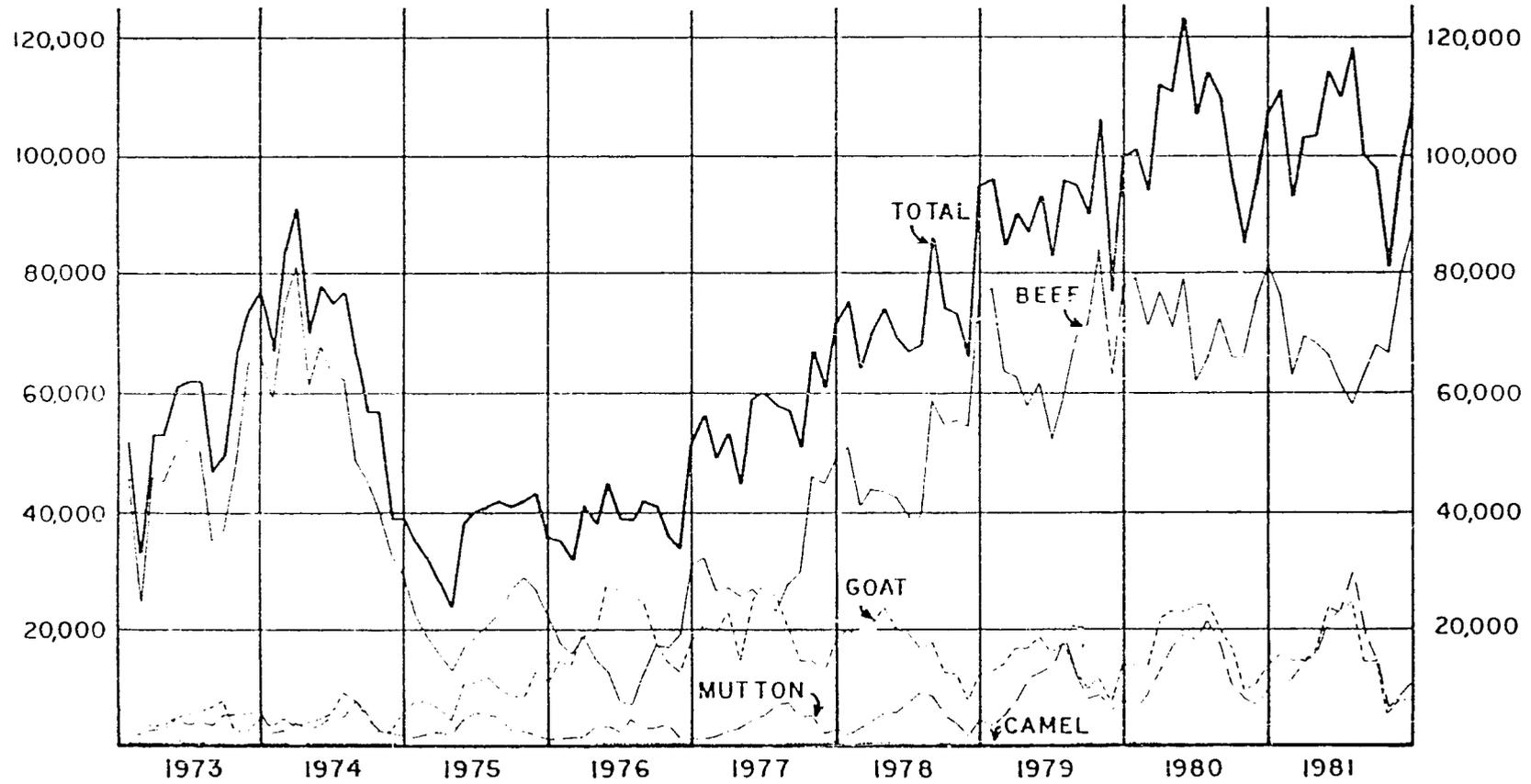
Further, West African consumers have shown a preference for fresh over chilled meat, indicating that chilled meat might suffer a price disadvantage.

Finally the observed existence of relatively new refrigerated storage chambers throughout northern Nigeria adds further weight to the above argument. First, the cold chambers constructed three years ago with some of Nigeria's oil wealth have stood empty since that time, an indication that there may be some economic difficulty in shipping meat south. Second, there are cold chambers that were built into the Sokoto abattoir (with USAID funds) about fifteen years ago that have never been used.

¹Larry Herman and Marty Makinen, Livestock and Meat Marketing in West Africa, Vol. 1 (Center for Research on Economic Development, University of Michigan, Ann Arbor, 1980), and M. Makinen, et al. "A Model of Meat versus Live-Animal Exports from Upper Volta," (Center for Research on Economic Development, Discussion Paper No. 90, February 1981).

FIGURE 2

MEAT CONSUMPTION IN MARADI 1973-1981 (KG)



Lastly, it would be nearly impossible to imagine, for political reasons, that Nigeria would allow chilled meat from Niger pass by these costly facilities on its way to coastal cities.

There is also almost no conceivable justification for cold storage for meat slaughtered for local consumption. The preference for fresh over chilled meat holds here too. Butchers in Maradi currently sell virtually all of their meat before noon.

Sabon-Machi

The Sabon-Machi market serves as a collection and transit market on the middle-southern edge of the PGPE zone. It serves as a collection market for animals from the surrounding area and as a transit market for export cattle. There were all species of animals presented in this market.

As shown in Figure 3, there are quite a few large, whole males of export quality presented in Sabon-Machi. It is used as an export-herd assembly point. At the same time, there are also a large number of young, castrated males (all . zawaks) which are sold for animal traction and growing out. The export herds probably bypass Maradi on their way to Jibiya, Nigeria, using Maradi mainly as a replacement market.

Local slaughter is of little importance and is probably supplied by small ruminants. The slaughter slab was not visited.

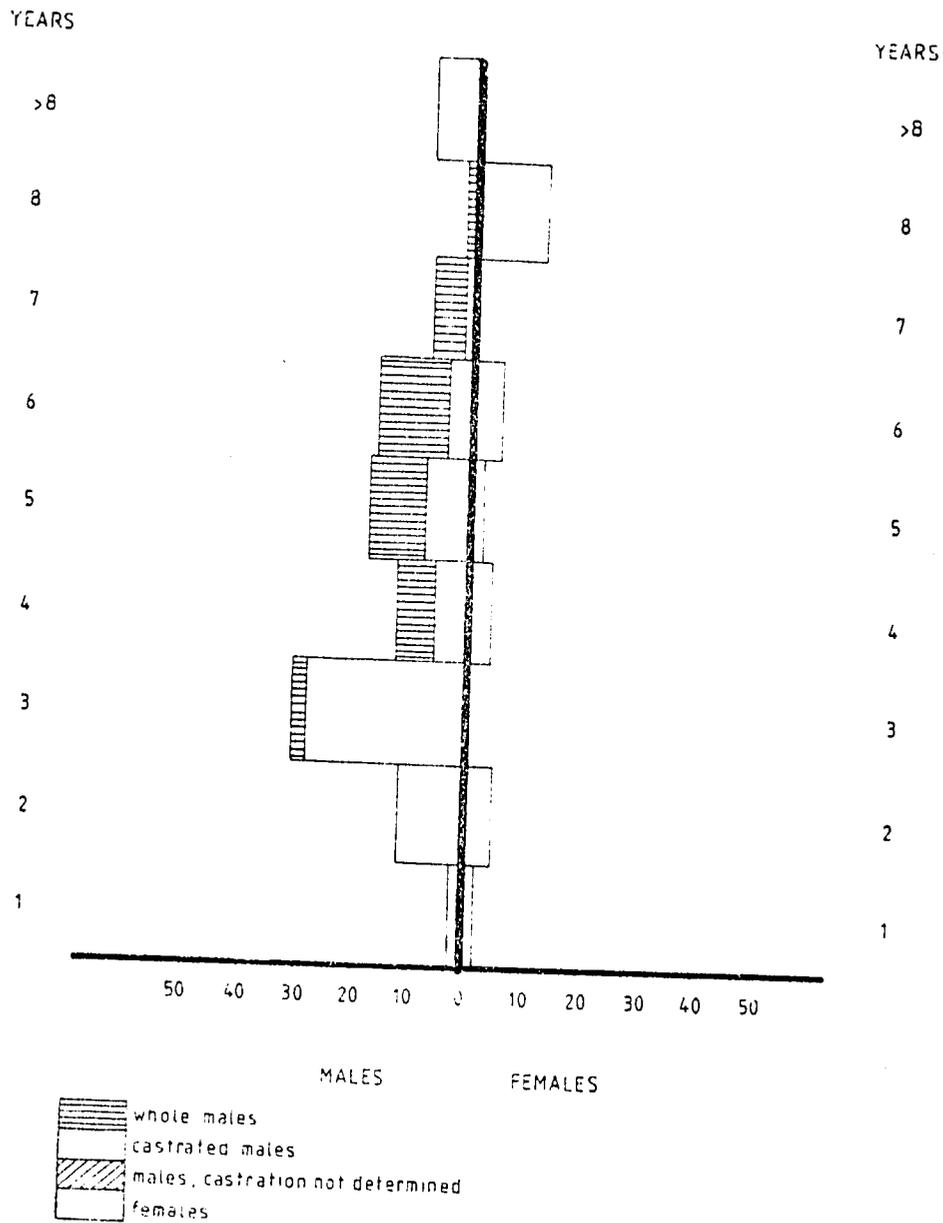
The freeing of exports would probably make Sabon-Machi more important. Although it is not located on a paved road, the road it is on would probably be passable for cattle trucks, so loading would take place there. Even if this does not take place, Sabon-Machi will continue to be an important collection and export assembly point.

Birni N'Konni (Guidan Ider)

The livestock market for Birni N'Konni meets in the town of Guidan Ider, some 8 km north. The animals presented in Guidan Ider come from as far west as Ayorou, from the Abala area, from Tahoua, and from Abalak, according to informants. It appears to continue to be a major assembly point for export cattle herds, as well as a replacement market for herds already assembled which are passing by. Many of these animals are destined to be walked across the border, then are loaded onto trucks at Illela, Nigeria, only 11 km away. Others, principally old cows and some mature males, will be sold on the Illela market for local consumption and short-distance trekking to demand centers like Sokoto. Young male animals presented at Guidan Ider are

FIGURE 3

SEX AND AGE OF
CATTLE PRESENTED AT SABON-MACHI, NIGER, TUESDAY 9 FEBRUARY 1982



destined to meet animal traction demand in the surrounding area and in Sokoto State, Nigeria as well.

Guidan Ider will continue to be an important point for assembly of and as a replacement source for export herds as long as truck transport is not widely used for internal transport of livestock. If, as is expected, a relaxation of export restrictions leads to a takeover of the export industry by trucking, then Guidan Ider's importance will diminish. This will be especially so for animals from the PGPE zone, since the road system passes right into the zone in a way which would allow Guidan Ider to be bypassed. The market may remain important for animals coming from Ayorou and Abala (most of which are imports from Mali).

Local slaughter is not of great importance at Guidan Ider. Nonetheless, the slaughter slab in the market is insufficient to meet local needs. On market day, when there are many bush butchers in town, the slaughters often overflow the slab and the drainage system becomes badly backed up. Provision of a larger slab, better drainage, and a good water source are immediate needs.

Arlit

The Arlit market, (which serves both Arlit and Akoka) while receiving a great deal of attention because of its exotic location, is of only minor importance to the PGPE zone. All of the animals presented for sale at the Arlit market are for slaughter, fattening by townspeople, or exchanges among herders. There are hardly any cattle presented in the market as local slaughter demand is met by small ruminants. Moreover, it is difficult to trek cattle to Arlit from pastoral areas without substantial weight loss because of sparse pasture. While per capita meat consumption is doubtless far above the national average, even among the nonexpatriate community, the population is too small to provide a large source of demand.

The meat provided to the expatriate community in Arlit and Akoka comes in a once-weekly truckload of chilled meat from animals butchered in Niamey. The meat is butchered into European-style cuts and packaged for retail sale. It is unlikely that much of this demand could be satisfied by locally slaughtered livestock since cattle trekked to Arlit would not be able to supply sufficiently high quality beef. The quantity of meat consumed by the expatriates would not, in any case, change Arlit into a large market for pastoral zone animals.

The slaughter facilities at Arlit are sufficient to meet current needs.

Jibiya, Nigeria

The Jibiya market is in Nigeria, just across the border south of Maradi. It was not possible to visit it on market day, but a local livestock official was interviewed to provide much of the information presented here. This is a major loading point for Nigerian cattle destined for Lagos. The source of these animals is principally the PGPE zone; others come from the herds of Nigerian Fulani nomads. The last Nigerian market passed through before Jibiya is probably Maradi or Sabon-Machi.

The animals destined for Lagos must have a transport permit (issued at Jibiya for one naira) and vaccination papers (Rinderpest, Anthrax, and CBPP vaccinations given free of charge at Jibiya or Niger vaccination certificates are honored). Trucks are loaded with 19-24 head at a cost reported as 400-700 naira, depending on the season of the year. Both the driver and the cattle owner pay the market truck broker (cocoseur) a 40-60 naira fee. In addition there is a local market tax of 50 kobo for large ruminants, 10 kobo for small, and 20 kobo for donkeys. It was reported that seven truckloads left the market for Lagos the previous Sunday (7 February), and one more on Monday. There is a loading ramp and holding pen for these trucked animals.

The 7 February market had 224 head of cattle presented; during peak periods as many as 600 head are presented, and during the rainy season as few as 120. In addition to those shipped to Lagos, many skinny cattle are reported bought for fattening by local farmers. There is a government loan program to support these activities.

It was said that cattle presentations are declining. It was not possible to verify this but it is plausible, since we believe that the opening of the "Uranium Road" has shifted some of the export trade from the Dakoro-Maradi-Jibiya corridor to the Abalak-Konni-Ilela corridor. If the export trade were freed, Jibiya would likely diminish in importance as the truckloading point would move farther north.

There is a small, open-air slaughter slab at Jibiya, plus one of the shiny, unused cold storage chambers. It was not possible to determine the local slaughter demand in Jibiya, but it is likely met by small ruminants and old cows.

Maigatari, Nigeria

This is a major loading point for cattle from Niger destined for coastal Nigerian markets. The animals are trekked mainly from Zinder and Mirriah passing by the Nigerian town of Dungas. On 11 February there were close to 800 head of cattle observed in the Maigatari market. There were also a large number of camels and small

ruminants. The sex, age, and castration status of a sample of the cattle is shown in Figure 4. The market was dominated by mature whole males, mainly of the Bororo breed, and older cows. Few castrated young males, suitable for animal traction, were observed here.

The loading of two large trucks going to Lagos was observed. Each was loaded with 24-25 animals, nearly all large males, with 1-2 large females per truck. Smaller trucks were loaded with 10-12 head and a higher proportion of old females. These smaller trucks were taking the animals for slaughter in Kano.

It is not clear that all of the animals loaded at Maigatari are presented for sale there. It was observed that some groups of animals were held aside, suggesting that the market served as a place for buying replacements for herds already assembled and the selling off of weaker animals. It was not possible to interview any officials in this market.

Maigatari is a relatively small town, so that local slaughter demand is not considered to be important. It, too, would probably diminish in importance if the export trade were not subject to limits. Loading activities would probably move to Zinder.

Illela, Nigeria

Illela serves much the same function for the east side of the PGPE zone that Maigatari serves on the west. It is the major truckloading point for cattle destined for Lagos and Ibadan, originating in Ayorou, Abala, Tahoua, and Abalak.

The age, sex, and castration status of a sample of the 400-500 cattle presented on 14 February are shown in Figure 5. These animals, mainly of the Azawak breed, show a markedly different age and castration pattern among the males from those presented in Maigatari. In Illela there are many more young (2-3 years) castrated males. These are animals destined for animal traction and growing out.

The livestock agent interviewed at Illela reported that short-distance traders buy these young animals at Illela, then take them on hoof for resale to farmers in Sokoto State. Observation of farms along the road from Zaria through Sokoto (City) to Illela confirmed that Sokoto State farmers are conserving crop residues for the feeding of animals.

The observed difference between the marketing of the Bororo breed in Maigatari and the Azawak breed in Illela, leads to the hypothesis that there has been a rapid recent increase in demand for young Azawaks for animal traction by farmers that has

FIGURE 4

SEX AND AGE OF
CATTLE PRESENTED AT MAIGATARI, NIGERIA, THURSDAY 11 FEBRUARY 1982

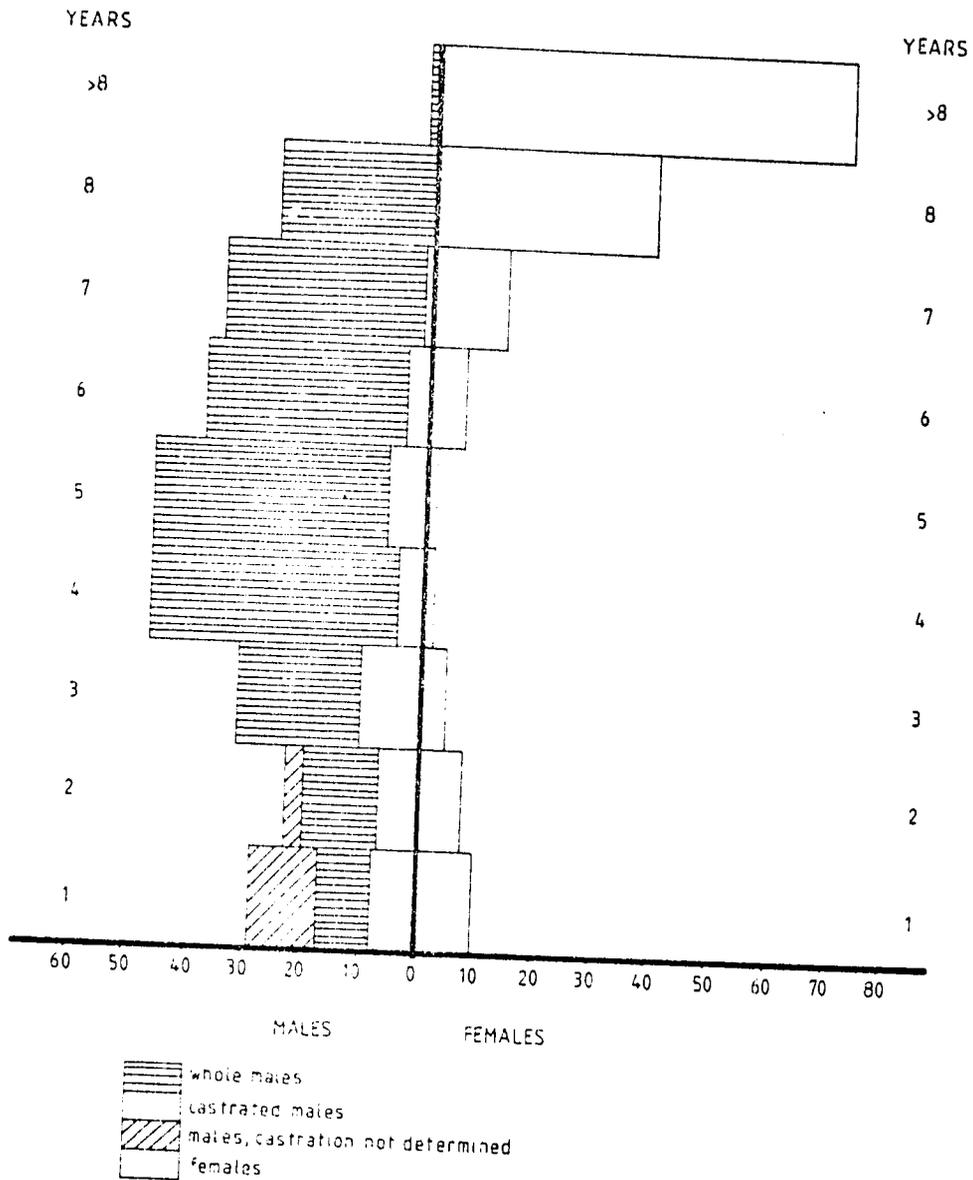
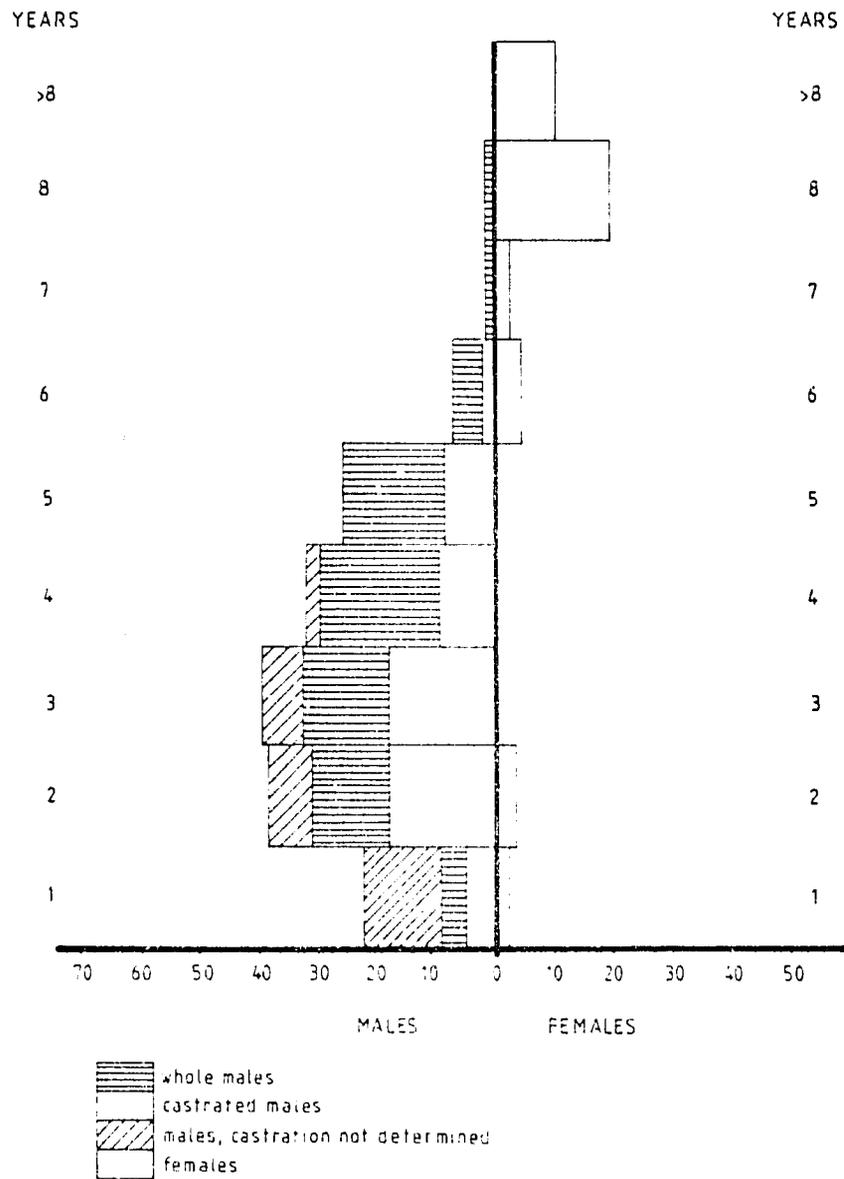


FIGURE 5

SEX AND AGE OF
CATTLE PRESENTED AT ILLELA, NIGERIA, SUNDAY 14 FEBRUARY 1982



been felt by livestock owners in the producing zone and has given them the incentive to market their Azawaks at an earlier age than their Bororos. This hypothesis could be verified by the following tests: (1) pastoral zone herd composition studies showing the age, sex, and castration distribution of cattle by breed; (2) a study of relative young and adult male prices in pastoral markets by breed; and (3) information as to the recent trend in use of animal traction by southern Nigerien and northern Nigerian farmers.

The pastoral composition study should show greater castration of Azawaks and fewer Azawak males aged 4 to 6 years than Bororos in the herds to confirm the hypothesis. The price differential between younger and older male Azawaks should also be smaller than the differential between similar animals of the Bororo breed. Finally it would be expected that the use of animal traction has increased greatly in the last few years.

Confirmation of the hypothesis would mean that a positive development for the pastoral zone has taken place. If it is indeed profitable for producers to take off males at younger ages, then the output (in value) of the pastoral zone will be higher for any given herd size. A greater proportion of reproductive females may then be kept.

Illela will continue to be an important market for the PGPE zone as long as trucking of cattle for export is not used in Niger. If trucking becomes popular in Niger, then it is expected that cattle would board trucks at places like Tahoua and Abalak in the PGPE zone. Illela might still be a truck embarkation point for livestock from Ayorou and Abala, however, as their road connections are not nearly as good.

There is not a strong local slaughter market in Illela. However, the observation of the animals assembled for slaughter in Sokoto on 13 February indicated that it would provide moderate consumption demand for cattle, including large males and old cows as well.

TABLE 1

LIVESTOCK MARKET CLASSIFICATION

<u>Market</u> (1)	<u>Date Visited</u> (2)	<u>Market Day</u> (3)	<u>Type of Market</u> (4)	<u>Source of Animals</u> (5)	<u>Destination of Animals</u> (6)
Kao	29 Dec 81	Tuesday	Collection	SA; Tchín-Tabaradene	Abalak-Tahoua
Abalak	25 Dec 81	Friday	Collection-Transit	SA; Kao; Tchín-Tabaradene; In-Gall; Agadez	Maradi; Tahoua; Nigeria
Tchín-Tabaradene	27 Dec 81	Sunday	Collection	SA	Kao; Abalak
In-Gall	3 Jan 82	Everyday	Collection	SA; Agadez	Arlit; Agadez; Abalak
Agadez	4 Jan 82	Everyday	Collection-Consumption	SA; In-Gall	Arlit; Abalak; Slaughter
Arlit	6 Jan 82	Wednesday	Consumption	Agadez; In-Gall	Slaughter; Fattening
Tahoua	10 Jan 82	Sunday	Collection-Transit-Consumption	Kao; Abalak; Abala; Ayorou	Birni N'Konni; Illela; Slaughter
Birni N'Konni (Guidan Ider)	2 Feb 82	Tuesday	Transit	Tahoua; Abalak; Abala; Ayorou	Illela; Lagos
Sabon-Machi	9 Feb 82	Tuesday	Collection-Transit	SA; Abalak	Maradi; Jibiya
Maradi	1 Feb 82 15 Feb 82	Monday & Friday	Transit-Consumption	Transit-Consumption	Slaughter; Animal Traction; Jibiya

(cont. Livestock Market Classification)

<u>Market</u> (1)	<u>Date Visited</u> (2)	<u>Market Day</u> (3)	<u>Type of Market</u> (4)	<u>Source of Animals</u> (5)	<u>Destination of Animals</u> (6)
Zinder	28 Jan 82	Thursday	Transit-Consumption	Tarrout; Mirriah; Kazoe; SA	Slaughter; Magaria; Matameye; Dambarta; Maigatari; Babura
Matameye	29 Jan 82	Friday	Consumption	Zinder; SA	Slaughter; Fattening; Animal Traction
Magaria	30 Jan 82	Saturday	Consumption	Zinder; SA	Slaughter; Fattening; Animal Traction
Mirriah	31 Jan 82	Sunday	Transit	Kazoe; SA; Tarrout	Zinder; Maigatari
Jibiya	10 Feb 82	Sunday	Transit	Sabon-Machi; Maradi	Lagos; Animal Traction; Karro
Maigatari	11 Feb 82	Thursday	Transit	Zinder; Mirriah	Lagos; Karro
Illela	14 Feb 82	Sunday	Transit	Abala; Ayorou; Abalak; Tahoua	Lagos; Sokoto; Animal Traction

NOTE; SA indicates "surrounding area" and Lagos is used generally to indicate coastal Nigerian markets.

EXPORT POLICY

Introduction

The Government of Niger (GON) currently legally restricts the export of cattle. A limited number of export licenses has been issued each year since 1977. The object of this policy has been to allow the national herd to recover in the aftermath of the drought of the early 1970s. Breeding stock in the Niger herd would thus be kept within the country so that the herd could be rebuilt to the carrying capacity of the pastoral zone.

At this point in time (1982) the herd may be considered to have been restored to predrought levels, but with a slightly modified balance between small ruminants and cattle, with proportionately more small ruminants now.¹ Whether the carrying capacity of the pasture has been reached or passed has yet to be judged by range managers.² Along with reaching predrought UBT levels, it appears that the herd composition of the cattle has been restored in so far as relative percentages of reproducing females in the herd. (For further details see the section on Drought Recovery.) Thus, it may be said that the initial causes for the restriction of exports no longer exist.

Benefits to Easing Restrictions

On the other hand, many benefits to the easing of export restrictions may be identified. The GON could gain more revenue and foreign exchange, and keep better track of the livestock sector if exports were made legal. Herders would benefit through better producer prices because of increased competition and more efficient transportation. Finally, the society as a whole would gain from more efficient use of resources and an improved climate of order.

¹Service d'Elevage, "Livestock Sector Strategy," 1981.

²It is recognized that there may not be a simple precise level of range pressure but a rough balance between animals and pasture that may vary from year to year.

Lost Revenues

Currently the GON tries to restrict the export of cattle by issuing export patentes each good for 200 head. Our first approximation of actual annual exports is 200,000 head, based on a rough estimate of Nigerian imports, expected Nigerian offtake, and domestic slaughters. In 1980, the most recent full-data year, Service d'Elevage reported 40,466 total exports. The total GON revenue from the patentes issued at 435,000 CFA each and the 2,000 CFA douane levied per head would have amounted to 169 million CFA in 1980. Had the same fees been assessed against the real total of 200,000 exports, GON revenue would have been 835 million CFA.

If exports were made legal, it is not certain that GON would be able to tax all exports, as some exporters would try to evade payment, so the above figure may be overestimated. At the same time, the risk to exporting would be reduced (currently illegal export herds which are caught are seized) so that the amount of exports might rise. In any case, the GON is giving up a considerable amount of income by continuing to make exports illegal.

Foreign Exchange

Similarly, the foreign exchange earnings of Niger are underestimated and limited by the export controls. Cattle exported to Nigeria are mainly large male animals which sell for 450 to 500 naira. At the official level of exports for 1980, Niger's livestock sector earned about the equivalent of 5.4 billion CFA of foreign exchange. The actual figure was nearer 27.0 billion CFA. The true figure represents about 28 percent of the foreign exchange earned by exports of uranium in the same period. The projected 1980 trade deficit in the Five Year Plan 1979-83 was 30 billion CFA; the IMF estimated it at 57 billion CFA. By using the official livestock exports, these trade deficits were overstated by about 22 billion CFA. Again, the risk of exporting would decline with total legalization, so total foreign exchange earnings would tend to rise.

Planning

As can be seen above, the ineffective limit on cattle exports distorts the figures that are used in economic planning. Planning within the livestock sector is also distorted. The Five Year Plan 1979-83 shows 80,000 head exported, and 290,000 head slaughtered domestically for 1978. The Service d'Elevage data for controlled

slaughters (nearly all cattle slaughters are registered since they occur mainly in large towns where there are Service d'Elevage abattoir inspectors) shows only 65,000 slaughters. Service d'Elevage data also show only 40,000 exports, whereas the real figure was closer to 200,000. Thus, the figures used for planning in the livestock sector are nowhere close to true levels. The lifting of controls would make the gathering of accurate data much easier.

As mentioned above, one of the concerns of GON following the drought was that Niger conserve its breeding stock. With so many of the real exports escaping official surveillance, it is impossible to monitor whether the breeding stock is actually being maintained. We find that almost none of Niger's reproducing cows are being exported. Moreover, other trends in the age, sex, and race of animals exported may be escaping notice. It is especially valuable to be able to accurately monitor those animals exported since they make up more than seventy percent of all animals taken off the national herd. The result of any interventions taken in the area of livestock production will ultimately be reflected in the kinds of animals marketed. Thus accurate evaluation of interventions will be impossible if exports are not properly accounted for.

Herder Benefits

In addition to GON financial and informational gains from easing of import restrictions, the producers (herders) would benefit from such a policy shift. An easing of the limit on licenses would make possible the entry of more traders into the export business, increasing competition and lessening any monopoly power that might exist (our information shows no evidence of monopoly). The likely increase in demand for export animals would be reflected in higher producer prices. In addition, a decrease in the patente fee would allow more small traders with limited initial capital to enter the business, increasing competition.

Trucking

Currently, the GON does not allow Nigerian trucks to transport Niger cattle across the border. Export cattle are usually walked from the pastoral zone, across the border, then are loaded onto trucks immediately on entering Nigeria, to reach within 24 hours the coastal consumption markets (notably Lagos). Two reasons that cattle are walked rather than trucked can be presumed. It would be more difficult to export

cattle illegally if they were in trucks than on foot. Second, the cost of gasoline is almost three times higher in Niger than in Nigeria, making domestic trucking much more expensive. Easing export restrictions alone would make trucking of cattle more likely to take place. Allowing Nigerian trucks to do it would mean that they could enter Niger with tanks filled with inexpensive gas and penetrate a long distance into the pastoral zone.

The advantages of using truck transport instead of trekking are that the capital turnover time for exporters is reduced, any weight loss that occurs during trekking is avoided, and the problem of trampling of farmer's fields is avoided. Currently, the trek from Abalak to the Nigerian border takes about nine days and involves passing through a large area used for cultivation. Trucks loading cattle in Abalak could make the journey to the border in a matter of a few hours, shortening exporters' minimum capital rotation time to about 7 days (two days from Abalak to Lagos, three days selling time in Lagos, and two days return trip) from 15 days (additional eight days between Abalak and the border). An exporter could cut his sales margin in half and still earn more money than before.

An illustrative example is shown below where the exporter is assumed to work 210 days per year, giving him the opportunity to take 14 herds of 50 head each from Abalak to the Nigeria coast under existing conditions. The freeing of truck transport cuts his capital rotation time to seven days. To demonstrate the importance of reduced capital rotation time, it will be assumed that transport costs are the same.

	<u>Current Conditions</u>	<u>Free Truck Trade</u>
Buying Price in Abalak	150,000 CFA	150,675 CFA
Selling Price in Lagos	161,350 CFA	160,675 CFA
Transport Cost	8,650 CFA	8,650 CFA
Profit per Head	2,700 CFA	1,350 CFA
Days Worked per Year	210	210
Number of Herds Exported (50 head each)	14	30
Export Earnings	1,890,000 CFA	2,025,000 CFA

Since he is able to export thirty herds in place of fourteen, he is able to pay more to the herder for his animal, sell at a lower price to the butcher in Lagos, and end up with more earnings for himself, too.

General Benefit

Niger as a whole would benefit from a general improvement in the use of national resources by the freeing of livestock exports. To the extent that the restrictions actually reduce livestock exports, they reduce the earnings of the livestock producers below what they could be. The efforts taken to avoid detection when exporting illegally, notably trekking rather than trucking animals, raises the cost of production, hence lowers producers' incomes. Moreover, a large potential benefit to the existence of the road is lost. Thus there are several inefficiencies caused by export restrictions. If these inefficiencies were reduced, the livestock producers could gain higher incomes which would have multiple beneficial effects on the rest of the economy.

Order

In addition, a climate of disrespect for the law is promoted by the restrictions. Our estimates are that more than half of the cattle exported go out illegally. It is clear that this cannot be controlled. Since the original goals of the restriction policy have been achieved, lawfulness along the frontier could be restored by making livestock exports legal.

Conclusions

The restrictions on exports of livestock should be lifted. They have been ineffective in averting the flow of cattle toward Nigeria. The national herd has been reconstituted. There are virtually no exports of reproducing females. The GON is losing potential revenue through issuing only a limited number of export patentes. The state of Niger's foreign exchange earnings and the monitoring of livestock sector developments are distorted by the restrictions. Herders would benefit from better prices for their animals and increased competition among traders. Free truck traffic would take better advantage of the new road system, reduce herder-farmer conflicts, and cut transport costs to the benefit of all. Niger would enjoy a more efficient use of its resources and there would be greater respect for laws.

MARKET POWER AT INITIAL SALE

Introduction

Market power in the initial sale of livestock by herders will be analyzed by the results of a survey on herder and market intermediary (dillali) attitudes and practices in pastoral zone markets. In visits to markets in Tchir-Tabaradene, Abalak, Kao, In-Gali, and Agadez, plus Arlit and Tahoua, twelve herders who had brought animals to sell and twelve dillalis were questioned. While this sample was neither random (biases of the selectors doubtlessly crept in) nor large enough to give statistical significances, the responses were similar enough to be indicative of what market power exists.

The overall general hypothesis to be tested is:

Herders are exploited by the monopoly power of dillalis (market intermediaries).

This power would manifest itself in ways that would lead to the following testable subhypotheses:

- A. The dillalis form a clique which operates together impersonally to manipulate prices.
- B. Herders are unable to change dillalis, giving each dillali monopoly power over his herder clients.
- C. Herders are unaware of the true fee paid by buyers to dillalis.
- D. Herders do not know the true sales prices of their animals, allowing the dillali to "steal" some of the benefit from animal sales.
- E. Herders are unaware of price changes, hence cannot know whether they are getting true prices from dillalis.

Dillali Clique

To find information about hypothesis (A), herders who had brought animals to market were asked how they had made contact with the dillali who acted as their sales intermediary. Four of them said that a relative always acted as their dillali; one of them said he used a relative sometimes, other times an acquaintance. Four others said their dillalis were acquaintances; one said sometimes an acquaintance is used, other times any dillali with whom he can set up acceptable terms. Another said that he had to find a dillali with whom he could agree; the last herder sought a dillali in whom he

had confidence. In sum, nine and one-half dealt with dillalis who are either relatives or acquaintances; two and one-half with strangers with whom they must set up the terms of the relationship. These results indicate that it is unlikely that an impersonal clique of dillalis is exploiting these herders. If there is exploitation, it is being carried out by friends and relatives of the herders.

Changing Dillalis

Hypothesis (B) was investigated in two ways: the herders were asked whether they could change dillalis and then whether they actually had. Eight herders said they could change dillalis, one said he could not, and three did not respond. The one who said he could not change said that was due to the fact that his dillali was his brother.

Having theoretically the right to change, as indicated above, and actually being able to change are not always the same. A finding that none of them had ever actually changed dillalis would have cast doubt on what would be concluded from the response to the first question. However, in the sample three herders had changed dillalis, eight had not, and one did not respond. Those who had were asked a follow-up question as to why they had changed. One said that he found a dillali who would give him tea, whereas others did not, so he began giving his business to the tea provider. Another said that he changed dillalis when he found one who could do better in selling his animals than the dillali he had been using. This same respondent said that when one of his relatives was acting as a dillali in the market, the herder would sell through the relative. The third herder who said he had changed said the reason was always serious cause. These results indicate that it is indeed possible for herders to change dillalis and that they change for both positive (greater services, better deals) and negative (serious cause) reasons.

Dillali Fee

Hypothesis (C) was tested by asking both herders and dillalis, who pays the dillali fee and how much. All ten dillalis who responded to the question of who pays said it was the buyer of animals. Ten of the twelve herders said the buyer pays, one did not respond, and the last said it was the seller who pays, but then added that the seller may add a cadeau if the deal is good. Thus, ignoring this last, apparently confused, response, all seem to know that the dillali is paid by the buyer.

In four of the six markets the herders gave figures for the dillali fee that matched those given by the dillalis in the same market (although the dillali fees are not all the same across markets). This accounts for seven of the herders. In the Agadez market two herders gave responses that matched those given by the dillalis, but a third gave a figure of 5,000 CFA for large ruminants, whereas the fee cited by all the others was 2,000 CFA. It is noted that he said his dillali is a relative. In Abalak neither of the dillalis gave figures; one said the arrondissement had controlled the fee, the other said that the people were not paying attention to the controls. In any case, there is no basis for comparing the one herder's response with what the dillalis said in Abalak. The overall result is that nine of the ten herders whose responses could be compared gave the same fees as the dillalis. Thus, they seem well informed on this point.

The dillali fees range from 1,000 to 3,000 CFA per head of cattle or camel; from 500 to 1,500 CFA per donkey; and from 100 to 200 CFA per sheep or goat.

Price Information

Two questions were asked of herders to get at hypotheses (D) and (E). They were asked if they felt they knew the true sales price of their animals, and if so, how. The herders were also asked if they received price information from other herders. Eight-and-one-half of the herders' responses indicated that they felt they knew the true sales price of their animals, one and one-half responses said they were not always sure, one said he did not know, and one did not answer. Five and one-half said that the transaction and bargaining of the price were done in front of them. One said he knew he was getting the true price because he walked around the market observing other negotiations. The one who flatly answered that he was not sure, was one of those who indicated that he had to use a stranger as a dillali. It would be difficult for dillalis to "steal" some of the sales price of animals if this pattern of herders observing price negotiations holds. In this sense, it should be noted that dillalis act as brokers in the sales process; they bring together buyers and sellers without themselves ever having actual ownerships of the animal.

When asked if they communicated price information, eight of the herders said they did, two said they did not, and two did not respond. Those who said yes indicated that price information was often a topic of conversation among relatives and friends. In a separate interview with Angelo Maaliki on his experiences with the Wodaabe he indicated that there is much discussion of prices among herders, especially when someone returns to the camp after taking some animals to market.

Maaliki also reported that the Wodaabe prefer using their cousin Peuls as dillalis because they have confidence in them. Our sample of dillalis was not random in ethnicity, since we relied on a Twareg interpreter to locate the interview subjects in the markets. However we had no trouble finding Bouzou and Twareg dillalis in markets frequented largely by Twareg herders. If ethnic affiliation affects the likelihood of exploitation, then the Twaregs who sell their animals in the markets surveyed are less likely to be exploited since they seem to have plenty of opportunity to find fellow Tamasheq speakers to act as intermediaries.

Perceived Exploitation

One additional question in this area was asked of the herders. They were asked if they felt the dillalis earned a fair living for their services. The responses: five and one-half said the amount earned was fair, one and one-half said they earned too much, one said they earned just enough, and four did not respond. This indicates that those herders interviewed did not feel exploited by the dillalis.

A question asked of the dillalis also has a role to play in this regard. They were asked whether they performed any economic activities other than serving as dillalis. Of the seven pastoral zone dillalis who replied to the question, three had no other work, one was a farmer, two were herders, and one both farmed and raised livestock. Thus, in many cases, being a dillali is only a part-time employ, something that would seem unlikely if it were producing the returns of monopoly exploitation.

Conclusions

In sum, though the samples of herders and dillalis were not large enough to be statistically tested, the results of every question asked to try to discover the extent of market power showed that apparently little power is enjoyed by market intermediaries. In fact the responses seemed overwhelmingly to indicate that herders were well-served and satisfied by the dillalis. There was no evidence of collusion among dillalis against herders, no strong tying of herders to specific dillalis, herders felt they knew true sales prices and often witness sales, herders discuss prices a great deal to inform one another about alternatives, herders know how much dillalis earn, and, by and large, the herders feel that those earnings are fair. This all leads to the rejection of hypothesis that herders are exploited by dillali market power. The dillalis perform a useful service as brokers for market sales.

NIGER TANNING SECTOR

Introduction

The pastoral economy of Niger would seem to have the potential to produce the cattle skins necessary to make a leather tannery a profitable venture. The absence of such a facility might lead one to conclude that a lack of investment capital is the constraint. However, a study of the matter indicates that it is unlikely that a tannery for cattle hides will be a profitable proposition for the foreseeable future. At the same time, some recommendations will be made as to how USAID could aid the already successful goatskins and hides sector in Niger.

Most of the information presented in this section came from an interview with Jean Pierre Senat, Directeur of SONITAN (Société Nigerienne de Tannerie), in Maradi on 1 February 1982.

SONITAN Background

SONITAN tans goatskins which are purchased from the state monopoly, SNCP (Société Nigerienne des Cuirs et Peaux). SNCP purchases the skins directly from butchers at abattoirs around the country, provides some to SONITAN, and exports others as raw skins. In 1981 SONITAN tanned 750,000 skins, the most ever and, for the first time, reached plant capacity. Almost all of the tanned skins are exported (96 percent) and a large proportion of 1981 exports (90 percent) went to France or French companies.

There are three different kinds of tanning done by SONITAN, each involving a varying degree of processing:

- (1) ordinary tanning -- leaves skins damp, requires transport by ship because of weight;
- (2) travailte teintenance -- semifinished, dry skins, can be transported by air;
- (3) finish tanning -- completely finished leather for making consumer products.

Ordinary tanning made up around 38 percent of SONITAN's output in 1981, travailte teintenance made up about 58 percent, and finish tanning the remaining 4 percent. Senat reported that steady progress was being made in increasing the

proportion of output involving more processing. That is, the proportion of total output made up of travailte teintenance and finished leather is rising, while ordinary tanning is falling. The finish tanning is exclusively done for local production of consumer products; no finished leather is imported to produce finished goods. Though still small relative to export demand, local demand is growing proportionately faster.

Cattle Skin Tanning

SONITAN does not tan cattle skins and there is no capacity to do so in Niger. However, the lack of financing for a cattle skin tannery is not the binding constraint on the development of such a tanning industry. Senat reported that the current Nigerien output of about 40,000 cattle skins per annum falls short by one-half of the level necessary to make a tannery profitable (to reach the level of economies of scale). He went on to say that the quality of those skins produced by local slaughters is low, so that, effectively, far less than half the number needed to make a tannery profitable is currently available.

The reason for the low quality of domestic skins is the age and condition of cattle slaughtered in Niger. Most of the cattle slaughtered are old cows (more than eight years of age), no longer capable of reproducing, which are being culled from herds. These cows are skinny, rendering their skins thin, and are old, hence they have suffered the wear and tear of the years, including markings and brandings, gorings, and wounds from being herded by stick-wielding shepherds for eight or more years. Adult male animals and calves which produce higher quality skins make up a small part of local slaughter. The adult males taken off from herds are mainly exported to Nigeria since they are strong enough to survive the rigors of travel to the coastal consumption markets and provide a high proportion of meat per unit of live weight (an important consideration in the cost of transportation). Female calves are rarely slaughtered because of their potential value as reproducers and milk producers. Male calves are less valuable than females, but are also rarely slaughtered since they have rapid weight gain potential (hence rapid gain in value) and potential for use in animal traction (pulling carts and ploughs).

It might be argued that the adult male skins necessary to make a tannery economically feasible will be provided by the expected construction of refrigerated abattoirs in Tahoua, Maradi, and Zinder (Niger Five Year Plan 1979-83). These abattoirs are expected to allow local slaughter of adult male cattle and subsequent export of meat to Nigeria by refrigerated trucks. The supposition is that Niger will

thereby gain the value added to its meat by slaughter and butchering. As is argued in detail in the markets section of this report, these abattoirs, if constructed, will fail. It is unlikely that they will be able to export economically any meat in the foreseeable future. To rely on the output of these abattoirs to supply good quality cattle skins to a tannery would be a grave error.

Thus, the necessary supply of good quality cattle skins in sufficient numbers to make a tannery profitable is not and will not be available in Niger unless there is a radical change in conditions.

Aid Potential in the Tanning Sector

This is not to say that there is no way that USAID or other donors could aid the hides and skins sector in Niger. Even though SONITAN has been highly successful in its operations to date, it does have at least one problem which would be amenable to a donor-funded solution. The problem is goatskin quality.

The tanned goatskins produced and presented at international fairs in Europe and sold by SONITAN on the world market are competitive with the best skins produced elsewhere (notably from the Indian subcontinent), according to Senat. Indeed, the Maradi Rouse (red skin) goat has an international reputation for quality. However, to maintain this standard of quality SONITAN has had to set aside many of the skins provided to it by SNCP. Since SONITAN is required to buy the skins supplied by SNCP, it must suffer a loss for each skin not suitable for tanning. This unnecessarily raises SONITAN's costs of operation.

The supply of unsuitable skins, according to Senat, is not the result of animal quality as in the case of cattle, but one of butchering technique. Poor butchering technique appears to be a localized problem among rural butchers. The skins supplied from the urban and small town areas are butchered better. Thus, it appears to be a case of lack of training of rural butchers in appropriate techniques to produce tanning quality skins.

SONITAN has asked SNCP to refuse to purchase unsuitable skins (in part to give butchers the incentive to do a better job), but SNCP has found this request difficult to fulfill because of political pressures on it as the state monopoly to purchase all skins, regardless of quality. It should be noted that the quality of Niger's raw goatskins, which was the best among Sahelian countries in the 1960s, has now fallen below its neighbors' on the basis of international grading standards.

There are at least three ways of attacking this problem. The first one of them is probably not feasible. The opening up of the skin business to the free market would mean that private skin dealers would be able to reward good butchering and refuse to buy poorly butchered skins. This would compete directly with SNCP. A second logical option is for SNCP to refuse purchasing skins of poor quality, or alternatively, for SONITAN to decline those skins from SNCP.

Another feasible approach (and one in which donor assistance could play a role) would be to provide an extension training program for rural butchers in proper slaughter techniques. Nigerien Livestock Service Agents could be trained to give brief instruction to rural butchers. A manual for proper skinning already exists, viz., Manuel des Agents du Conditionnement des Cuirs et Peaux en Zone Tropicale (Republique Francaise, Secretaire d'Etat aux Affaires Etrangeres). A few mobile training teams could be sent out to bring the rural butchers up to standard quickly, then the regular visits of Livestock Service Agents or SNCP buyers could be used as a vehicle for updating and in-service training. The effectiveness of this approach is uncertain since it does not give the butchers the incentive to improve animal slaughter, but it would make information available where it seems to be lacking.

Another area in which the United States might play a role in the industry is in the area of marketing. The market for tanned goatskins has been volatile in recent years. As recently as 1974-75, Italy was the largest importer of Nigerien tanned skins. Now, however, Italy only wants nontanned skins, so France has taken over the lead position.

Even those which appear as French imports of Nigerien tanned goatskins do not necessarily travel directly to France: Senat reported learning of one case where a French buyer of Nigerien tanned skins had them shipped to one Asian country for finish tanning, to another for manufacturing of consumer goods, which were finally shipped to France for sale.

Even in the area of raw goatskins the market has been volatile. The U.S. was Niger's largest customer for raw skins 15 to 20 years ago. The skins were tanned mainly in New England tanneries. With the advent of U.S. environmental protection laws the highly polluting tannery business became unprofitable relative to imports (in some sense we began exporting our pollution) and died out entirely. Since that time Niger has done virtually no business with the U.S. in goatskins.

This lack of trade with the U.S. is not due to a lack of interest or any special agreement with France by SONITAN. Senat reports that there has been a recent inconclusive exchange of letters and telexes with an American skins broker in New

York. He also reports that SONITAN has enjoyed great success with its visits to trade fairs in France and Germany. Thus, the commercial attaché at the American Embassy could aid SONITAN by helping to establish contacts with American tanned skin buyers. This could be accomplished by helping to direct trade delegations with potential buyers toward SONITAN, Maradi or by arranging for invitations to American trade fairs for SONITAN representatives. This small stimulus to business contacts could lead to a mutually beneficial set of new relations.

New business could be handled, as the SONITAN tannery has just reached full capacity in 1981 for the first time, so there remains scope for increased output by adding additional shifts. An increased demand for skins could be met by buying from SNCP some of the skins that are currently exported in a raw state.

Finished Products

There does not appear to be much possibility of expanding sales of finished consumer products beyond the local market. Whereas Senat expresses great confidence in the international competitiveness of his tanned skins, he holds no illusions about that of SONITAN's consumer goods. Nigerien craftsmen are not able to come close to the workmanship of Italian, Spanish, and Asian leatherworkers. Their traditional designs are best appreciated by the local market. As stated above, this sector of SONITAN's business is growing fast and can be expected to continue to grow as national purchasing power continues to grow.

Conclusions

SONITAN is one of Niger's success stories. It uses a by-product of the pastoral economy to earn foreign exchange on an everincreasing value-added basis. There is not any economically viable cattle skin tanning industry in the foreseeable future for Niger. However actions taken to help improve raw skin quality through better butchering and to improve marketing contacts with America could aid this already successful sector.

APPENDIX A

TABLE A1.

COST OF TRUCK TRANSPORT FROM JIBIYA TO LAGOS, NIGERIA
February, 1982

<u>Item</u>	<u>Per Truck</u>	<u>Per Head</u>
1. Transport Permit	24 N	1.00 N
2. <u>Convoyeur</u> (to ride on truck with animals)	50	2.08
3. <u>Cocoseur</u> (truck broker)	50	2.08
4. Truck (depending on season)	<u>400-700</u>	<u>16.67-29.17</u>
Total	524-824 N = 167,680- 263,680 FCFA	21.83-34.33 N = 6,987 10,987 FCFA

NOTE: Assume 24 head per truck. The exchange rate used is 1.00 naira = 320 FCFA, the rate obtained on the black market at Maradi, Niger on 10 February 1982.

APPENDIX B

MEAT SUPPLY IN MARADI

The supply of meat in Maradi has been estimated from slaughter data gathered at the Maradi abattoir.¹ The monthly meat supplied by cattle, sheep, goats, and camels from 1973 to 1981 is shown in Figure B1. Beef consumption jumped in 1974 as drought-caused distress sales increased supplies. Beef consumption in 1975 and 1976 showed the echo effect of the earlier distress sales. At this time goat slaughters rose dramatically to alleviate the drop in total meat consumption. This can be seen clearly in Table B1, where 1975 goat slaughters were nearly double 1973 levels; in 1976 and 1977 almost four times as many goats were slaughtered.

Both sheep and cattle slaughters were at trough levels in 1976. Sheep recovered faster, reaching 1973 levels again by 1977; cattle slaughters followed a year later. Cattle slaughters continued to rise through 1980; 1981 seemed to be a leveling off year at 50 percent more than 1973. Sheep slaughters have risen continuously since 1976, so that they are now more than three and one-half times 1973 levels. Goat slaughters have been steady to slowly falling since their big rise in 1976. Camel slaughters have been erratic, but make up only a small part of Maradi meat supply.

Table B2 shows the percent makeup of the Maradi meat supply. From more than 80 percent of total meat in 1973-74, beef dropped to 41 percent in 1976, before beginning to recover. In 1980 and 1981 beef made up about two-thirds of total meat. Small ruminants supplied 15 percent of total meat in 1973-74, but now supply about twice that much. Sheep made up a steady 7 percent from 1973 to 1978, then rose to 15 percent by 1981. Goats followed a different pattern to the same 15 percent share in 1981, reaching 50 percent in 1976 and stabilizing at 15-17 percent since 1979.

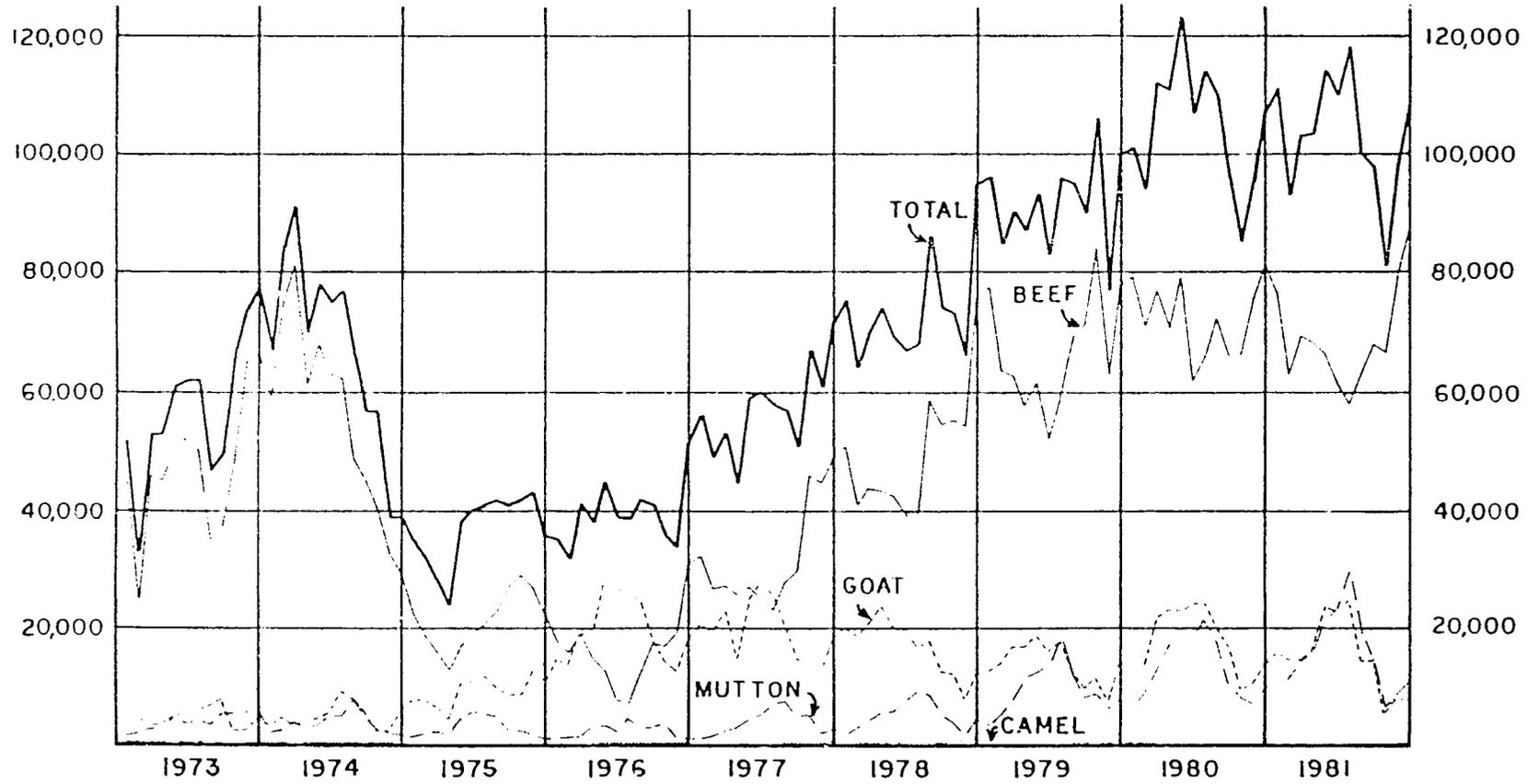
These Maradi figures seem to indicate that the PGPE zone has recovered from the drought and is now in a more stable period. Maradi is the main domestic consumption market supplied almost entirely by PGPE zone livestock. Total meat consumption has been stable in 1980 and 1981, and the percent makeup has been fairly

¹The following carcass weights were used to estimate the meat supply from slaughter data:

Camels	150 kg.
Cattle	120
Sheep	18
Goats	12

FIGURE B1

MEAT CONSUMPTION IN MARADI 1973-1981 (KG)



stable since 1979. It appears that the stable composition of slaughters may reflect a change in the stable composition of the pastoral herd. That is, the small ruminants seem to permanently provide a higher percentage of the meat supply, and perhaps permanently remain at a higher proportion of the livestock herd. This may be a response to the insurance value of the drought-worthiness of goats and sheep.

TABLE B1.
EVOLUTION OF MEAT SUPPLY IN MARADI, NIGER,
by Species
1973 - 1981 (1973 = 100)

<u>Year</u>	<u>Beef</u>	<u>Mutton</u>	<u>Goat</u>	<u>Camel</u>	<u>Total</u>
1973	100	100	100	100	100
1974	118	96	109	116	116
1975	45	77	189	663	64
1976	34	66	393	150	69
1977	67	96	395	213	99
1978	105	128	338	181	127
1979	139	230	283	197	146
1980	151	308	356	297	182
1981	144	363	304	941	179

TABLE B2.
MAKEUP OF TOTAL MEAT SUPPLY IN MARADI, NIGER,
by Species
1973 - 1981 (percentage)

<u>Year</u>	<u>Beef</u>	<u>Mutton</u>	<u>Goat</u>	<u>Camel</u>	<u>Total</u>
1973	83	7	9	1	100
1974	85	6	8	1	100
1975	58	9	26	7	100
1976	41	7	50	2	100
1977	56	7	35	1	100
1978	68	7	23	1	100
1979	80	12	17	1	100
1980	69	13	17	1	100
1981	67	15	15	3	100

APPENDIX C

MARKET MONITORING UNIT

The project at present makes no livestock market surveillance. As a result, the drastic transformation of the cattle marketing system in the past few years escaped the attention of the project direction. Such oversight need be corrected promptly, particularly since concrete interventions are scheduled for implementation in the second phase. Monitoring the marketing of livestock in markets within and around the project zone will make it possible to evaluate the impact of Phase II interventions. It would also provide early warning of unexpected changes in herd dynamics and herd management. The Project Director would then be able to adopt appropriate remedial reassures or reorient project activities accordingly.

It is therefore recommended that under Phase II, the PGPE establish a market monitoring unit (MMU) responsible for generating quarterly livestock and meat market reports for the Project Director. The monitoring unit will follow the evolution of livestock presentation numbers and prices; livestock slaughter by species, livestock and meat prices; and livestock exports, in markets and areas relevant to developments in the project zone. Some information about these items is already collected by appropriate Livestock Service officers but it is not made publicly available in any form. The monitoring unit will assemble existing data, verify, compile, and analyze them for use by the project and other interested parties. Moreover, the unit will identify new important markets where data is not being collected at present, and take appropriate steps to fill the gaps. The unit will also collect additional data as needed to supplement and verify existing sources, such as data on sex/age composition of market presentations, meat prices in selected urban centers, prices of grains and other staples, exchange rates for the naira, etc. Appendix B is an example of the use to which existing data may be put to use by the MMU.

In addition to actual data collection the MMU will prepare an analytical quarterly report explaining the evolution of the market and perhaps anticipate forthcoming developments. To the extent feasible the unit will design appropriate programs to automate some of the data updating, using the computer facilities now available to the project at Agrhyment. MMU will consist of an agricultural economist and an animal scientist. Together they will make periodic tours of the livestock markets relevant to the project zone. The agricultural economist expected to return from the U.S. could be considered for assignment in that capacity as part of the MMU.