

**LIVESTOCK AND MEAT TRANSPORT IN
THE NIGER-NIGERIA CORRIDOR**

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MARCH 1991

AGRICULTURAL MARKETING IMPROVEMENT STRATEGIES PROJECT

Sponsored by the

U.S. Agency for International Development

Assisting AID Missions and Developing Country Governments
to Improve Agricultural Marketing Systems

Prime Contractor: Abt Associates Inc.

Subcontractors: Postharvest Institute for Perishables, University of Idaho,
Deloitte Haskins & Sells,

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Agricultural Marketing Improvement Strategies Project (AMIS)

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TABLE OF CONTENTS

LIST OF EXHIBITS	v
LIST OF MAPS	vii
ACKNOWLEDGEMENTS	viii
EXECUTIVE SUMMARY	ix
1. INTRODUCTION	1
1.1 Terms of Reference and Methodology	1
1.2 Data Sources and Difficulties	2
2. TRENDS IN LIVESTOCK PRODUCTION	4
2.1 Review of Production Data	4
2.1.1 Regional Trends	4
2.1.2 Problems of Interpretation	4
2.2 Long-Term Production Trends	8
2.3 The Crisis of Pastoral Production in Niger	11
2.4 Livestock Production in Nigeria	13
3. THE ORGANIZATION OF LIVESTOCK MARKETING	15
3.1 The Paradigm of Market Networks	15
3.1.1 Collection Markets	15
3.1.2 Redistribution or Regroupement Markets	16
3.1.3 Terminal Markets	17
3.1.4 Multiplicity of Market Functions	17
3.2 Internal Market Organization	18
3.3 The Role of Livestock Traders	20
3.3.1 Occasional Traders	20
3.3.2 Sahelian and Coastal-Based Long-Distance Traders	21
3.3.3 Short-Distance Traders	22
3.3.4 Brokers	22
3.3.5 Intermediaries	23
3.3.6 Intermediaries as Guarantors of Credit	24
3.3.7 Butchers	24
4. GOVERNMENT REGULATION OF TRADE AND TRANSPORTATION	26
4.1 Regulatory Measures	26

4.2	Regulation of the Transport Industry	27
4.3	Regulation and Costs of Vehicle Purchase	27
4.3.1	Vehicle Costs in Nigeria	28
4.3.2	Customs Duties in Niger	28
4.4	Administrative Procedures for Vehicle Purchase and Operation	29
4.4.1	Accorde de titre de transport	29
4.4.2	Autorisation d'achat	30
4.4.3	Certificat de vente/Légalisation	30
4.4.4	Certificat de la mise à la consommation	30
4.4.5	Procès verbal de la réception	30
4.4.6	Immatriculation	30
4.4.7	Vignette	30
4.4.8	Patente	31
4.4.9	Inspection Technique	33
4.4.10	Insurance	33
4.4.11	Contribution au conseil national des utilisateurs des transports	33
4.5	Proportionate Distribution of Official Costs and Charges . .	33
4.6	Government Regulation and Official Costs in Nigeria	36
5.	TRANSPORTATION INFRASTRUCTURE AND DECISION MAKING	37
5.1	Niger's Location in the Region	37
5.2	Decision Making on Livestock Transport	37
5.3	Evolving Patterns of Livestock Transportation	39
6.	TREKKING	43
6.1	Trekking Itineraries	44
6.1.1	Routes in Niger	44
6.1.2	Trekking Itineraries in Nigeria	46
6.2	The Organization and Cost of Trekking	47
6.2.1	Trekking Costs to Collection and Regroupement Markets .	48
6.2.2	Long Distance Trekking Costs	50
6.2.3	The Organization of Trekking	50
6.2.4	Labor Requirements for Trekking	51
7.	TRUCKING	54
7.1	Background	54
7.2	Overview of the Transport Sector	55

7.3	Route Infrastructure	56
	7.3.1 Domestic Route Infrastructure	56
	7.3.2 Export Route Infrastructure	56
7.4	Vehicle Requirements and Availability	57
	7.4.1 Vehicle Requirements for Livestock Transport	57
	7.4.2 Vehicle Availability	58
	7.4.3 Derived Cargo Capacity for Livestock	60
	7.4.4 Traffic Penetration into Production Zones and Markets	61
7.5	Road Transport Costs	65
	7.5.1 Government Controls and Domestic Tariffs	65
	7.5.2 Domestic Market Price of Livestock Transport	65
	7.5.3 Border Prices and Domestic Transport Costs in Nigeria	71
8.	COMPARATIVE ANALYSIS OF LIVESTOCK TRADING COSTS AND RETURNS	75
8.1	Characteristics of the Sample	75
	8.1.1 Livestock Trading Budget No. 1	75
	8.1.2 Livestock Trading Budget No. 2	75
	8.1.3 Livestock Trading Budget No. 3	78
	8.1.4 Livestock Trading Budget No. 4	78
	8.1.5 Livestock Trading Budget No. 5	78
8.2	Comparative Costs and Returns	78
	8.2.1 Purchase Costs	85
	8.2.2 Transportation and Handling Costs	85
	8.2.3 Taxes and Official Costs	86
	8.2.4 Bribery and Extortion	86
	8.2.5 Purchase and Sale Commissions	87
	8.2.6 Returns to Livestock Trading	87
9.	EXPORT PROSPECTS FOR CHILLED AND FROZEN MEAT	
9.1	Trends in Nigerian Consumption	88
9.2	Evolution of Nigerian Policy on Trade in Livestock and Meat Products	88
9.3	Supply, Demand and Price Issues	90
	9.3.1 The Difficulty of Projecting Market Requirements	90
	9.3.2 The Price Disincentive to Increased Exports	91
9.4	Infrastructure and Market Organization in Niger	91
	9.4.1 The Niamey Refrigerated Abattoir	91
	9.4.2 Provincial Abattoirs	93
	9.4.3 Infrastructure for Meat Transport to Nigeria	93

9.5	Market Infrastructure for Chilled and Frozen Meat in Nigeria	94
9.6	Prospects and Opportunities for Meat Exports	96
10.	POLICY CONCLUSIONS AND RECOMMENDATIONS	97
10.1	The Need to Better Monitor and Further Examine Trends in Livestock Population and Production	97
10.2	The Need to Study Livestock Production Cost Factors	97
10.3	The Need to Support Niger's Open Border Policy for Pastoralists	98
10.4	The Need to Further Deregulate Trade and Transportation	98
	10.4.1 The Need to Eliminate Discretionary Regulation	98
	10.4.2 The Need to Eliminate "Participatory Contributions" and to Replace the CNUT Contribution with a Transport User Fee	99
10.5	The Need to Eliminate Double Taxation of Imported Transport Vehicles and Equipment	99
10.6	The Need to Simplify and Reduce the Cost of New Vehicle Registration	100
10.7	The Need to Revise the Patente Procedure for Transporters	100
10.8	The Need to Liberalize Regulations Governing the Operation of Nigeria-Registered Vehicles in Niger	100
10.9	The Need to Create Incentives for Investment in Refrigerated and Freezer Vehicles for Meat Exports	101
10.10	The Need to Assess the Impact of Monetary Policy on the Competitiveness of Exports	101
ANNEX I:	Principal Trekking Routes in Niger	104
ANNEX II:	List of Interviewees	111
ANNEX III:	Registered Livestock Traders in Niger	115
ANNEX IV:	Bibliography	118

10

LIST OF EXHIBITS

Exhibit 2.1	Evolution of the Cattle Population for Sahelian and Coastal West African States, 1978-88	7
Exhibit 2.2	Evolution of Niger's Livestock Population, 1968-88	9
Exhibit 2.3	Estimates of Livestock Populations in Nigeria, 1970-88	10
Exhibit 3.1	Distribution of Alaba Market Traders by National and Ethnic Origins	19
Exhibit 4.1	New Vehicle Purchase Cost	28
Exhibit 4.2	Patente Fees for Transport Operators in Niger	32
Exhibit 4.3	Comprehensive Entry Costs for Nigerien Transport Entrepreneurs	34
Exhibit 4.4	Proportionate Analysis of Entry and Annual Costs for Transport Entrepreneurs	35
Exhibit 5.1	Niger's Paved Road Network	38
Exhibit 5.2	Niger's Road Network by Road Surface and Class	39
Exhibit 5.3	Modes of Transport for Cattle Traded in Nigeria, 1970-84	41
Exhibit 6.1	Comparative Costs of Trekking for a Sample of the Domestic and Border Itineraries in Niger	49
Exhibit 7.1	New Vehicle Registration Statistics, 1970-1984	59
Exhibit 7.2	Comparison of Traffic Levels on Principal Nigerien Roads, 1977 and 1985	62
Exhibit 7.3	Mean Annual Growth Rates of Traffic on Nigerien Roads, 1977-85	63
Exhibit 7.4	Comparison of Traffic Levels to Nigerien Livestock Markets, 1985	64
Exhibit 7.5	Domestic Cargo Tariffs for Road Transport in Niger	66
Exhibit 7.6	Official Route Tariff Calculations for Domestic Cargo	67
Exhibit 7.7	Comparison of Free Market and Official Tariffs for Livestock Transport in Niger: 10-Ton Trucks	68

v

Exhibit 7.8	Comparison of Free Market and Official Tariffs for Livestock Transport in Niger: 30-Ton Trucks	69
Exhibit 7.9	Comparative Costs of Livestock Shipment in 10-Ton and 30-Ton Trucks	71
Exhibit 7.10	Official Nigerian Tariffs for the Niger-Nigeria Corridor	72
Exhibit 7.11	Border Road Transport Costs for Livestock in Niger . . .	72
Exhibit 7.12	Domestic Road Transport Costs for Livestock in Nigeria	73
Exhibit 8.1	Costs of Marketing 28 Cattle from Ayorou to Niamey (Niger) With Conveyance by Trekking, June 1990	76
Exhibit 8.2	Costs of Trekking 36 Small Ruminants from Abalak to Ibohamane (Niger), July 1990	77
Exhibit 8.3	Cost of Marketing 20 Cattle, Trekked from Guiden Ider (Niger) to Illela (Nigeria) (June 1990)	79
Exhibit 8.4	Costs of Trucking 27 Cattle from Maiadoua, Nigeria to Lagos (November 1990)	80
Exhibit 8.5	Costs of Trucking 28 Cattle from Zinder (Niger) to Lagos (Nigeria)	82
Exhibit 8.6	Comparison of Marketing Cost Factors for Three Sample Trekked Herds (Late 1990)	83
Exhibit 8.7	Comparison of Marketing Cost Factors for Two Sample Trucked Herds (Late 1990)	84

LIST OF MAPS

MAP 2.1	NIGER	5
MAP 2.2	NIGERIA	6
MAP 6.1	PRINCIPAL TREKKING CORRIDORS IN NIGER	45

ACKNOWLEDGEMENTS

Although only one author's name appears on this report, many individuals contributed to it.

Amani Hamidou, of the Niger Ministère de l'agriculture et de l'élevage, served as a colleague, guide, informant, interpreter and host during the first round of field research for this study. I regret that his professional duties did not allow him to participate in subsequent fieldwork. Equally valuable assistance was provided by Mme. Baillet, the commercial and economic attaché at the Embassy of the Republic of Niger in Lagos.

This research was commissioned and enthusiastically supported by many individuals at USAID/Niamey: Michael Kerst and George Callen of the General Development Office were instrumental and helpful in a hundred different ways. George Taylor and Barry Rands provided much intellectual stimulation and offered many tempting avenues for additional research. Jacques Dalmeida and many members of the USAID support staff provided assistance on a daily basis.

Thanks are due also to many people at Abt Associates: John Holtzman supervised this study and, along with Charlie Stathacos, provided much useful guidance, and Paula Hirschhoff and Dave Aitcheson edited the document. Thanks also to Jerry Martin, Kathleen Poer, and Tim Mooney for their patience and assistance.

Clearly, a report of this nature relies greatly on the willingness of public and private individuals to share their knowledge and opinions, often on matters of a very private nature. I am grateful to all my informants in the field, all of whom are listed in an annex of this report.

Information and opinions appearing in this document are those of the author alone, except where other sources are explicitly cited. The views expressed by the author are not necessarily those of the Agency for International Development nor of Abt Associates.

EXECUTIVE SUMMARY

1. Purpose of the Study

This study analyzes comparative costs of transporting livestock from Niger to Nigeria by trekking and by road, and examines prospects and constraints for increased exports of chilled and frozen meat.

Research was carried out under the Agricultural Marketing Improvement Strategies Project, managed by the Bureau for Science and Technology of AID/Washington, in support of the USAID/Niger Economic Policy Reform Project.

2. Trends in Livestock Production

Long-term data for Niger as well as other Sahelian nations suggest two distinct trends pertinent to prospects for increased Sahelian livestock exports: outmigration of pastoral populations, and strategic shifts in pastoral species orientation. This shifting of the traditional geographical "center of gravity" of Sahelian pastoralism can be attributed to the effects of successive droughts, social and demographic pressures on pastoral lands, and policies in coastal nations to encourage immigration by Sahelian pastoralists. Diminished resources in key Sahelian production zones have also encouraged a reorientation among herders toward small ruminants.

3. The Organization of Livestock Marketing

The traditional marketing system for livestock in Niger is characterized by a high level of segmentation, informality, and personalization. Nearly all domestic and international livestock transactions are carried out by private entrepreneurs operating through the traditional marketing system.

Just as certain ethnic groups (e.g. the Fulbe and the Tuareg) dominate livestock production in Niger, livestock commerce is dominated by non-producer ethnic groups (e.g. the Hausa, Zarma, and Kanuri). These same groups are dominant in distant coastal markets. This underlies the importance of ethnic specialization to the regional livestock marketing system.

Livestock markets are generally open, with no formal barriers to entry for either sellers or buyers of animals. Markets function through established networks of livestock producers, traders, intermediaries and butchers. While these networks are inter-ethnic in nature, their internal structure is based upon longstanding relationships, often multi-generational in nature, in which regional factions can be identified.

4. Government Regulation of Trade and Transportation

Official regulation of trade and transport activities provide an incentive to clandestine economic activity. Although economic reforms have attempted to diminish the cost and complexity of adherence to the law, remaining procedures do little to enhance the competitive position of Niger's citizens in their transactions with neighboring countries.

Administrative procedures prescribed for entrepreneurs in the formal sector are of five general types: authorizations, proofs of personal legitimacy, taxes and licensing fees, participatory contributions, and technical controls.

The most questionable of these are authorizations, the first required administrative step in legitimizing a business venture. Authorizations for the purchase of vehicles or establishment of a trading enterprise are granted at the discretionary authority of either centrally-appointed officials (Prefets) or committees (Conseils régionaux de développement). For road transporters, authorizing committees include current or prospective competitors whose decisions are bound to be prejudiced by self-interest.

Proofs of personal legitimacy (including national identity documents, police records, and attestations of solvency from a bank) are similarly discriminatory, requiring personal approvals of those charged with their issuance. Proofs of financial solvency imply the existence of barriers to entry in the form of liquidity or collateral.

Participatory contributions--membership in the Chamber of Commerce and contributions to the Conseil national des utilisateurs des transports (CNUT)--are mandatory for all businesses, including livestock transport. The CNUT is an official representative of the Government of Niger in international conferences governing maritime transport, coastal entrepôts, and bilateral discussions of transport tariffs. It performs a valuable function in the dissemination of information, but, mandatory subscriptions serve solely as a subsidy for its official activities.

Taxes and licensing fees exist at nearly every stage of the administrative process. These are indexed to demonstrable or projected turnover of the individual enterprise.

Like other sectors of the economy, Niger's transport industry is heavily regulated and burdened with high costs. For transport entrepreneurs serving the livestock sector, barriers to entry appear especially high for several reasons: regulatory processes governing entry into the transport sector by new entrepreneurs or those wishing to expand their operations are discretionary and, in part, governed by competitors.

Secondly, capital requirements for new transport enterprises are high, due to costs of imported equipment and one-time customs and administrative charges. These costs are compounded by the practice of double-taxation of imported vehicles, which are susceptible to the levy of customs duties in the countries where they are purchased and also upon entry into Niger. The latter levy is based not only on the basic retail value of equipment, but also on those customs duties which are levied at the point of purchase.

Entrepreneurs wishing to purchase goods vehicles are obliged to do so outside of Niger, due to an absence of locally-manufactured vehicles or distributors for the sale of imported vehicles. The relative strength of the CFA franc vis a vis Nigeria's currency provides an incentive to purchase vehicles there.

Procedures for vehicle purchase and operation are both costly and burdensome, providing economic disincentives for investment in the transportation sector. Initial administrative formalities required for the establishment of a transport enterprise using goods vehicles include no less than eleven separate procedures, each with its own incumbent official and unofficial costs. Like all other businesses operating in the formal sector, cargo transporters must annually pay a patente fee. Unlike other businesses, which pay fees based upon estimated or established annual turnover, transport operators pay fees based on the cargo capacity of their vehicle. Patente fees are discounted per vehicle as the number of vehicles increases for transporters owning more than one vehicle.

By comparison, procedures for vehicle purchase, registration, and operation are less costly and more simplified in Nigeria.

5. Transportation Infrastructure, Strategies, and Costs

A landlocked nation, Niger is located some 600 kilometers from the sea at its closest point. The country is critically dependent upon road transportation networks in adjacent states to obtain access to the large urban markets of the coastal nations. Vast distances between domestic population centers are characteristic of Niger, making road transport a critical element of national economic life.

Transportation constitutes the second-highest cost component of the livestock marketing process, after purchase of livestock for export. Unlike other Sahelian exports which may be "captive" to particular transportation modes and axes, livestock are a mobile commodity which can be brought to market at a profit under their own power or through commercial forms of transportation.

The selection of any particular mode of transportation by livestock traders is the result of careful deliberation. Direct cost considerations (e.g. vehicle tariffs or manpower costs for trekking) are weighed against a variety of other criteria. In Niger the decision to circumvent formal procedures for exporting livestock practically mandates the use of trekking. However, decisions regarding modes of transportation within Niger or Nigeria also take into consideration the immediate availability of vehicles or manpower and characteristic delays, mortality, and concomitant costs for particular modes of transport. These factors are balanced against available information regarding current and anticipated price cycles in coastal markets and the urgency of the trader to recoup investment costs and profits.

The principal determinants of transportation costs are: (a) adherence to or avoidance of formalities at border transit posts; (b) the mode, or combination of modes, of transport utilized; (c) distance to terminal markets; and, (d) seasonality of demand for livestock and vehicles for livestock transport.

During the past two decades trekking has been eclipsed by road transport as the preferred means of conveying livestock to market. The principal catalyst for change in modes of transport was the emergence of Nigeria's petroleum sector, which served to lower motor fuel costs and produced investment capital for the improvement of transport infrastructure.

6. Trekking

Trekking, or the conveyance of livestock on foot, is the predominant means of bringing animals to market during the initial stages of the marketing process. trekking predominates in Niger as well as in the movement of livestock across the border to markets in northern Nigeria.

Under ideal circumstances, a trekking route is the shortest direct itinerary between two markets. The majority of trekking routes, however, are neither formally demarcated nor direct. The principal factors in route determination are the availability of water and pasture necessary for sustaining livestock on their voyage to market. Additional factors which enter into route determination range from other environmental constraints (the presence of epizootic diseases) to social and political ones, including outbreaks of livestock theft or unofficial harassment by government officials. Livestock owners and drovers alike are generally well-informed about conditions along prospective routes prior to their departure.

Trekking itineraries are often constructed so as to allow traders to visit at particular weekly markets and to accommodate a slower pace for herd movement and greater allotments of time for grazing and weight-maintenance.

Livestock trekking routes in Niger generally run in a north to south direction, leading from the sparsely-populated pastoral zone to Niamey and the more densely-populated region that abuts the Benin and Nigeria borders.

Trekking costs are chiefly comprised of two elements: labor and subsistence costs for drovers. Incidental costs which are unique to trekking include indemnities paid for damage done by livestock, grazing fees paid to local authorities, watering fees paid to the owners of wells, and payments extorted by forestry, veterinary and police agents.

Field data indicate that because the costs of trekking can vary widely, the cost-effectiveness of either trucking or trekking is a function of the particular itinerary chosen, and demand in provincial and terminal markets.

In Niger drovers charge a fixed "per head" fee for animals they convey, effectively eliminating any economies of scale for trekking. Drovers elsewhere in the Sahel typically charge livestock traders a fixed fee for particular itineraries, regardless of the number of animals to be trekked.

Because local conveyance (distances of less than 30 kilometers) tends to imply market-to-market movement, drovers tend to charge higher fees for short journeys. Costs per head per kilometer are highest for short journeys to major regroupement markets, ranging between 750 and 1333 CFA/100 kilometers for small ruminants, and 1000 to 2000 CFA/100 kilometers for cattle.

Longer journeys are generally conducted along major traffic arteries or else across sparsely populated areas of the pastoral zone. Per head fees charged by drovers for these journeys are comparatively lower but, because of their longer duration, are compounded by surcharges to cover the cost of daily

subsistence. Unlike drovers in other areas of the Sahel, those in Niger calculate subsistence costs on a per head rather than a per diem basis. Nonetheless, even when costs are compounded (drover's fee + subsistence), journeys greater than 50 kilometers appear to incur lower per head charges than shorter journeys. This suggests that in Niger economies of scale are obtained as a function of distance traveled, rather than numbers of animals conveyed.

7. Trucking

Niger's landlocked status has resulted in the emergence of a diversified road transport industry, which has grown apace with extension of the national route infrastructure. However, this development has been uneven, and there remain a number of critical gaps which constrain development of livestock exports.

Existing vehicle cargo capacity represents only between 75 and 92 percent of the requirement for all cattle exported and between 31 and 40 percent for small ruminants. The transport capacity shortfall for aggregate exports of both species appears to be far greater.

Between 1977 and 1985 pastoral zone locations and towns along livestock market routes were served by a relatively higher proportion of cargo vehicles to passenger vehicles than were principal export routes. Progressive isolation of livestock production and marketing zones does, however, appear to be emerging. Only 40 to 45 percent of all vehicle traffic takes place between locations within Niger, while 55 percent of all vehicle traffic is between Niger and neighboring countries.

As elsewhere in the Sahel, road transport in Niger is characterized by high costs and inefficiency. This is due principally to (a) high import duties on vehicles, spare parts, and fuel; (b) high administrative costs and fees for the registration and operation of vehicles; (c) tariff rates which are set too low, thereby limiting profitability and reinvestment; and (d) high transactions costs in the form of bribes, extortion, and other corrupt behavior by uniformed services responsible for controls.

Officially decreed tariffs for road transport are set below rates adequate for the operation and maintenance of transport enterprises. Rates which are freely-negotiated in the marketplace are, therefore significantly higher than those cited in official rate schedules. Livestock transport rates in the open market are responsive not only to supply and demand factors, but also to the relatively higher value of small ruminants in the marketplace. This is reflected in higher transport costs for small ruminants, as measured in per head and per ton/kilometer charges.

Although government tariff schedules are based on prescribed calculations of unit value and distance, in practice transporters levy charges quoted exclusively on a per head basis for the number of animals transported. Privately-negotiated tariffs for livestock transport can vary from official rates by as much as 67 percent. On a seasonal basis freely negotiated tariffs can fluctuate by as much as 40 to 50 percent. These seasonal fluctuations are principally due to peak demand for small ruminants in domestic and export markets

during the period immediately prior to the Moslem holiday of Eid-el-Kebir, or Tabaski. During periods of competitive demand for transport, the difference in revenue derived from hauling small ruminants can be so great as to create major bottlenecks in the flow of cattle to urban markets.

A second major observation derived from comparative data on livestock transport appears to be that there are no practical economies of scale derived from shipments of livestock in the largest (30 ton) available vehicles.

8. Comparative Marketing Costs of Trucking and Trekking

The principal cost component of livestock marketing is the purchase of animals, ranging between 94 and 96 percent for a sample of herds collected in the field. Purchase costs vary from other marketing expenditures, being a short-term investment cost rather than an operating cost. Livestock ownership, "pooling" of livestock by consortia of traders, and access to livestock on informal producer credit can substitute for financial resources need to purchase trade stock, however. Hence, it is possible that the costs of livestock purchase relative to operating costs are probably not as high as suggested by field data. This suggests that capital may not be as significant a barrier to entry in the livestock trade as is often assumed.

On the basis of the data included in the study it cannot be concluded that either trucking or trekking is implicitly more cost-effective in Niger. Rather, costs other than transportation and handling may be the determining factors in the selection of a particular mode of transport.

The cost of official government levies ranged between 17 and 32 percent for trekked herds, and 12 and 28 percent for trucked herds. Within Niger, the highest consistent official cost item was the "identification" tax, a municipal levy imposed on livestock purchases at market in the amount of 200 CFA Francs for small ruminants and 500 CFA for cattle. Additional variation in official costs within Niger appears related to the type of patente purchased by traders; some traders inappropriately pay patente fees applicable to intermediaries; those for traders are significantly higher. A second factor to be considered is that patente fees in smaller, rural markets are poorly-monitored, resulting in lower assessments on traders and lengthier amortization of patente fees. Informants in the field note that market officials are easily -- and inexpensively-- bribed to inaccurately record transactions subject to patente charges. Suppression of the livestock export tax in Niger has very significantly reduced the proportion of official costs in livestock trading budgets.

Contrary to the author's initial assumption, the costs of bribery, extortion and other tracasseries administratives for the Niger-Nigeria corridor were no higher than for other nations in the region. Most bribery and extortion costs are paid to members of the uniformed services manning border posts and control posts along major roads.

Unlike other nations in the region, intermediaries in Niger and Nigeria impose charges solely on the purchasers of livestock. However, it is common practice for sellers to make cash gifts to intermediaries who assist them in identifying purchasers. While buyer commissions are fixed on a per head basis,

gifts to dillalis are determined by sellers based on whether or not an established, ongoing relationship exists with the intermediary as well as upon the magnitude of assistance provided by the intermediary. Commissions to market intermediaries vary widely as a proportion of total costs, ranging between 9 and 48.7 percent. This may be explained solely by commission amounts established at each market.

No significant correlation appears to exist between marginal returns and the mode of transport utilized. The single greatest determinant of returns appears to be the gross margin between price paid for livestock and the selling price.

9. Prospects for Exports of Chilled and Frozen Meat

Economic constraints are currently the principal impediment to the export of chilled, frozen or transformed meats from Niger. While official costs of doing business in the formal sector are high, the fact remains that there are few market incentives for this trade in Nigeria at present. Barring downward movement in nominal CFA prices and costs, subsidies to the livestock sector, or other policy incentives to stimulate investment in the activity, this situation is unlikely to change over the short- to medium-term.

Low transportation prices in Nigeria narrow the cost margins observed between northern markets and those in the south. Hence, the prevalent practice among traders from Niger, of making most sales in the northern border markets, does not limit export earnings to a great extent.

The most critical factor in determining market potential for meat from Niger in Nigerian markets is that of price. Field data gathered during the course of study firmly indicate that profitable exports of meat from Niger may not be possible at present, due to overvaluation of the CFA Franc relative to the Nigerian currency. Prices for boneless beef in Nigeria are only marginally higher than those in Niger. Prices for all other beef are lower in Nigeria than in Niger. Even if Nigerian prices were marginally higher than those in Niger, other factors weigh against exports.

It is possible that comparably lower prices for meat in Nigeria might not totally preclude increased exports. Long-term supply contracts and pre-negotiated conditions of sale are possible for the upper end of the Nigerian market (i.e. industrial meat processors and specialty butchers). The ability to lock-in long-term supply agreements and revenues, and to amortize investments might be sufficient incentives for traders in Niger who have adequate capital to cover initial costs. It is the long-term rate of return to capital that would be the decisive factor in chilled and frozen meat exports. For this reason, many traditional livestock traders would be either under-capitalized or unwilling to shift their trading strategy.

At the present time, Niger is equipped with only one facility capable of providing refrigerated meats to the export market. The Niamey abattoir, built in 1967, is capable of producing 10,000 tons of chilled meat per annum, in addition to processing some 14,000 tons of unchilled meat for local consumption.

Little or none of the meat processed at this facility is exported. None of Niger's three provincial "industrial abattoirs" is currently equipped to process chilled, frozen, or transformed meats for export. Located in Tahoua, Maradi, and Zinder these facilities have a combined potential output of approximately 3,000 tons per annum, permitting them to satisfy urban demand at their respective locations.

During the course of field research, the author was able to identify no vehicles registered in Niger which are suitable for exports of chilled or frozen meat. Hence, any efforts to promote exports of this type would require the use of Nigerian vehicles or the creation of incentives for investor's in Niger to purchase appropriate vehicles. Because of existing restrictions and disincentives for the use of Nigerian vehicles for backhaul, it is unlikely that Nigerian vehicles can be utilized profitably.

Prospective Nigerian meat buyers are interested only in specific types of meat, transported under rigorous technical guidelines. Chilled meat demand is limited to beef carcasses or quarters, transported in refrigerated trucks. These must be suspended from hooks, with adequate air space between hanging quarters or carcasses. Hence, trucks used for this purpose must be specially outfitted. This, in turn, limits backhaul opportunities to a large extent. No refrigerated vehicles in Niger are currently equipped in this manner.

Greater latitude exists for shipments of frozen meats. Nigerian buyers express interest in purchasing frozen, deboned forequarters; frozen boneless, trimmed beef that is vacuum-wrapped; and frozen, trimmed specialty cuts of premium quality. Because these may be boxed, they can be shipped in virtually any vehicle capable of maintaining the appropriate sub-zero temperature.

High investment, maintenance, and operating costs for chilling and freezing equipment, including transport vehicles, prohibit all but the best-capitalized entrepreneurs from investing in the activity. Weighed against the risks of doing business in an export market and narrow margins currently obtainable in Nigeria, it is to be expected that this activity would have attracted little interest in Niger's business community.

The prospect of obtaining long-term purchase agreements with reputable Nigerian firms should, nonetheless, be explored further. While margins might be narrow for suppliers in this trade, secure agreements which include periodic price reviews would provide a hedge against market shocks for suppliers. Long-term agreements would also allow for amortization of investment costs and could possibly be used to secure negotiated credit with financial institutions.

1. INTRODUCTION

1.1 Terms of Reference and Methodology

The USAID Niger Economic Policy Reform Project (NEPRP) has commissioned various studies of Niger's principal agricultural exports in the context of the government's efforts to rectify policy and regulatory constraints that impede the nation's economic performance.

The hypothesis for this study is that liberalization of the economic environment will create practical incentives and new opportunities to expand production and marketing of key commodities, as well as greater transparency in the conduct of livestock trade.

The purpose of the study is two-fold: to identify the competitive advantages of the principal modes of conveying Nigerien livestock to terminal markets in neighboring Nigeria; and to evaluate the costs of serving potential markets for refrigerated and frozen meat exports.

The study utilized rapid appraisal methods to study the organization of livestock marketing in Niger and Nigeria. As a methodology, rapid appraisal generally examines one or more related commodity subsystems within a geographically-defined domain. In the case of this study, that domain was defined as the network of transactions and infrastructure which links livestock production to terminal markets.

Terms of reference for the study specified a number of key issues to be examined, including the following:

- Regulatory and policy constraints to market integration;
- Cost constraints to market integration; and
- Qualitative and quantitative aspects of supply and demand for livestock and chilled, frozen, and transformed meats.

Field research in Niger and northern Nigeria was carried out in June-July 1990, and in Niger and southern Nigeria in November 1990. In addition to fieldwork undertaken by the principal author Nicolas Kulibaba of Abt Associates Inc., a review of recent Nigerian research was contributed by Dr. Anthony Ikpi of the University of Ibadan.

Abt Associates is the primary contractor to the Agricultural Marketing Improvement Strategies Project (AMIS), core-funded by the A.I.D. Bureau for Science and Technology. A five-year project, AMIS assists USAID Missions and their bilateral partners in the following activities:

- Improving the diagnosis of agricultural marketing system constraints using rapid appraisal techniques;

- Conducting in-depth analysis of specific marketing problems identified by rapid appraisal or other studies;
- Identifying, designing, and monitoring appropriate marketing system innovations and improvements; and
- Building local capacity in the public and the private sectors to do marketing systems analysis.

This study must be viewed as a complement to several other recent research activities relating to livestock production in Niger and elsewhere in the Sahel. Taken together, these studies provide comprehensive insight into the evolution of the livestock sector during a period of rapid economic and environmental change throughout the Sahel. Key bibliographic sources for this study include the following:

- Kulibaba, Nicolas and John S. Holtzman. Livestock Marketing and Trade in the Mali/Burkina Faso/Côte d'Ivoire Corridor. AID/AFR/SWA. May 1990.
- Mooney, Timothy et al. A Rapid Appraisal of the Marketing of Hides and Skins Sub-Sector in Niger. USAID/Niamey. April 1990.
- Cook, Andy. Nigerian Markets for Livestock and Meat: Prospects for Niger. USAID/Niamey. December 1989.
- Cook, Andy. Niger's Livestock Export Policy. USAID/Niamey. February 1990.

1.2 Data Sources and Difficulties

During the past 20 years, Sahelian countries have become more aware of the role of livestock as a net contributor to national economic performance. Impressive efforts to quantify livestock production undertaken during the 1970s (including a livestock census and systematic study of resource use, offtake and culling practices, and social factors contributing to sectoral performance) were not sustained in the late 1980s due to shifting priorities in development policy and donor activity.

The calamitous drought of 1983-84, which led many donors to suspend, abandon, or move away from development interventions in the pastoral sector, resulted in profound and perhaps lasting shifts in the character of livestock production. These changes have yet to be studied for their long-term implications.

Because this study involves two nations, numerous problems were encountered in obtaining uniform complementary data. Time-series data on livestock production, sales, and export and import volume are not uniformly available in either Nigeria or Niger. Where such data do exist, data collection and analysis methods were not always specified. Discrepancies in data of partners (e.g. exporters and importers) or between regional and national-level statistics are

so great that the accuracy of all data is suspect. Hence, any analyses of existing data sets should be treated with caution.

Several types of data sources are used for this study. Official statistics have been derived from central government data, ministry statistics offices, or agencies and sub-divisions of government offices having sectoral or regulatory responsibilities. Where the author could not adjust data discrepancies with confidence, he reported and used multiple data sets in the analysis.

The report relies more on import volume data for Nigeria because importers of livestock are required to obtain clearance documents from veterinary authorities when they enter Nigeria. Imported animals are almost impossible to sell in the large terminal markets of Nigeria without such clearances. By contrast, economic incentives for traders and herders to export livestock from Niger clandestinely are so great that little confidence can be placed in the Niger data. As discussed subsequently in this report, official export statistics monitored by regional authorities in Niger differ significantly from field observations and import data from Nigeria.

Other data are drawn from multi-state organizations, including the Food and Agriculture Organization of the United Nations and the Communauté Economique de Bétail et Viande, which publish annual statistical summaries for member states. These organizations provide few methodological guidelines to member states. Hence, it is difficult to separate carefully monitored data from that which is based on partially reported field checks and hypothetical projections.

Market activity and price performance of livestock are the subject of extensive official interest in both producing and consuming nations. At present the Livestock Marketing Information project regularly monitors 41 rural and urban livestock markets. However, reporting and synthesis of this data are irregular and difficult to obtain.

Additional data used in this report are derived from field interviews with key participants in the Niger-Nigeria marketing system at livestock markets, slaughterhouses, and retail outlets. While these data can rarely, if ever, be regarded as definitive, they serve as a valuable check on the viability of officially reported statistics.

2. TRENDS IN LIVESTOCK PRODUCTION

2.1 Review of Production Data

2.1.1 Regional Trends

Livestock populations in the Sahelian nations are subject to rapid and extreme declines (at times exceeding 50 percent per year), followed by periods of relatively rapid growth. At face value, such short-term trends are misleading and imperfect indicators of longer term trends.

Data for seven West African nations (Burkina Faso, Mali, Niger, Nigeria, Côte-d'Ivoire, Togo, and Benin) in Exhibit 2.1 show that aggregate cattle numbers for the region have increased since 1978 at an average annual rate of 3.7 percent. Most of this growth has occurred in the four coastal nations where annual growth rates are 7.1 percent per year.

In the traditional livestock-producing nations of the Sahel, however, cattle numbers have contracted at 2.6 percent per year since 1978. In Nigeria, which produces and consumes the most livestock, the cattle population grew by 8.1 percent per year, while in Niger it contracted by 9.4 percent per year, the most precipitous decline of all nations considered.

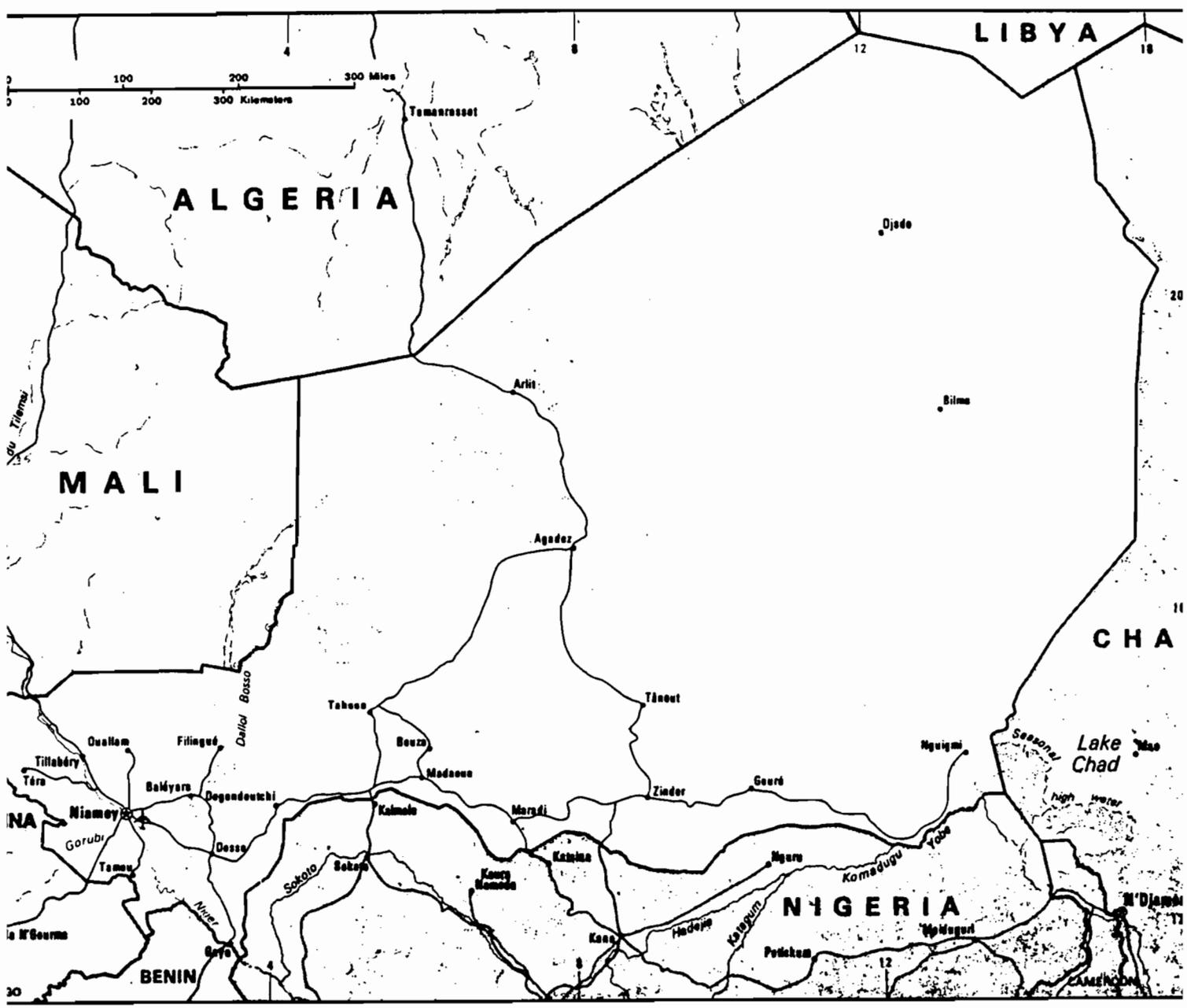
2.1.2 Problems of Interpretation

At best, these data indicate short-term movements during the period. At worst, they are inaccurate estimates of livestock production based on unsystematic field reports.

The reliability of these data is suspect for a variety of reasons. Data collection techniques for enumerating livestock vary not only among countries but also within a country from year to year. In some instances the data represent only a rough estimate by government officials based in capital cities. In others they result from random sampling or systematic livestock censuses carried out in conjunction with vaccination campaigns, head-tax levies, or other administrative procedures. Random sampling techniques are the most methodologically sound and yield the most accurate results. A census conducted as part of a vaccination campaign is also likely to yield reliable data, as herders have every incentive to vaccinate their herds. Censuses carried out as an adjunct to taxation campaigns are the least reliable, as producers attempt to underreport livestock numbers or evade taxation altogether.

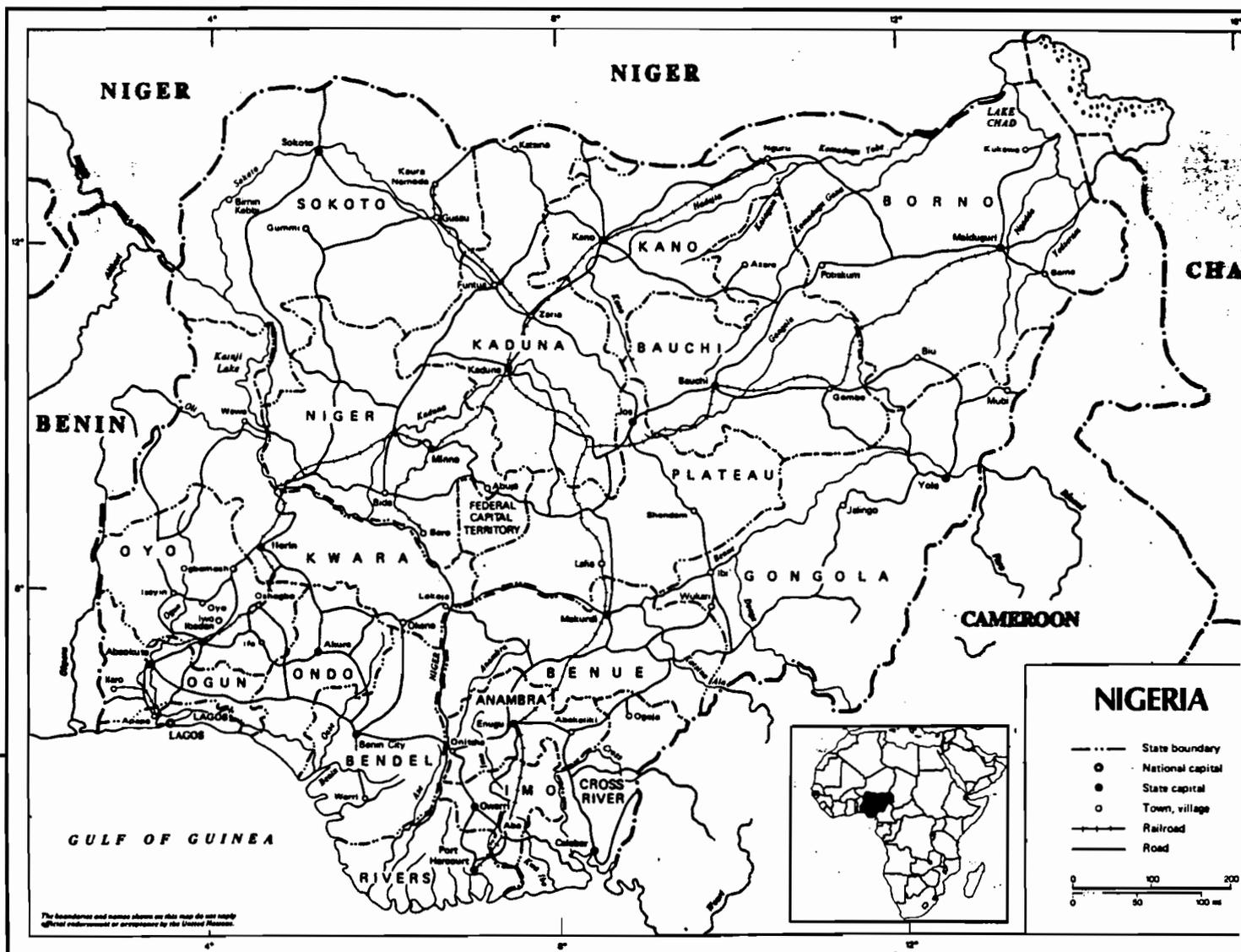
Perhaps an even greater concern, however, arises from fundamental issues regarding the utility of livestock data, however scientifically accurate they might be. Time-series data are subject to a variety of interpretations regarding livestock numbers and their growth over time. The variability is caused by volatile changes in population over the short term, and the practices of migration and transhumance as responses to resource shortfalls, which characterize the entire region. These conditions underline the need to interpret livestock data in the context of longer term and cyclical trends and on a regional basis.

MAP 2.1
NIGER



MAP 2.2

NIGERIA



The time-series data presented in Exhibit 2.1 illustrate livestock population volatility. These data were first collected during a period of regional herd regeneration following the disastrous drought of the early 1970s. A steady increase in cattle numbers is evident in the Sahelian countries between 1978 and 1984. However, a 33 percent decline in Sahelian cattle populations began in 1985 as the result of the most serious drought to strike the region since 1968-73. The decline varied widely by individual country, depending on the severity of the drought in different zones of the Sahel. Cattle herds contracted by 54 percent in Niger but only 14 percent in Mali and 5 percent in Burkina Faso. By 1988 herds had been regenerated in Burkina Faso and Mali, but the decline has continued in Niger. Growth has been especially notable in two of the coastal countries for the latter portion of the time series: Côte d'Ivoire (5.3 percent per year) and Nigeria (8.1 percent per year). Much of this expansion probably can be attributed to cattle migration from the Sahel.

Exhibit 2.1

Evolution of the Cattle Population for Sahelian and Coastal West African States, 1978-1988 (000 head)

YEAR	----Coastal Countries----				Coastal Countries (Subtotal)	--Sahelian Countries--			Sahelian Countries (Subtotal)	All Countries (Total)
	Benin	Côte d'Ivoire	Togo	Nigeria		Niger	Burkina Faso	Mali		
1978	740	590	255	7,780	9,365	2,990	2,653	4,603	10,246	28,976
1979	755	630	230	3,217	4,832	3,257	2,706	4,865	10,828	20,492
1980	829	666	273	5,810	7,578	3,354	2,760	5,850	11,964	27,120
1981	846	696	237	6,557	8,336	3,419	2,815	6,396	12,630	29,302
1982	871	765	244	7,494	9,374	3,487	2,871	6,663	13,021	31,769
1983	897	803	225	6,679	8,604	3,557	2,928	5,682	12,167	29,375
1984	924	808	229	5,233	7,194	3,559	3,100	4,899	11,558	25,946
1985	962	920	228	5,110	7,220	1,649	2,948	4,344	8,941	23,381
1986	895	936	232	12,169	14,232	1,429	2,891	4,475	8,795	37,259
1987	895	945	245	12,200	14,285	1,495	2,700	5,457	9,652	38,222
1988	896	992	255	12,200	14,343	1,564	2,750	4,724	9,038	37,724
Annual Average	865	796	241	7,677	9,578	2,705	2,829	5,269	10,804	29961
Std. Dev.	65	133	14	3,005	3,117	899	127	756	1,486	4374
Annual Average Growth Rate	2.0%	5.3%	-0.3%	8.1%	7.1%	-9.4%	0.4%	-1.2%	-2.6%	3.7%

Source: Member State Reports to the Communauté économique de bétail et de viande, Ouagadougou; and Federal Office of Statistics, Lagos (Nigeria); and FAO Production Yearbooks.

Short-term calculations for either the first or second half of the time-series would distort the picture of the regional balance in livestock populations, indicating only epicycles of dramatic change in specific countries or subregions.

2.2 Long-Term Production Trends

Longer term data for the Sahelian nations of Niger, Mali, and Burkina Faso are not complete, but one can infer two distinct trends pertinent to prospects for increased Sahelian livestock exports: outmigration of pastoral populations, and strategic shifts in pastoral herd composition. The species mix of pastoral herds has shifted away from cattle toward small ruminants. Significant migratory activity within and between states has become increasingly evident during the past two decades, shifting the traditional geographical "center of gravity" of Sahelian pastoralism. This shift can be attributed to the effects of successive droughts in the region, as well as to social and demographic pressures on the use and availability of traditionally pastoral lands.

Conditions in several coastal nations have also encouraged immigration by Sahelian pastoralists, as the result of either deliberate policy (e.g. Côte d'Ivoire) or the opening of new pastoral zones (e.g. Nigeria) through brush-clearing in zones where trypanosomiasis was formerly endemic.¹ The Logone-Chari basin of Cameroon and Chad is also reportedly hosting immigrant pastoralists from Niger.

The majority of pastoral displacements out of the Sahelian zone of Niger appear to have been undertaken by "Bororo" Fulbe.² Compared with the Tuareg, whose historical roots in central and eastern Niger are extensive, nomadic Fulbe are relatively recent arrivals. Among the principal factors which have encouraged this group to migrate is their comparatively limited ownership of wells and other pastoral resources in major grazing areas.³

Successive years of drought in Niger's pastoral zone, as elsewhere in the Sahel, have had their greatest impact on large ruminant species such as cattle and, to a lesser extent, camels. Diminished resources in key production zones appear not only to have spurred outmigration by groups depending extensively on

¹ The Ivoirien policy of encouraging pastoral settlement is discussed at length in Kulibaba and Holtzman (1990). See Williams (1989) for a discussion of factors underlying the increased Zebu cattle population in central Nigeria.

² "Bororo" or "Anagamba" are non-Fulbe rubrics which generally refer to the WoDaaBe Alijam and WoDaaBe Degerji lineages of pastoral Fulbe.

³ Data from the USAID Niger Range and Livestock Project and Integrated Livestock Project documents (Aronson, 1982; Swift, 1986) and elsewhere (Maliki, 1988) indicate that the Bororo own as many as 45 percent of all wells in the Aderbissinat region in central and eastern Niger but as few as 10 percent of wells east of Tanout.

these species, but also to have encouraged a reorientation of herds toward small ruminants.

The 20-year data in Exhibit 2.2 indicate clearly the long-term decline of Niger's cattle population and the corresponding strong growth in the sheep population. It should be noted that the period encompassed by this data includes two successive droughts, each followed by a period of short-term herd reconstitution. Because the rapid reproduction rates of small ruminants favor flock regeneration over short periods, sheep and goat populations could be expected to remain more or less stable over time.

Exhibit 2.2

Evolution of Niger's Livestock Population, 1968-88
(000 head)

Year	Cattle		Sheep		Goats		Camels		Total
	# Head	TLU	# Head	TLU	# Head	TLU	# Head	TLU	TLU
1968	4,100	3,280	2,500	250	5,870	578	380	380	4,488
1978	2,900	2,320	7,000	700	6,200	620	265	265	3,905
1988	1,564	1,251	2,735	274	6,969	697	419	419	2,641
Change									
1968-78	-1,200	-960	4,500	450	330	-516	-115	-115	-1,141
1978-88	-1,336	-1,069	-4,265	-427	769	77	154	154	-706
1978-88	-2,536	-2,029	235	24	1,099	119	39	39	-1847
Year	Small Ruminant TLU's as % of Total				Large Ruminant TLU's as % of Total				
1968	18%				82%				
1977	23%				77%				
1988	37%				63%				

Data Source: Ministère d'Agriculture et Elevage

When livestock population data are converted into tropical livestock units (the principal inter-species unit of measure of livestock numbers), the shift toward production of small ruminants becomes even more pronounced.⁴ While small ruminants constituted only 18 percent of the charge on the range in 1968, they were 37 percent by 1988, a two-fold increase in their proportion of the total. (See Exhibit 2.3.)

⁴ Tropical livestock unit (TLU) equivalents for particular species are: camels = 1.0; cattle = 0.8; small ruminants = 0.1.

Exhibit 2.3

Estimates of Livestock Populations in Nigeria, 1970-1988
(000 head)

Year	Cattle	Annual Change	Sheep	Annual Change	Goats	Annual Change
----	-----	-----	-----	-----	-----	-----
1971	11,600	---	8,100	---	23,500	---
1972	9,067	-21.8%	11,720	44.7%	29,641	26.1%
1973	8,411	-7.2%	18,184	55.2%	35,942	21.3%
1974	11,043	31.3%	16,296	-10.4%	45,360	26.2%
1975	5,897	-46.6%	11,048	-32.2%	39,011	-14.0%
1976	4,038	-31.5%	9,923	-10.2%	20,752	-46.8%
1977	3,449	-14.6%	6,391	-35.6%	21,919	5.6%
1978	2,473	-28.3%	7,780	21.7%	22,538	2.8%
1979	3,217	30.1%	8,825	13.4%	23,620	4.8%
1980	5,810	80.6%	12,822	45.3%	27,697	17.3%
1981	6,557	12.9%	11,402	-11.1%	27,944	0.9%
1982	7,494	14.3%	13,687	20.0%	28,851	3.2%
1983	6,679	-10.9%	15,664	14.4%	36,745	27.4%
1984	5,233	-21.6%	13,915	-11.2%	27,706	-24.6%
1985	5,110	-2.4%	12,193	-12.4%	26,148	-5.6%
1986	12,169	138.1%	13,000	6.6%	26,000	-0.6%
1987	12,200	0.3%	13,200	1.5%	26,000	0.0%
1988	12,200	0.0%	13,200	0.0%	26,000	0.0%
Mean	7,369		12,075		28,632	
Standard Deviation	3,233		2,994		6,380	
Average Annual Growth	1.2%		1.4%		-0.8%	

Sources: Annual Abstracts of Statistics, 1981-1987;
Federal Office of Statistics, Lagos;
FAO Production Yearbooks, 1970, 1971, 1989.

An economic factor underlying this shift is that small ruminants have a higher value per unit of weight as a marketed commodity. Analysis of comparative price data collected for different regions and species but not yet synthesized by the Market Information Service of the Ministère d'élevage would contribute much to an understanding of this phenomenon.

2.3 The Crisis of Pastoral Production in Niger

In the past traditional systems of livestock production in the Sahel have effectively balanced production against available forage as measured in quantitative and qualitative terms. This system recognized that available nutritive resources for livestock exclusively define the limits of production. In recent years, however, various exogenous factors have disrupted this system of production.

In 1985, following a presidentially-mandated "national debate on livestock production" and a multidisciplinary mission fielded by CILSS, Niger's policy-makers gained a grim perspective of trends suggesting progressive deterioration of the pastoral economy. Among the factors identified were the following:⁵

- Droughts in 1968-73 and 1983-84 exacerbated environmental, social, and economic constraints on traditional pastoralism. Among the symptoms of crisis were high animal mortality, massive sales of livestock to urban investors and other absentee owners, attrition among pastoralists, and immigration to urban centers and neighboring countries.
- Drought has been only a precipitator, however, not the main cause of these events. More important have been social and demographic pressures on limited pastoral resources. Agriculture's encroachment into pastoral zones has also put pressure on limited grazing areas.
- Increased sedentary pastoralism and absentee ownership of livestock by non-pastoralists will aggravate the trend toward declining productivity.

With respect to this last point, the objectives of sedentary agro-pastoralists (production of livestock for market, manure, and farm labor) differ from those of pastoralists (the production of milk and, secondarily, meat). Sedentary and urban-based owners, it is argued, tend to accumulate livestock as a form of conspicuous wealth and liquid capital. Sedentary pastoralism precludes herd mobility as a strategy for dealing with shortfalls in grazing resources

⁵ Findings are summarized from two contemporaneous documents: République du Niger, Conseil national de développement, "Débat national sur l'élevage; rapport de synthèse", Tahoua, avril 1985; and H. Breman (ed) et al., "Analyse des conditions de l'élevage et propositions de politiques et de programmes," Comité permanent inter-états de lutte contre la sécheresse dans le sahel, Wageningen, Pays Bas, 1986.

during drought periods. As a result, sedentary stock-raisers exploit pastoral resources beyond optimal limits, leading to deterioration of rangelands. An additional factor which both the Presidential commission and the CILSS team neglected to consider, however, is the increased integration of pastoral production into the mainstream economy. As this study points out in subsequent chapters, Niger's pastoral zone has been increasingly integrated into the mainstream economy, largely through the construction of roads. Flows of commodities, including food aid, cereals, and consumer goods, have increased dramatically over only three decades, giving rise to a dynamic monetized economy.

A study of WoDaaBe pastoralists carried out in central Niger by Sutter (1979) documents the magnitude of this change. Sutter compared data gathered in 1947, 1962-64, and 1977 and identified three principal trends:

- A four-fold increase in overall per capita cash expenditures between 1964 and 1978;
- Sharp increases in food expenditures relative to other purchases (from 20 percent in 1947 to 66 percent in 1978); and
- A major decrease in taxes relative to all other expenditures following the drought of the early 1970s.

Sutter concludes, based on informal evidence, that cereals consumption increased between 1964 and 1978. He hypothesizes that this occurred at the expense of milk consumption, the traditional staple of the pastoral diet. The role of milk sales as a source of family revenue was estimated as smaller than generally assumed (only 3 percent of income), while that of livestock sales was greater (97 percent).

The inference from Sutter's work is that increased cash expenditures require increased revenue, generally drawn from livestock sales. The terms of trade for livestock producers have been affected negatively on balance by drought and increased non-African meat imports to coastal markets. As red meat prices decline relative to the prices of purchased cereals and other staples, herders alter their herd management and production strategies to meet revenue needs. The ability of herders to increase productivity and cash revenues is constrained by limited pastoral resources. The apparent shift in species composition from cattle toward small ruminants in the pastoral zone could be evidence of just such a strategy to increase revenues. Goats in particular are more drought-tolerant than cattle. Finally, small ruminant sales bring higher gross returns per kilogram live weight than cattle sales do. Small ruminants are more fecund than cattle and camels, and sheep and goat flocks regenerate more rapidly after drought than cattle herds.

The phenomenon of increased sedentary pastoralism and absentee ownership of livestock, cited by the Presidential commission as cause for alarm, merits study in light of evidence regarding shifts in species concentration. Official data and informal observations offer convincing evidence that a southward shift of cattle production zones is under way in West Africa. This trend not only

concentrates cattle production in the most ecologically hospitable environments, but it also brings production zones closer to terminal markets.

2.4 Livestock Production in Nigeria

Nigeria is the largest producer and the largest consumer of livestock in the region. The national cattle herd ranges between 9 and 12 million head, and the small ruminants range between 30 and 40 million.

The majority of Nigerian cattle and small ruminants are produced in the semi-arid northern states.⁶ This geographic focus is due to several factors: the absence of trypanosomiasis, low population densities relative to the rest of the country, and occupation of marginally-productive areas unsuitable for farming by livestock producers. Livestock production systems in Nigeria are, by and large, traditional in nature, including small-scale sedentary stock raising, transhumant production by sedentary populations, and pastoralism (nomadic production).

Although statistical data are either unreliable or lacking, it has long been assumed that Nigeria's northern production zone produces a net surplus of livestock. While the majority of livestock exported from this region is sent to the large urban markets of southern Nigeria, the presence of several large cities in the north has generated an apparently considerable volume of lateral (east-west) trade within the region itself. The principal trade within the region occurs in Kano State. With a population of 11 million, Kano is the principal consumption zone in the north. Government officials estimate that approximately one-half to two-thirds of Kano city's meat supply comes from Borno State to the east. Borno is both a major producer of livestock and the principal corridor for imports from Cameroon and Chad.

During the past decade cattle production has shifted markedly into the sub-humid woodland savannah zone of central Nigeria.⁸ That region is now estimated to have a cattle population of approximately 3 million head. Williams (1989) and Cook (1990) attribute this shift both to forest-clearing and consequent reduction in the tsetse fly population, and to forage supply difficulties in the north. The relative abundance of pastoral resources in this region suggests that livestock population growth in the sub-humid central zone should continue throughout the 1990s, even after an anticipated drop-off in migration to the zone. The Government of Nigeria encourages movement of cattle into this region

⁶ Semi-arid zones in Nigeria typically receive between 400 and 800 mm of rainfall per annum.

⁷ The pastoral region includes the Nigerian states of Bornu, Kano, Bauchi, Kaduna, Katsina, Sokoto and the northern portions of Niger, Gongola and Plateau states.

⁸ The pastoral zone, with annual rainfall of 900-1500 mm, includes the southern portions of Niger, Plateau, and Gongola states, the Federal Capital Territory (Abuja), and the northern portions of Kwara and Benue states.

in hopes of reducing pressure on the marginal pastoral resources of the semi-arid north.

Data from Niger and elsewhere in the region suggest that an additional factor may have played a determining role in this trend. As discussed earlier, cattle production has shifted southward throughout the Sahel as a consequence of drought and changing herd composition. Hence, while the opening of Nigeria's sub-humid zone may have created a new ecological niche for cattle-raisers, it is likely that the pressure of cattle populations descending from Niger into northern Nigeria in the mid-1980s accelerated this process.

Although Niger enjoys a comparative advantage in livestock production, the fact remains that its principal export markets are close to areas where Nigeria's livestock production is increasingly concentrated. Relative to southern Nigeria, supply is abundant in the north, resulting in a dampening of prices. Overall export earnings are thus limited by the prevalence of Nigerian exports to the border zone, rather than through to the coast.

3. THE ORGANIZATION OF LIVESTOCK MARKETING

3.1 The Paradigm of Market Networks

The topology of Sahelian livestock markets proposed by Herman (1983) is valid for all countries in the Sahel. In his discussion of market organization in Burkina Faso (then Upper Volta), Herman categorized markets on the basis of their location in the marketing chain, predominant transaction types, and the roles of economic actors. The characteristics of the three different types of markets are described below.

3.1.1 Collection Markets

Collection markets are the point at which livestock first enter the marketing chain. Principal sellers at collection markets are herders, who typically present one or two cattle for sale at a time, as they cull weakened or unproductive animals from their herds to meet their own cash needs. Principal buyers include traders amassing livestock herds for resale elsewhere, local butchers, and other herders seeking to replenish or add animals to their own herds.

Collection markets are located mostly in key livestock production zones throughout the Sahel as well as in the savannah and forest-savannah regions of coastal West Africa.

At a typical collection market in Niger, the number of animals offered for sale varies seasonally. During the most active periods of marketing activity, typically during the first half of the dry season, the supply of livestock offered reaches its peak. Livestock numbers and sales decline during the dry season and drop off sharply once the rains begin. However, many collection markets operate only during periods when transhumant or nomadic herds are in the vicinity. This results in dynamic seasonal and annual variation in the volume of sales and related activity. During drought period, when extensive culling serves as a last-ditch strategy to assure the survival of maintenance herds, collection markets are sometimes spontaneously organized in rural areas following the arrival of groups of traders and intermediaries.

Intermediaries, who play an important role in facilitating transactions at higher stages of the marketing system, are generally not salient actors in smaller collection markets. However, in transactions which involve sellers and buyers who do not know each other or which entail purchases on credit terms, intermediaries may be asked to witness or guarantee the legitimacy of transactions.

Interviews and observations suggest that the role of sales to herders at collection markets may be less significant than earlier studies suggested. Most livestock purchased for herd replenishment are obtained through informally negotiated purchases away from the marketplace. The majority of stock presented for sale at collection markets are females past breeding age, castrated males raised for slaughter, and young males culled because of herd surplus or low value relative to other breeding animals. Herder cattle purchases at these markets are

generally confined to mature bulls with exceptional breed characteristics or breeding-age cows, usually presented for sale in tandem with unweaned calves. Since these types of cattle are not offered for sale frequently or in large numbers, their prices get bid up sharply relative to culled cows and males. Purchases of sheep and goats by farmers, herders, and town-dwellers are more common, due to the larger number of fecund animals presented for sale.

Although collection markets are, first and foremost, localized points of entry into the marketing chain, many of those in the Sahel are also international in nature. Cross-border transactions at collection markets are motivated by a variety of factors. The majority of border sales, like most local market sales, are made by herders who are grazing stock nearby as they follow seasonal grazing patterns. However, because customs authorities do not closely monitor many small border markets, collection markets along Niger's borders with Mali, Burkina Faso, Benin, Nigeria, and Chad attract and generate extensive clandestine activity.

Livestock that traders purchase at collection markets are often not immediately transported to other markets, particularly in the northern "pastoral zone." Instead, they may remain in the care of the original pastoralist-owner for sale at some pre-determined point along projected grazing itineraries. They may also be placed in the care of a local herder until a large enough market herd is assembled or until market conditions elsewhere are deemed propitious, often a period of up to several months. By the same token, livestock collected in border regions is often entrusted to either their original owners or local herders who are able to cross international frontiers for the purpose of evading export taxation and official costs. Should these animals be confiscated in the course of their clandestine movements, purchasers must absorb the loss.

Livestock slaughter does not play a major role at collection markets, although local butchers are invariably present.

3.1.2 Redistribution or Regroupment Markets

Redistribution or regroupment markets are generally large and located at transportation hubs or along major road and rail routes. Herman and Makinen argue that these are located mainly in the southern portions of livestock-producing countries. However, a number of the largest redistribution markets in the Sahel (including Abalak and In-Gall in Niger, and Gorom Gorom--adjacent to Niger's Ayorou market) are in the center of major production zones far from either terminal markets or transportation hubs.

Sales activity at regroupment markets in Niger is not constant through the year. Rather, it reflects the rhythm of seasons, and pasture and water. Northernmost markets in the Sahel, for instance, are relatively inactive during the hot dry season, when the majority of livestock are off on transhumance in more southern locations. Likewise, these markets are only relatively more active during the rainy season when, traders and their herds have difficulty traversing unimproved and muddy roads to market. Peak trading activity generally occurs late in the year, during the Harmattan period, when grazing is abundant and markets are easily accessible.

Northernmost markets also pass through multi-year cycles of inactivity related to periodic drought, which triggers herd migration over long distances in search of water and pasture. For example, numerous markets in Niger's pastoral zone and in the northernmost border states of Nigeria entered a period of decline beginning with the 1983/84 drought. This is due, in large part, to the subsequent migration of herds to central Nigeria, Cameroon, and Chad.

The majority of transactions at redistribution markets are carried out by private traders who work through professional intermediaries. Traders who have amassed livestock at rural collection markets present animals for sale to other traders, who are assembling large herds for delivery to markets on either side of the Niger-Nigeria border.

Most Sahelian redistribution markets are located in provincial towns and administrative centers. Market infrastructure (including hangars, scales, corrals, and loading ramps) is also often well-developed at redistribution markets. The role of these markets as points of departure for export herds trekked or trucked to coastal markets has also led to the assignment of administrative, customs, and veterinary personnel to serve the needs of traders and exporters. Even in areas without extensive market infrastructure, administrative centers often have been set up to serve established livestock markets. This is particularly true of areas in the pastoral zone where transhumant herds gather at particular periods of the year.

Redistribution markets generally coincide with other large-scale commercial activity, in part because many cattle sales are motivated by a need to purchase cereals and other essentials. Where redistribution markets are located along roadways or in provincial population centers, traders have immediate access to goods and vehicles for the transport of livestock to terminal markets. Significant livestock sales to butchers are also made at these markets, where injured and weakened stock are purchased for local slaughter. (This differs from collection markets, where slaughter activity plays a minor role.)

3.1.3 Terminal Markets

Terminal markets are located in or adjacent to urban areas, where nearly all sales are for local slaughter and consumption. While large coastal cities are the principal terminal markets in West Africa, the Sahelian cities of Niamey, Tahoua, Agadez, and Arlit are also categorized as terminal markets due to their large populations and the great number of livestock which are slaughtered there. Sellers in terminal markets are almost exclusively traders, while buyers are for the most part butchers or representatives of consortia of butchers.

3.1.4 Multiplicity of Market Functions

Because markets have both regional (Sahelian linkages with coastal markets) and local importance, the tripartite classification of markets can not be applied literally. Instead, individual markets often serve simultaneous functions relative to local supply and demand.

This phenomenon is especially pertinent to Niger's trade in livestock with Nigeria. While Nigerian border markets often serve as final markets for traders

from Niger, those markets are located in Nigeria's principal livestock production zone. Hence, in the context of domestic Nigerian trade, those markets serve simultaneously for collection and regroupement. While Nigeria's coastal population is the largest single market for Sahelian livestock, large cities in Nigeria's northern states, such as Kano and Maiduguri, are also among Africa's largest terminal markets. Hence, Maiadoua and Danbatta markets, which are located near the population center of Kano, host a large proportion of purchases by urban butchers, giving them importance as major terminal markets.

Most relevant to this study, however, is the role played by respective markets as transit points where modes of transporting livestock change. In general livestock trekking is the predominant mode of conveying animals to collection and regroupement markets. Livestock transport by road or rail usually indicates transition between regroupement and terminal markets.

3.2 Internal Market Organization

The marketing system for livestock in Niger and Nigeria is characterized by a high level of segmentation, informality, and personalization. As in other nations of the Sahel (see Kulibaba and Holtzman, 1990), nearly all domestic and international livestock transactions are carried out by private entrepreneurs operating through the traditional marketing system. The ethnic composition of the livestock trade and the role of different types of marketing agents are described below.

Just as certain ethnic groups (e.g. the Fulbe and the Tuareg in Niger, and the Fulbe and Shoa Arabs in Nigeria, Chad, and northern Cameroon) dominate livestock production in the Sahel, livestock commerce is dominated by non-producer groups. While the presence of large numbers of Hausa, Kanuri, and Fulbe (Fulani) livestock traders is of little note in the markets of their respective home regions, the dominance of these groups in distant coastal markets underlines the importance of ethnic specialization to the regional marketing system.⁹ While livestock markets are generally open, with no formal barriers to entry for either sellers or buyers of animals, they function through established networks of livestock producers, traders, intermediaries, and butchers. While these networks are inter-ethnic, their internal structure is based on longstanding relationships, often multi-generational in nature, in which regional factions can be identified. Hence, de facto informal barriers to entry do exist.

⁹ Only the Fulbe--one of two principal herding groups in Niger--may be said to benefit from participation in virtually all stages of the marketing process.

Interviews with traders at the principal Lagos livestock market, Alaba market, suggest a wide variety of intersecting relationships. As shown in Exhibit 3.1, cross-cutting ethnic, national, and regional interests are represented in the community of Lagos-based traders. Although the majority of those interviewed have resided in Lagos for extended periods of time (in several instances for as long as 40 years), individual traders identify themselves on the basis of "home regions" with which their trading relationships are most vital.¹⁰

Exhibit 3.1

Distribution of Alaba Market Traders
by National and Ethnic Origins

Number of Traders	Ethnic Origin	National Origin	Regional Origin
21	Hausa	Nigeria	Kano, Sokoto, Katsina, Kaduna
16	Kanuri	Nigeria	Bornu and Kano
13	Hausa	Niger	
10	Diverse Moslem	Nigeria	Central Nigerian States
8	Fulbe	Nigeria	Northern States
7	Yoruba	Nigeria	Western States
5	Fulbe	Niger	
4	Hausa	Benin	
4	Fulbe	Cameroon	Adamawa, Extreme North (N.B. may also include Chad)
3	"Christian"	Nigeria	Southern States
3	Djerma	Niger	Western Niger
2	Hausa	Burkina Faso	
1	Sarakolle	Mali	
1	Bariba	Benin	
Total		98	

Subtotals	Origin	Number	As % of Total
	Nigeria	65	66.8
	Niger	21	21.4
	Benin	5	5.1
	Other	8	8.1
	Hausa	40	40.8
	Fulbe	17	17.34
	Kanuri	16	16.3
	Yoruba	7	7.1
	Other		
	Moslem	15	15.3
	Christian	3	0.3

¹⁰ As discussed subsequently in this report, traders may provide a variety of services (including credit and intermediation), which reinforce buying and selling relationships and contribute to the emergence of identifiable networks in the marketplace.

A counterpart to these regional and ethnic linkages in large urban markets are the more local village and kinship networks in rural markets. Just as certain aspects of civil life in Niger and Nigeria are reserved for traditional indigenous leaders, the oversight of traditional urban and rural markets is generally the prerogative of traditional local authorities. Formal institutional and juridical intermediation is almost entirely absent from this system, except where government agencies provide services (veterinary prophylaxis, treatment, and health controls) or impose various forms of taxation on market participants.

The traditional livestock marketing system is based on agreements and sanctions that are not codified but that are well-known and widely accepted by the broad community of marketing agents. Disputes in the marketplace are rarely resolved through the formal legal process except when traditional methods of conflict resolution have been exhausted, or when traditional authorities are accused of prejudice. Grievances in the marketplace are frequently attributed to the effects of government policy and actions taken by agents of central government.

3.3 The Role of Livestock Traders

Livestock traders fall into four general categories: occasional traders, long-distance traders, short-distance traders, and brokers. Butchers, an additional and critical element in market networks, constitute the majority of buyers in terminal markets. The roles played by these marketing agents are described below.

3.3.1 Occasional Traders

While lack of investment capital, inadequate knowledge of the marketplace, and ethnic affiliation constitute barriers to entry in the livestock trade, a large number of market transactions are carried out by individuals who trade livestock infrequently. Occasional trading is often an initial stage in the career of individuals who evolve into long-distance traders, a final stage in the career of aged traders, or an intermittent activity for civil servants or entrepreneurs who are able to obtain institutional supply contracts in Nigerian and Nigerien cities.

No single ethnic group dominates occasional trading in either Niger or Nigeria. Rather, ethnic composition among occasional traders reflects the general demography of each locality and includes representatives of traditionally agricultural and pastoral peoples.

These traders typically assemble small- to medium-sized market herds comprising their own animals or those of relatives and friends. Investment capital in these transactions is limited, and the bypassing of intermediary traders reduces costs and increases returns. Occasional traders are most visible in commerce between collection and regroupment markets where their knowledge of local market conditions is greatest, and where delivery time to markets is shortest. Sales by occasional traders are rarely made on credit.

Occasional traders sometimes trade large market herds over long distances between the Sahel and coastal markets. It is significant that many occasional

traders observed in the field were the owners or operators of goods vehicles. Interviews suggest that transport entrepreneurs engage in occasional livestock trade both to generate back-haul traffic for coastal journeys, and to capitalize on seasonal demand for livestock during periods of peak demand. Most of those interviewed noted that they traded in livestock only during the period preceding the Moslem holiday of Eid el Kabir (or Tabaski) or during the year-end holiday season.

3.3.2 Sahelian and Coastal-Based Long-Distance Traders

The largest number of traders interviewed in the course of this study were long-distance traders. As noted earlier, the internal organization of livestock trading is such that advantage to suppliers can be obtained by exploiting the presence of ethnic and regional linkages in distant urban markets. The successful conduct of long-distance trade cannot be a solitary activity, because it requires cooperative efforts throughout various stages of the marketing process. For this reason, multi-generational kinship, ethnic, or economic networks provide practical advantages in lowering transactions costs and reducing trade-related risks. The informal nature of the trade and the importance of sales on credit also imply that participants in the trade maintain long-term associations with one another.

The social and economic organization of long-distance trade reflects the ethnic division of labor that is characteristic of the Sahel. Livestock producers, generally of the Fulbe or Tuareg ethnic groups, maintain close ties with town-based members of their own ethnic group or members of other ethnic groups who represent their political and economic interests. Like the Fulbe and Tuareg, these individuals are almost invariably Moslems. These ties are often structured and formalized through inter-marriage, child fostering, and other forms of real or fictive kinship. They are mirrored in the long-distance marketing networks that are characteristic of the livestock trade. Continuity of supply and competent salesmanship are assured by individuals based at the beginning (production zone) and terminus (coastal markets) of the market chain.

The traders' base of operation, whether in the Sahel or in coastal markets, influences capital flows and the repatriation or reinvestment of profits.

The Niger-Nigeria corridor and the one linking Mali and Burkina Faso to Côte d'Ivoire are critically different in this respect. Malian and Burkinabé traders are not generally involved in large-scale trade of commodities other than livestock, probably because Mali, Burkina Faso, and Côte d'Ivoire have a common currency.

Long-distance traders based in Niger or Nigeria are, however, able to selectively exploit trade in two currencies (the naira and the CFA franc). The increasing strength of the CFA relative to the naira since the mid-1980s has stimulated diversification in the commodities traded between the two countries. In Niger demand is strong for both Nigerian-produced goods and relatively inexpensive imports, due to the strength of the overvalued CFA franc. To maximize overall returns to trading enterprises, Niger traders import a wide variety of goods and commodities from Nigeria. This results in more diversification in goods and commodities traded by individual entrepreneurs.

While individual Sahelian-based traders may specialize in particular Nigerian commodities, virtually all engage in importing consumer goods and other merchandise from Nigeria.

Several traders interviewed during the fieldwork claimed that the sale of back-haul commodities in Niger, rather than livestock sales in Nigeria alone, ensures profitability in trading enterprises.¹¹

One other distinction between coastal-based and Sahelian-based traders merits discussion: cost savings relative to location. Livestock sales at all points in the marketing chain are usually facilitated by brokers, who witness the terms of sales for a fee. Because of their respective familiarity with local supply and terminal markets, Sahelian and coastal-based traders often can bypass intermediaries and generate cost savings at "home" markets.

3.3.3 Short-Distance Traders

Short-distance traders are most prevalent in redistribution markets and at transportation hubs. In addition, a more specialized group concentrates on the clandestine movement of livestock between Niger and northern border markets in Nigeria. While long-distance traders often rely on established networks and can identify prospective buyers even prior to the shipment of livestock from the Sahel, domestic short-distance traders are more speculative. Rather than assuming the costs and risks of transporting livestock over long distances, they trade between regional markets. Obviously, those specializing in the clandestine border trade face a higher level of risk. Apparent risk is diminished, however, through the cultivation of economic relationships with officials overseeing border zones. While these may amount to little more than bribery, interviewees in the field note that many border agents operate in partnership with traders.

The greatest concentration of short-distance traders is at major redistribution markets along the Niger-Nigeria border. Sahelian traders often arrive at these sites without adequate resources for the onward shipment of their livestock. Hence, they are willing to discount ultimate profits in exchange for immediate turnaround. Short-distance traders and brokers at these markets often capitalize on "distress" purchases of animals that are discounted for sale and slaughter in local markets because they are too weak to survive long-distance transport. Livestock purchased by short-distance traders are typically destined for slaughter in smaller provincial markets that are poorly served by long-distance traders because of their limited demand.

3.3.4 Brokers

Extensive brokerage activity in Nigeria is the result of several factors including the greater scale of Nigerian markets relative to those elsewhere in the region, opportunities for currency and commodity speculation, and the large

¹¹ Two-way trade in livestock and imported consumer goods complicates the calculation of returns to livestock traders. This is because each transaction has a unique mix of back-haul commodities.

urban markets in the Nigerian north. Brokers play a relatively minor role elsewhere in the region.

The brokerage activity is concentrated in the large livestock and cereals markets along the Niger-Nigeria border. Although the majority of brokerage transactions involve only a single intermediary sale, multiple brokerage sales are not uncommon. Interviewees noted that their risks are limited. Because they are not usually required to pay cash at the time of their purchases, skilled brokers can begin the trading day with little or no liquid capital, recovering their costs and a profit in the course of two to six hours. In many instances, brokers arrive at market having already negotiated the sale of livestock they have yet to purchase. While this constrains their ability to maneuver on price negotiations, it provides them with a fixed, gross return against which to gauge their own bargaining activities. While profit margins of brokerage are not high, they reflect the rapid turnaround and resulting low level of risk involved.

Although brokerage activity occurs throughout the year, it increases dramatically immediately prior to the Islamic holidays of Ramadan and Tabaski when small ruminants are in greatest demand. Buyers probably rely more heavily on brokers at these times, because competition for small stock is fiercest, yet potential returns are highest. Engaging brokers reduces the risk that traders will fail to acquire livestock for lucrative resale. The high seasonal returns of this period allow traders to bear the higher cost of procuring animals through brokers.

3.3.5 Intermediaries

The role of intermediaries (called "dillali" in Hausa) in the Niger-Nigeria corridor is more important than elsewhere in the region. Nonetheless, their role is commonly misunderstood, due to the wide variety of economic services they perform and to the great measure of confidentiality that they employ in their activities.

In general the dillali is an agent who brings together buyers and sellers for a fee. In Niger and Nigeria, however, the dillali assumes a variety of other responsibilities, such as providing room and board to traders; guaranteeing sales on credit; and handling, feeding, and maintaining livestock awaiting sale. Buyers nearly always pay dillali fees (a fixed amount per head that is generally uniform for all intermediaries working in the same market). As market intermediaries, dillalis are responsible for negotiating the terms of a particular sale. On occasion, this role may also require that they serve as legal witnesses to the legitimacy of transactions which are disputed in traditional Islamic courts.¹²

Market participants trust dillalis because of their ethnic, religious, and regional ties. Their individual stature in the marketplace is based on both the

¹² While many dillalis employ agents who act as their assistants, they should not be confused with salaried agents who represent absent owners of livestock. Such agents are most visible in terminal markets, where they represent Sahelian-based traders or consortia.

extent of their established economic and social network and their integrity as ostensibly neutral third parties to any transaction. Traders clearly prefer intermediaries of their own ethnic group, or members of other ethnic groups with strong ties to their own place of origin. These preferences may be overridden, however, by intermediaries who are well-known to market participants for the quality of their services.

3.3.6 Intermediaries as Guarantors of Credit

The prevalence of credit in coastal Nigerian livestock markets was observed as long ago as 1962 (Cohen, 1965) and has changed little in recent years. At present, nearly all transactions in the Lagos and Ibadan livestock markets require traders to extend credit to butchers. Because most livestock traders are not based in terminal markets, they depend on intermediaries to identify credit-worthy buyers and to act as guarantors of credit.

While dillalis observe a great deal of client confidentiality in most matters, the community of intermediaries is open with regard to the exchange of information about the credit worthiness of buyers in the marketplace. Informal credit ceilings are assigned to particular buyers, based on their past performance or their evident access to collateral. Boycotts of credit sales to those who default on credit are often arranged by dillalis who share an interest in ensuring smooth functioning of the marketplace. In extreme instances, intermediaries halt all sales to butchers as a means of generating pressure by butchers on their intransigent colleagues.

3.3.7 Butchers

The butcher trade in Niger is dominated almost exclusively by Moslems, who observe Koranic strictures in performing their activities, allowing them to serve the full range of clientele. A large number of non-Moslem butchers work in southern Nigeria's Christian-dominated communities. However, they serve an exclusively non-Moslem and thereby limited clientele. Where non-Moslem butchers are present in terminal markets, they are physically segregated from other butchers for reasons of ritual purity.

While butchers represent the wide variety of ethnic groups in Niger and northern Nigeria, certain groups tend to dominate the trade in Nigeria's coastal markets. Observations by Ikpi (1990) in the Ibadan, Lagos, and Kano markets indicate a predominance of Yoruba in the profession (84 percent of all cattle butchers and 69 percent of small ruminant butchers) and fewer Hausa (16 percent of all cattle butchers and 31 percent of small ruminant butchers).¹³ The Fulbe and Tuareg, who are the principal regional stock raisers and heavily represented in the livestock trade, rarely work as butchers, however.

¹³ Unfortunately, Ikpi does not indicate the relative proportion of ethnic groups for each market but provides only aggregate figures for all markets. Ikpi distinguishes between neither Moslem and Christian Yoruba butchers, nor Hausa and Fulani/Hausa butchers.

Although butchers actively compete, they also form politically-organized trade groups which are regularly accused of collusive behavior. Nigerian state and municipal governments conduct annual campaigns regarding "market integrity" in response to alleged efforts by butchers to drive up prices by limiting slaughter.

In contrast to terminal markets in Côte d'Ivoire, the evidence from Nigeria suggests that internal regulation in the butcher trade is exercised in order to prevent over-proliferation of butcher activity.¹⁴ While these informal measures may prevent hyper-competitive behavior and associated heavy losses, they may also serve as a barrier to entry by those who do not enjoy the patronage of butchers already in the trade, thereby narrowing competition.

¹⁴ Internal regulation comprises apprenticeship requirements and ceilings as well as allocation of bidding rights on choice livestock.

4. GOVERNMENT REGULATION OF TRADE AND TRANSPORTATION

USAID/Niger and other organizations have devoted extensive efforts to promoting liberalization of the fiscal and administrative procedures governing private trading activity. The most damaging effect of Niger's official regulation of trade is that the costs of adhering to regulations encourage clandestine economic activity. Although economic reforms have been made in an effort to diminish the cost and complexity of adherence to the law, procedures remain that do little to enhance the competitive position of Niger's traders in their transactions with neighboring countries.¹⁵

4.1 Regulatory Measures

Recent studies by Cook (1988) and Mooney et al. (1990) provide detailed discussion of the administrative procedures required for exporters of livestock, hides, and skins. The 11 procedures they describe can be viewed as a paradigm for regulation which applies to other businesses in the formal sector, including transport enterprises (described below).

Several general observations can be made regarding the structure of regulation. Five types of administrative procedures are prescribed for entrepreneurs in the formal sector: authorizations, proofs of personal legitimacy, taxes and licensing fees, participatory contributions, and technical controls.

The first administrative step in legitimizing a business venture is a request for approval or authorization. Authorizations are granted at the discretionary authority of either centrally appointed officials (prefets) or committees (conseil régional de développement). Examples include "authorisations préalables" (livestock and hides and skins export), "cartes professionnelles" (livestock trade), or "accordées de titre." In certain sectors, (i.e. road transport), authorizing committees include current or prospective competitors whose decisions are bound to be prejudiced by self-interest.

Proofs of personal legitimacy (including national identity documents, police records, and attestations of solvency from a bank) are also required. Although these requirements may help to minimize fraud and bankruptcy, they can be applied in a discriminatory manner by unscrupulous or self-interested officials. Proofs of financial solvency may also act as a barrier to entry, in that they require participation in the formal banking system or possession of assets that can serve as collateral.

Participatory contributions are limited to paid membership in the Chamber of Commerce and contributions to the Conseil national des utilisateurs des transports (CNUT). While Niger's Chamber of Commerce is mandated to act as an advocate for its members, it is neither self-governing nor free to take positions that conflict with official policy. Its leadership is appointed by central

¹⁵ Reforms have included the creation of a "guichet unique" for export traders and suppression of the livestock export tax.

government authorities and participation (in the form of annual dues) is mandatory for businesses. The chamber also serves a control function in the registration and collection of "patente" fees for new venture start-ups.

CNUT, on the other hand, officially represents the Government of Niger in international conferences on maritime transport and coastal entrepots, and bilateral discussions of transport tariffs. It appears to perform a valuable function in disseminating information on its interests and activities. However, because it is not a participatory organization, mandatory subscriptions must be viewed solely as a subsidy for its official activities.

As noted in the Cook and Mooney reports, (as well as in the discussion of transport taxation which follows), taxes and licensing fees exist at nearly every stage of the administrative process. These generally apply to particular sectors, or are indexed to demonstrable or projected turnover of the enterprise.

Technical controls are specific to particular sectors and are generally oriented toward verifying the legitimacy of acquired goods or equipment or guarding against threats to public health and safety.

4.2 Regulation of the Transport Industry

Niger's transport industry is heavily regulated and burdened with high costs. Barriers to entry appear especially high for transport entrepreneurs serving the livestock sector for several reasons. Regulatory processes governing entry into the transport sector by new entrepreneurs or those wishing to expand their operations are discretionary and in part governed by competitors. Second, capital requirements are high for new transport enterprises, due to the costs of imported equipment and one-time customs and administrative charges. These costs are compounded by the practice of double-taxation of imported vehicles, which are susceptible to the levy of customs duties in the countries where they are purchased and also upon entry into Niger. The latter levy is assessed not only on the basic retail value of equipment, but also on customs duties which are levied at the point of purchase.

4.3 Regulation and Costs of Vehicle Purchase

Entrepreneurs wishing to purchase goods and vehicles are obliged to do so outside of Niger, due to the lack of locally manufactured vehicles and a limited number of distributors of imported vehicles. The relative strength of the CFA franc vis-a-vis Nigeria's currency provides an incentive to purchase vehicles there. Although Nigerien entrepreneurs who purchase vehicles outside the country are required to prove that transactions have passed through the banking system, this regulation is neither widely followed nor regularly enforced.

4.3.1 Vehicle Costs in Nigeria

Vehicle costs in Lagos do not vary significantly from dealer to dealer, although it is possible for individual purchasers to negotiate discounts. On the basis of interviews at three dealerships, the following base prices applied to purchases in late 1990:¹⁶

Exhibit 4.1

New Vehicle Purchase Cost¹⁷

Vehicle Type	Naira	-----CFA-----	
		Bank Rate	Parallel Market
10-Ton Truck			
Mercedes L1213/48C	442,000	14,587,458	13,000,000
Woodwork for flatbed	60,000	1,980,198	1,764,705
Semi-Tractor			
Mercedes LS3224/36C	1,031,320	34,036,963	30,332,941
Mercedes LS1924/42C	737,000	24,323,432	21,676,470
Mercedes LS1213/36C	470,000	15,511,551	13,823,529
Trailer			
40 ft. Steel	250,000	8,250,825	7,352,941

4.3.2 Customs Duties in Niger

Customs duties and related taxes must be paid on all vehicles brought into Niger, even if duties were already paid in the country of the vehicle's origin. This unavoidable double taxation pushes up already high vehicle purchase costs.

Customs duties for vehicles used in livestock transportation (i.e. all unified-body trucks, tractors and trailers) are as follows:

Tax	Amount (% of declared value)
Droite de douane	5
Droit fiscale	10
Taxe statistique	3
Taxe valeur ajoutée	17
PCS ¹⁸	<u>1</u>
Sub-total	35

¹⁶ None of the dealers interviewed sold vehicles duty-free, and all claimed that purchasers from Niger were obliged to pay local Nigerian customs duties on all purchases.

¹⁷ Exchange rates for October 1990 were as follows: Official Bank rate of 1,000 FCFA=30.3 Naira and parallel market rate of 1,000 FCFA= 33 Naira.

¹⁸ The Prélèvement communautaire de la solidarité is levied on all merchandise imported from outside the West African Economic Community (CEAO).

It should be noted that duties apply to all separate units purchased (i.e. tractor and trailer); the PCS would not apply, however, for wood frame construction on unified-body vehicles if that work was carried out in Nigeria or any of the CEAO member-states.

4.4 Administrative Procedures for Vehicle Purchase and Operation

Procedures for vehicle purchase and operation are costly and burdensome, providing economic disincentives for investment in the transportation sector. This raises costs for livestock traders who truck animals to market, the most rapid and least risky means of conveyance. Higher transport costs for Niger's traders harm the competitiveness of Niger livestock in southern and central Nigerian markets. These markets can be supplied more cheaply by livestock production zones in northern and central Nigeria.

Initial administrative formalities required to establish a transport enterprise using goods vehicles include no less than 11 separate procedures, each with its own incumbent official and unofficial costs.¹⁹

4.4.1 Accorde de titre de transport

The "accorde de titre de transport" requires the submission of a request to the departmental Comité restreint de transport, presided over by the departmental Chef de service transport routier, and including representatives of five agencies:

- The Syndicat des transporteurs;
- The Conseil national des utilisateurs des transports (CNUT);
- The Chambre de commerce;
- The Ministère de la promotion économique; and
- A representative of local private transport entrepreneurs.

This committee ostensibly meets monthly, although informants in the field note that meetings are often canceled due to the inability to obtain a quorum. Two of the five constituencies represented on this committee comprised prospective competition for new entrepreneurs. These competitors may create barriers to entry by new transporters at this early stage of the administrative process.

¹⁹ As many as 17 documents can be required in the registration process.

4.4.2 Autorisation d'achat

Authorization to purchase a new vehicle of foreign provenance is obtained from the prefet of the Departement in which the prospective owner resides at a cost of 5,000 CFA francs.²⁰

While this document is not legally or administratively required, purchasers of vehicles uniformly obtain it in the belief that it facilitates subsequent administrative procedures.

4.4.3 Certificat de vente/Légalisation

An official copy of the bill of sale for the purchased vehicle requires a fiscal stamp in the amount of 100 CFA francs.

4.4.4 Certificat de la mise à la consommation

Obtained from customs, this document is issued only following the payment of customs duties on imported vehicles; the payment of a fiscal stamp in the amount of 5,000 CFA francs; and the payment of a tourism development tax.

4.4.5 Procès verbal de la réception

New vehicles must be presented to local authorities so that motor and chassis serial numbers can be recorded and verified. Although no formal fee is charged for this procedure, informants claim that gratuities in the amount of 500-1,000 CFA francs must be paid to vehicle inspectors.

4.4.6 Immatriculation

Immatriculation, or registration, is obtained only after all of the above procedures have been carried out. Immatriculation fees are based on engine size, as measured in horsepower:

Engine Size (horsepower)	Fee
1-5	5,000 FCFA
6-10	10,000 FCFA
11-19	17,000 FCFA
20-29	27,000 FCFA

4.4.7 Vignette

The vignette, or registration sticker, is obtained from local fiscal authorities (domaines). Fees for goods vehicles ("vehicules porteur de poids totale de charges autorisé") are indexed to vehicle type and load capacity, as

²⁰ Because no vehicles are manufactured in Niger, this procedure applies to virtually all new vehicles.

measured in metric tons. For unified-body vehicles (e.g. 2-axle, 10-ton trucks) the charges are as follows:

Capacity (tons)	Fee
6-9	90,000 FCFA
9-13.5	100,000 FCFA
13.6+	120,000 FCFA

Charges for articulated vehicles (tractor trailers) are as follows:

Tractor:	75,000 FCFA
Trailers: (tons)	
6-9	15,000 FCFA
9-13.5	25,000 FCFA
13.5 +	45,000 FCFA

Penalties imposed for failure to obtain or renew the vignette are severe: 100 percent penalty, plus payment of vignette fees for lapses of over 31 days after expiration. These penalties are multiplied by the number of trimesters during which a vehicle has operated with an expired vignette.

4.4.8 Patente

Like all other businesses operating in the formal sector, cargo transporters must pay an annual patente fee. Unlike other businesses, which pay fees based on estimated or established annual turnover, transport operators pay fees based on the cargo capacity of their vehicles (see Exhibit 4.2). Patente fees are discounted for transporters owning more than one vehicle.

Exhibit 4.2

Patente Fees for Transport Operators in Niger
(CFA francs)

<u>10-ton Truck</u>	First Vehicle		Second Vehicle	
	12 Month	15 month	12 Month	15 Month
Taxe déterminée	40,000	50,000	24,000	30,000
Taxe variable (4,000 FCFA/ton)	40,000	50,000	40,000	50,000
Centime additionel	24,000	30,000	19,200	24,000
Impôt forfaitaire sur sur les bénéfices	240,000	300,000	192,000	240,000
Total	344,000	430,000	275,200	344,000

25-ton Capacity Tractor

	First Vehicle		Second Vehicle	
	Taxe déterminée	16,000	20,000	0
Taxe variable (4,000 FCFA/ton)	36,000	45,000	36,000	45,000
Centime additionel	15,600	19,500	10,800	13,500
Impôt forfaitaire sur sur les bénéfices	156,000	195,000	108,000	135,000
Total	223,600	279,500	154,800	193,500

25-ton Capacity Trailer

	First Trailer		Second Trailer	
	Taxe variable (4,000 FCFA/ton)	100,000	125,000	88,000
Centime additionel	30,000	37,500	26,400	33,000
Impôt forfaitaire sur sur les bénéfices	300,000	375,000	264,000	330,000
Total	430,000	537,500	378,400	473,000

4.4.9 Inspection Technique

All vehicles that transport goods are required to undergo a safety inspection every six months. In addition to meeting technical criteria for vehicle soundness and safety, operators must present proof that insurance and patente fees have been paid and that operators and their employers have made requisite contributions to the Niger social security program. This requires a document (attestation de la caisse) obtained from local fiscal authorities.

4.4.10 Insurance

Minimum liability insurance, required for cargo vehicles in Niger, is available from a variety of private companies. Liability insurance premiums are based on vehicle engine size, ranging between 120,385 FCFA/annum for 10-ton trucks and 183,144 FCFA/annum for articulated vehicles (e.g. 30-ton tractor trailers).

Liability coverage for cargo losses is rarely purchased by livestock transporters, due principally to its high cost. Premium rates for cargo loss and diverse risks range from 120,385 FCFA for coverage of goods having an FOB value of up to 2,500,000 FCFA, and 183,144 FCFA for goods valued up to 4 million FCFA.

Although several companies provide liability insurance in Niger, rates do not appear to be competitive within Niger.

4.4.11 Contribution au conseil national des utilisateurs des transports

Niger law also requires that the owners of goods vehicles pay an annual contribution of 30,000 FCFA to the Conseil national des utilisateurs des transports (CNUT). The role of the CNUT is generally unrelated to the activities or interests of livestock transporters. Rather, the CNUT's principal responsibility is to act on behalf of the Government of Niger in international deliberations on tariffs and charges related to maritime transport and the shipment of containerized and bulk goods through adjacent coastal countries.

4.5 Proportionate Distribution of Official Costs and Charges

Exhibits 4.2 and 4.3 summarize the relative proportion of individual cost categories for transport entrepreneurs utilizing 10-ton trucks and 25-30 ton tractor/trailers. These exhibits show that capital requirements for entry into the transport sector are extremely high, due to the cost of purchasing imported equipment and also to official levies which approach 40 percent of the purchase value of vehicles and equipment. On the basis of this data, capital requirements for transport entrepreneurs involved in livestock transportation range from 20.6 million FCFA to 40.5 million FCFA.

Exhibit 4.3

Comprehensive Entry Costs for Nigerien Transport Entrepreneurs

Case #1: 10-Ton Truck for Livestock Transport

Item	Amount (FCFA)
Vehicle Purchase:	
Mercedes L1213/48C	13,000,000
Woodwork (flatbed walls)	1,764,705
Sub-total	14,764,705
Customs Duties (Niger)	
Droite de douane	738,235
Droit fiscale	1,476,470
Taxe statistique	442,941
Taxe valeur ajoutée	2,509,999
PCS	130,000
Sub-total	5,297,645
l'Accorde de titre de transport	0
Autorisation d'achat	5,000
Certificat de vente/legalisation	100
Certification de la mise à la consommation	5,000
Procès verbal de la réception	1,000
Immatriculation	10,000
Vignette	100,000
Sub-total	121,100
Patente	
Taxe déterminée	40,000
Taxe variable	40,000
Centime additionel	24,000
Impôt forfaitaire	240,000
Sub-total	344,000
Insurance	120,385
Contribution CNUT	30,000
Sub-total	150,385
Total	20,677,835
Less Purchase Cost	14,764,705
Total Official costs	5,913,130

Case #2: 30-Ton Tractor Trailer for Livestock Transport

Item	Amount (FCFA)
Vehicle Purchase:	
Mercedes LS1924/42C	21,676,470
40 ft. steel produce trailer	7,352,941
Sub-total	29,029,411
Customs Duties (Niger)	
Droite de douane	145,1470
Droit fiscale	2,902,941
Taxe statistique	870,882
Taxe valeur ajoutée	4,934,999
PCS	290,294
Sub-total	10,450,586
l'Accorde de titre de transport	0
Autorisation d'achat	5,000
Certificat de vente/legalisation	100
Certification de la mise à la consommation	5,000
Procès verbal de la réception	1,000
Immatriculation	27,000
Vignette	120,000
Sub-total	158,100
Patente (Tractor)	
Taxe déterminée	16,000
Taxe variable	36,000
Centime additionel	15,600
Impôt forfaitaire	156,000
Sub-total	223,600
Patente (Trailer)	
Taxe déterminée	0
Taxe variable	100,000
Centime additionel	30,000
Impôt forfaitaire	300,000
Sub-total	430,000
Patente sub-total	653,600
Insurance	183,144
Contribution CNUT	30,000
Sub-total	213,144
Total	40,504,841
Less Purchase Cost	29,029,411
Total Official costs	11,475,430

Exhibit 4.4

Proportionate Analysis of Entry and Annual Costs
for Transport Entrepreneurs

Case #1: 10-Ton Truck

		As % of Total	As % of Total Annual Charges
Total Entry Costs	20,677,835	100.0	0.0
One-Time Charges:			
Purchase	14,764,705		
Customs Duties	5,297,645		
Authorizations & Formalities	11,100		
Sub-total	20,073,450	97.1	
Annual Fees & Charges:			
Patente	344,000		56.9
Immatriculation	10,000		1.7
Vignette	100,000		16.6
CNUT Contribution	30,000		5.0
Insurance	120,385		19.9
Sub-total	604,385	2.9	100.0

Case #2: 30-ton Tractor/Trailer

		As % of Total	As % of Total Annual Charges
Total Entry Costs	40,504,841	100.0	0.0
One-Time Charges:			
Purchase	29,029,411		
Customs Duties	10,450,586		
Authorizations & Formalities	11,100		
Sub-total	39,491,097	97.5	
Annual Fees & Charges:			
Patentees	653,600		64.5
Immatriculation	27,000		2.7
Vignette	120,000		11.8
CNUT Contribution	30,000		3.0
Insurance	183,144		18.1
Sub-total	1,013,744	2.5	100.0

Annual transport revenues to meet minimum official costs (exclusive of operating costs, maintenance, repair, etc.) must be in excess of 604,000 FCFA for the operators of 10-ton trucks, and 1 million FCFA for the operators of 30-ton trucks. Annual fees and charges are dominated by the patente (which ranges between 56 and 64 percent of all annual costs) and by liability insurance premiums (18-19 percent). These are nearly equalled by "vignette," or registration, charges (11 to 16 percent of costs). The relative proportion of purchase costs, and annual fees and charges are, for all practical purposes, the same for both unified-body and articulated vehicles, differing by less than 1 percent.

4.6 Government Regulation and Official Costs in Nigeria

While this study did not include an analysis of Nigerian regulation of the transportation industry, it is worth noting that in several respects the Nigerian regulatory environment is extremely liberal by comparison with Niger. Although Nigerian transport operators complain about the high informal costs generated by the need to pay "speed money" to civil servants, officially imposed costs remain low. No formal authorizations are required for either the establishment of a transport enterprise or the purchase of vehicles. Licensing and registration procedures are time-consuming, due to administrative bottlenecks in the largest cities, but they are not costly. Licensing and registration fees average only 875 naira (or approximately 25,000 FCFA) for the largest cargo vehicles. Minimum liability insurance is required for all vehicles in Nigeria, and rates are standardized at 10 percent of insured value per year.

The lower vehicle duty, licensing, and registration fees in Nigeria confer Nigerian transporters with a decided advantage over their competitors in Niger, especially when coupled with lower Nigerian fuel costs.

The differential transport rate structure appears to have several effects. First, it encourages the trekking of Niger livestock across the border to Nigeria, for onward shipment in Nigeria by truck. Second, Niger entrepreneurs have a strong incentive to register their vehicles in northern Nigeria, thereby avoiding punitive taxation and higher costs. Third, lower official costs in Nigeria, at the margin, favor Nigerian dominance of long-distance hauling not only in Niger but also elsewhere in the subregion.

5. TRANSPORTATION INFRASTRUCTURE AND DECISION MAKING

5.1 Niger's Location in the Region

A landlocked nation, Niger is located some 600 km from the sea at the closest point. The country is critically dependent on road transportation networks in adjacent states to obtain access both to international sea lanes and to the large urban markets of the coastal nations. At the same time, distances between domestic population centers are vast, making road transport a critical element of national economic life.

At present, Niger's domestic transportation infrastructure comprises approximately 18,500 km of improved and unimproved roads. The road system is supplemented by five domestic airports and the Niger River. However, use of air and water transport is limited and does not contribute significantly to the volume of livestock, meat, or other agricultural and rurally produced goods that are transported annually.

The densest network of roads is located south of the Abala-N'Guigmi transect, which delineates the "limite nord de cultures," or the dividing line between arable lands and the pastoral zone.²¹ The area south of the "limite" comprises only approximately 20 percent of Niger's territory (265,000 km²), but includes some 80 percent of all paved roads. As home to 70 percent of Niger's population, it is the most economically productive area of the nation.

The southern concentration of roads has critical implications for pastoral production and marketing. The region least served by improved roads is the principal production zone for livestock during much of the year. The resulting isolation of this region effectively limits its direct access to markets and increases direct and indirect costs related to the transport and sale of goods.

5.2 Decision Making on Livestock Transport

Transportation constitutes the second largest cost component of the livestock marketing process, after purchase of livestock for export. Hence, livestock traders carefully deliberate over the selection of the mode of transportation. Direct cost considerations (e.g. vehicle tariffs or manpower costs for trekking) are weighed against a variety of other criteria.

Unlike other Sahelian exports, which may be "captive" to particular transportation modes and axes, livestock are a mobile commodity which can be brought to market at a profit under their own power or through commercial forms of transportation. In Niger a decision to circumvent formal procedures for exporting livestock practically mandates the use of trekking.

²¹ This line corresponds roughly to the 300-mm isohyet.

Exhibit 5.1

Niger's Paved Road Network

Classified Roads

Route No.	Description	Length (km)
1W	Niamey-Tillaberi	116
1E	Niamey-Dosso	140
1E	Dosso-Bolbol	42
1E	Bolbol-Dogondoutchi	94
1E	Dogondoutchi-Birni N'Konni	143
1E	Birni N'Konni-Guidan Roumji	140
1E	Guidan Roumji-Tchadaoua	116
1E	Tchadaoua-Takieta	142
1E	Takieta-Zinder	52
1E	Zinder-Mirriah	24
1E	Mirriah-Goure	147
1E	Goure-Goudoumaria	101
1E	Goudoumaria-Djajiri	37
1E	Djajiri-Diffa	150
1E	Diffa-N'Guigmi	130
6	Niamey-Torodi-Burkina Faso border	145
7	Dosso-Sabongari	98
7	Sabongari-Gaya	56
7	Gaya-Benin border	14
8	Route Nationale 7-Nigeria border	16
9	Maradi-Nigeria border	45
10	Takieta-Nigeria border	70
11S	Zinder-Magaria-Nigeria border	113
25	Niamey-Baleyara-Filingue	183
28	Birni N'Konni-Nigeria border	7
29	Tsernaoua-Tahoua	118
	Sub-Total	2439
Unclassified Roads		
	Niamey-Kollo	30
	Tahoua-Agadez-Arlit	697
	Total	3166

Source: World Bank, Niger Transport Sector Project, Staff Appraisal Report, 1986; and African Development Fund Loan Proposal for the Financing of the Zinder-Agadez Road (Phase III)

Exhibit 5.2

Niger's Road Network by Road Surface and Class

	Classified Road (km)	Non- Classified Road (km)	Total (km)	% Total
Tarred Roads	2768	559	3327	33.74
Earth Roads	2042	1604	3646	36.97
Rural Roads	268	666	934	9.47
Tracks	1616	334	1955	19.82
Total	6694	3163	9862	100.00

Source: World Bank, Loan Proposal for the Financing
of the Zinder-Agadez Road (Phase III)

However, decision regarding modes of transportation within Niger or Nigeria also take into consideration the immediate availability of vehicles or manpower and characteristic delays, mortality, and concomitant costs for particular modes of transport. These factors are balanced against available information regarding current and anticipated price cycles in coastal markets and the urgency of the trader to recoup investment costs and profits. The principal determinants of transportation costs are as follows:

- Compliance formalities at border transit posts;
- The mode or combination of modes of transport utilized;
- Distance to terminal markets; and
- Seasonality of demand.

5.3 Evolving Patterns of Livestock Transportation

Because data on Nigerian livestock movements are inadequate and unreliable, it is difficult to trace evolving usage of modes of transport for export. Data from Nigeria, however, are helpful in determining general trends. Exhibit 5.3 presents official Nigerian data on modes of transport used for the domestic shipment of cattle over for a 14-year period.²²

²² At best these data suggest overall trends. Gathered from veterinary control posts throughout Nigeria, they represent aggregate figures for livestock shipped between Nigerian states. Because no information was available on the methodology for data collection and synthesis, it should be assumed that figures reported may include single shipments reported at multiple control posts. At the same time, it cannot be determined whether "trekked" cattle included only animals

The most striking trends evident in the data are the major decline of trekking as the preferred means of conveying livestock to market and the corresponding rise of road transport. During the 14 years covered by the data, trekking declined from a peak of 67.8 percent of all livestock movements in 1971 to only 2.6 in 1984. Meanwhile, the use of road transport for livestock shipment rose from only 4.7 percent in 1970 to 92.2 percent in 1984. Even if the lowest reported data are discounted for the possibility of under-reporting or other error, the magnitude of shift in preferred modes of transport is little changed for the time series.

Although shifts in preferred modes of transport are evident during the 1970-74 period, the changes become more pronounced during subsequent years, growing steadily through the entire reporting period.

It is likely that the principal catalyst for change in modes of transport was the emergence of Nigeria's petroleum sector, which simultaneously lowered motor fuel costs and produced investment capital for the improvement of the transport infrastructure. However, other factors undoubtedly have also operated.

being brought to market or also migratory and transhumant herds. Localized market herd movement within states is probably not included in the reported data.

Exhibit 5.3

Modes of Transport for Cattle Traded in Nigeria, 1970-1984

Year	Transport Mode (# Head)			As % of Total		
	Trek	Road	Rail	Trek	Road	Rail
1970	171,897	49,461	96,308	65	5	30
1971	344,883	79,649	84,314	68	16	17
1972	268,441	105,433	97,122	21	22	21
1973	376,784	15,853	101,949	69	24	16
1974	396,566	250,543	109,637	54	31	15
Mean 1970-74	284,232	100,188	97,866	59	18	20
1975	268,930	201,190	78,318	49	37	14
1976	272,708	179,684	71,897	52	34	14
1977	300,473	294,717	78,654	45	44	12
1978	296,083	300,174	70,694	44	45	11
1979	277,128	416,191	82,473	36	54	11
Mean 1975-79	283,064	278,391	76,407	45	43	12
1980	86,610	438,811	89,857	24	71	15
1981	105,374	561,544	57,723	8	77	14
1982	81,626	548,061	57,395	12	80	8
1983	43,207	401,598	22,493	9	86	5
1984	24,412	842,641	46,412	3	92	5
Mean 1980-84	68,246	558,531	54,776	11	81	9
Period	Trek	Road	Rail	As % of Total		
Mean 1970-74	284,232	100,188	97,866	59	18	20
Mean 1975-79	283,064	278,391	76,407	45	43	12
Mean 1980-84	68,246	558,531	54,776	11	81	9

Source: Federal Livestock Department, Nigerian Livestock Information Service, 1984 Annual Report

Livestock trade through the Sahelian and savannah regions of West Africa was long dominated by low-cost, if time-consuming, trekking. Despite the existence of endemic trypanosomiasis in southern forest zones, trekking also dominated the trade in ruminants with coastal cities.²³ During the past 30 years, however, increased population density and the expansion of residential, agricultural, and reserve lands in Nigeria have effectively restricted the use of trekking to coastal markets. At the same time, investment in improved regional road networks and the advent of low-cost fuel, resulting from Nigeria's oil boom, have expanded the range of competitive options for livestock transportation, albeit in an environment characterized by high equipment and maintenance costs and low efficiency.

Evolving preference for road transport was undoubtedly reinforced during the 1970-75 period as the result of drought in livestock producing regions of Niger and Nigeria. Other factors during this period were strength in the value of Nigerian currency relative to the CFA franc, rising per capita income in Nigeria, and access to large numbers of drought-enfeebled animals.

Growing demand for meat by Nigerian consumers, prompted in part by plummeting livestock prices, stimulated purchases of livestock which could be brought to market effectively only by road or rail.

Rail carriage, which accounted for an average of 19.6 percent of livestock shipped in Nigeria during the early 1970s, has also declined dramatically to only 9.4 percent of all livestock shipped during 1980-84. This was due in large part to growing competition from private road transporters and a shift in concentration of livestock production from Bornu State in eastern Nigeria (the railroad terminus) west to the states of Sokoto and Katsina, which are not served by rail.

²³ Cohen (1962) estimates that the life expectancy of cattle arriving in coastal cities during the 1950s and early 1960s was only two weeks for trekked cattle but as much as two and a half months for those shipped by train. While the short life expectancy of trekked cattle may be explained in part by the physical stress of lengthy overland journeys, it is more likely that exposure of zebu cattle to trypanosomiasis in southern forest zones was a principal factor in high mortality.

6. TREKKING

Trekking, or the conveyance of livestock on foot, is the predominant means of bringing animals to market during the initial stages of the marketing process. Under ideal circumstances, trekkers would take the shortest direct route between two markets. The majority of trekking routes, however, are not direct, nor are they formally demarcated.

Routes in the pastoral zone and other sparsely populated regions are less easily defined than those in southern Niger, where the same routes are used for trekking and transhumance. In certain more densely populated portions of Niger (e.g. the departments of Dosso and Tillabery) local authorities have roughly demarcated the "pistes de bétail" or livestock trails. These serve as prescribed routes to move herds through heavily cultivated areas where prospects for crop damage by errant animals are greatest.

The principal factor in route determination is the availability of water and pasture to sustain livestock on their voyage to market. However, these resources vary by season and by year. In the northern limits of the pastoral zone and elsewhere during periods when freestanding water is not available, the rights to use wells must be negotiated or purchased on a daily basis. During drought or late in the dry season, well owners may refuse to even sell water, necessitating lengthy detours.²⁴

Pasture is somewhat less critical than water to the survival of a trekked herd on a day-to-day basis. However, given the high energy requirements for protracted trekking, itineraries are planned to allow adequate time for weight maintenance by livestock. During longer treks late in the year, plans may include rest stops of a day or more in sedentary communities, when herds graze on the stubble of harvested fields. Farmers levy no charge for this activity, viewing it as an exchange of crop residue for manure.²⁵

Because commercial herds comprise animals of diverse origins, they do not enjoy the same privileges as herds belonging to traditional users of grazing lands. Whereas particular nomadic factions cultivate ties with sedentary communities over time through a diverse variety of formal and informal exchanges, trekkers do not. They are, therefore, more susceptible to prejudicial behavior by local authorities and communities. During periods of scarcity, they may be discouraged from grazing competitively with local herds, or face extortionate costs in the form of tribute, transit, or well-use fees. However, the

²⁴ Drivers interviewed in the field note that herds require watering at least four of every five days when being trekked to market, due to their rapid pace.

²⁵ In many Niger communities farmers negotiate with local herders for the exchange of cash or cereals for several days' manure service. Drivers interviewed noted that they often receive gifts of prepared food in exchange for this service, but they do not negotiate the terms of such transactions.

traditional view that public grazing lands in the Sahel are a zone of common access prevents any community from totally banning grazing by trekked herds.

Additional influences on route determination range from other environmental conditions (epizootic diseases) to social and political (outbreaks of livestock theft or predatory behavior by government officials). Livestock owners and drovers are generally well-informed about conditions along prospective routes prior to their departure.

Route determination is also affected by a purely commercial factor. Many itinerant livestock merchants pass from one market to another in the hope of obtaining or selling livestock en route to urban or border markets. As such, trekking itineraries are often constructed to allow traders to visit particular weekly markets.²⁶ An additional advantage of scheduling itineraries along periodic market corridors is to accommodate a slower pace for herd movement and greater allotments of time for grazing and weight maintenance.

6.1 Trekking Itineraries

6.1.1 Routes in Niger

Livestock trekking routes in Niger generally run from north to south, leading from the sparsely populated pastoral zone to Niamey and the more densely populated region that abuts the Benin and Nigeria borders. The network of itineraries described in Appendix 1 can be subdivided into distinct corridors, each encompassing a chain of collection and regroupment markets as well as road transport hubs.

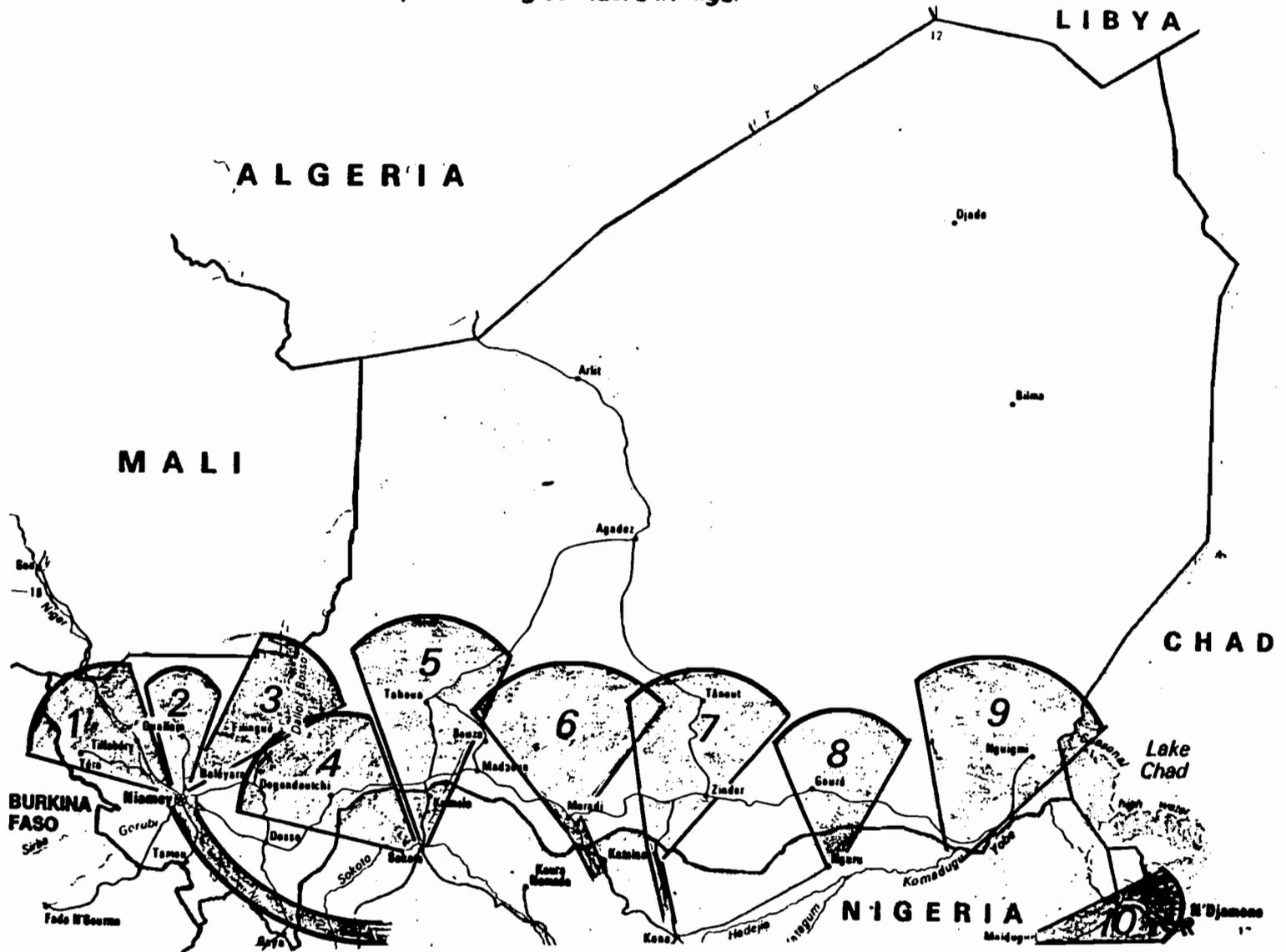
Trekking Corridor 1. Animals originating in Burkina Faso, eastern Mali and western Niger follow routes which run roughly parallel to the northeast to northwest diagonal formed by Route Nationale No. 1. This corridor (Number 1 on Map 6.1) begins at Eleouayene on the Mali border, and ends in the area of Dosso and Birni N'Gaoure. While the majority of livestock move southward to the terminal market of Niamey, many herds bypass Niamey entirely, continuing southward to Benin and Nigeria. Northward movement from Dosso and Gaya to Niamey is not uncommon.

Trekking Corridor 2. The road link between Ouallam and Niamey (No. 2) is often used by herds brought in clandestinely from Mali as well as by local stock from the region directly north of the Nigerien capital. This route, which also feeds directly into the Tillabéri-Gaya corridor, is used for livestock being trekked onward to Sokoto State, Nigeria.

Trekking Corridors 3 and 4. A third complex of routes (No. 3) funnels livestock from the region between Bani Bangou and Bagaroua, through Filingue, onward to Niamey or (No. 4) to Sokoto State, Nigeria.

²⁶ Most markets in Niger and northern Nigeria are held one day per week, with complete seven-day rotations occurring in particular sub-regions. Daily livestock markets are common only in the very largest cities.

Principal Trekking Corridors in Niger



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Trekking Corridor 5. The pastoral zone north of Tahoua, located in an arc between Tilemses and In Gall, channels livestock into a corridor which parallels the Tahoua-Birni N'Konni road (No. 5). These herds then move across the Nigerian border to the livestock market of Illela, north of Sokoto.

Trekking Corridor 6. Animals from the central pastoral zone, between Tahoua and Aderbissinat, are trekked toward Dakoro, onward to Maradi and the large Nigerian border market of Djibiya, north of Katsina (No.6).

Trekking Corridor 7. The Agadez-Zinder road serves as the principal corridor for animals drawn from markets near Tanout (No. 7). These herds are either sold for slaughter in Zinder or trekked southward to the Nigerian markets of Maiadoua and Danbatta, north of Kano.

Trekking Corridor 8. Trekking itineraries in eastern Niger are less defined than elsewhere in the country because of the vast expanses of free range and the generally open character of the Niger-Nigeria border region. Nonetheless, a significant number of livestock are reportedly trekked through a corridor near Goure and on to the Nigerian town of Nguru.²⁷ The latter city is the site of a large meat processing and chilling facility.

Trekking Corridors 9 and 10. The Lake Chad region, near N'Guigmi and Diffa, is a major regional corridor for livestock from not only Niger, but also Chad. These herds generally move into Nigeria at points located between Diffa and Maine-Soroa (No. 9). Although one of Nigeria's large cities, Maiduguri, is located adjacent to this corridor, its markets are served principally by local livestock or herds from Cameroon and Chad. These enter through the Assale-Serbewel corridor, south of Lake Chad (No. 10).

Each corridor described above encompasses some portion of traditional grazing itineraries for cattle and small ruminants from Niger. However, the intensity of use for any of these corridors varies on a seasonal and annual basis. Field observations by veterinary authorities note that although the principal export corridors for trekked livestock are located between Dogondoutchi and Zinder (Nos. 4-7), eastward livestock migrations triggered by the 1984 drought appear to have led to greater traffic in the Lake Chad corridor (No. 9) in recent years. Increased traffic through the Assale-Serbewel corridor (No. 10) includes recently relocated herds of Nigerian origin, currently exploiting the relatively more abundant pastures along the Logone and Chari rivers in northern Cameroon and Chad.

6.1.2 Trekking Itineraries in Nigeria

Road transport in Nigeria has eclipsed trekking as a mode to convey livestock to markets beyond those located along the Niger-Nigeria border. Veterinary reports are, impressionistic at best, given the scant attention devoted to monitoring herd movements. Little or no statistical information is

²⁷ The Nguru abattoir currently operates at sub-minimum capacity. However, as discussed in Chapter 11, the restructuring of its management has led to plans to revitalize operations in late 1991.

available regarding the location of herds displaced since the 1984 drought. However, interviews with herders corroborate the opinions of Nigerian authorities. Official Nigerian data on trekking is of little or no use in this respect, given that it does not identify herds on the basis of their national origin. Information gathered in interviews with merchants and drovers uniformly indicates that the majority of Nigerian livestock is shipped to major cities from border markets. Trekking activity in Nigeria appears to be limited to movements of local stock from rural areas surrounding major cities.

It should be noted, nonetheless, that Nigeria had four principal trekking corridors in the past. The Sokoto-Ibadan corridor linked the northwestern states and districts of Sokoto, Katsina, Kaduna, and Niger with the coastal cities.²⁸ This route passed to the east of Bussa, crossed the Niger River in the region between new Bussa and Jebba (now the Zugurma Game Reserve), and continued southward to Ilorin, Ibadan, and Lagos.

A second route, varying between 250 and 350 kilometers eastward, followed the same general trajectory, leading from Kano State through Zaria, Kaduna, and Minna. Markets at the terminus of this itinerary included Benin City, Onitsha, and Port Harcourt. This would have been the principal route utilized by herds trekked southward from the region between Birni N'Konni and Zinder in Niger.

Herds descending the Jos Plateau moved to the coast along a relatively short route, through Wamba and Makurdi, to Port Harcourt and Calabar. This route was not, however, used by livestock from Niger.

The fourth itinerary led from Bornu State--Nigeria's principal livestock production zone--toward Gombe and Gongola. Herds trekked southward from Bauchi joined this route in Gongola, at either Mutum Biyu or (less often) at Wukari, continuing southward to the cities of Cross River. Niger herds crossing the border at points between Zinder and Lake Chad would have followed this itinerary, along with livestock from northern Cameroon and west-central Chad.

6.2 The Organization and Cost of Trekking

Field data indicate that because the costs of trekking can vary widely, the cost effectiveness of either trucking or trekking is a function of the particular itinerary chosen, as well as demand in provincial and terminal markets.

Trekking costs chiefly comprise two elements: labor and subsistence for drovers. Incidental costs which are unique to trekking include indemnities paid for damage done by livestock, grazing fees paid to local authorities, watering fees paid to the owners of wells, and payments extorted by forestry, veterinary, and police agents.

One particular feature of trekking in Niger distinguishes it from other countries in the Sahel. Drovers elsewhere in the region typically charge livestock traders a fixed fee for particular itineraries, regardless of the

²⁸ Katsina, the newest Nigerian state, was formerly incorporated by the adjacent states of Sokoto and Kano.

number of animals to be trekked. The number of drovers on any particular trip is determined by the manpower required to manage the number of animals transported. In these situations trekking economies of scale related to the cost of manpower are highly competitive with trucking costs, particularly for large herds. Even given the opportunity costs and risks associated with lengthy delivery delays related to trekking, economies of scale are sufficient to weigh decision-making in favor of trekking. In Niger, however, drovers charge a fixed "per head" fee for animals they convey, effectively eliminating any economies of scale for trekking.

6.2.1 Trekking Costs to Collection and Regroupment Markets

Nearly all livestock presented for sale in collection and regroupment markets in Niger are trekked. Livestock owners themselves or members of their families drive cattle and small ruminants to collection markets. Numbers of cattle presented for sale by individual owners at these markets are typically small (ranging from one to five cattle, and one to 10 sheep or goats) and are easily conveyed by only one or two people.²⁹

Dry-season or drought-related culling of livestock and the periodic concentration of nomadic groups in certain regions can occasionally result in the amassing of fairly large collection market herds. These are conveyed to markets by members of nomadic factions who own the animals.³⁰

Livestock conveyed to regroupment markets, however, have already entered the market chain and are usually owned by a non-herding entrepreneur. Hence, drovers must be hired for each subsequent stage of their movement on-the-hoof as well as for the handling of livestock in-market.

At large regroupment markets, thousands of cattle, sheep, goats, donkeys, camels, and horses are sometimes gathered in the confines of a corral. Additionally, hundreds of merchants, dillalis, drovers, and other interested persons move among the herds. Individual animals must be cut out and moved into herds being composed at the market by traders. This often creates dangerous conditions, when individual animals attempt to bolt from the confines of the market and may attack other animals or persons.

²⁹ Not all livestock brought to market are offered for sale. Additional animals are often brought along to accompany those which are for sale. Herders explain that isolated animals are difficult to manage, while those in even a small herd tend to remain calm in the marketplace.

³⁰ A "faction" may be loosely-defined as an extended pastoral kinship group which shares not only a common identity, but also collective responsibility for the management of livestock. Factions tend to come together during periods when grass and water resources are abundant, but disperse during periods of resource shortfall.

Exhibit 6.1

Comparative Costs of Trekking for a Sample of
the Domestic and Border Itineraries in Niger

Itinerary	Approximate Distance (km)	Duration (days)	Drovers Fee (CFA/head)		Drover Per Diem ((50 CFA)/head) x (# of days))	Cost/head (CFA/100 km)		
			Small Ruminants	Cattle		Small Ruminants	Cattle	
DOMESTIC ROUTES								
Badiguichiri-Illela	15	1	200	300	0	1333	2000	
Guiden Ider-Birni N'Konni	25	1	200	300	50	1000	1400	
Illela-Guiden Ider	40	1.5	200	300	100	750	1000	
Ayorou-Niamey	204	7	500	500	350	416	416	
Abalak-Ibohamane	100	2	100	200	0	100	150	
BORDER ROUTES								
Maradi-Djibiya	50	1	100	300	0	200	600	
Takieta-Maiadoua	96	2	150	250	0	156	260	
Birni N'Konni-Illela	8	0.25	50	100	0	625	1250	

Because local conveyance (distances of less than 30 km) tends to imply market-to-market movement, drovers tend to charge higher fees for short journeys. As shown in Exhibit 6.2, costs per head per kilometer are highest for short journeys to major regroupment markets. These can range between 750 and 1,333 CFA/100 km for small ruminants, and 1,000 to 2,000 CFA/100 km for cattle.

Major livestock markets that are poorly served by road transport (e.g. Badiguichiri) and markets located close to urban areas (e.g. Guiden Ider, which serves both Maradi and Tahoua) create greater demand for the services of capable drovers (i.e. those familiar with the location of pasture and water along market itineraries, as well as with intensively cultivated zones which must be avoided). The competitive demand pushes up drovers' fees.

6.2.2 Long Distance Trekking Costs

While longer journeys also require that drovers be familiar with the location of pasture and water, they are generally conducted along major traffic arteries (e.g. Ayorou-Niamey) or across sparsely populated areas of the pastoral zone. Per head fees charged by drovers for these journeys are comparatively lower but because of the longer duration, they are compounded by surcharges to cover the cost of daily subsistence. Unlike in other areas of the Sahel, drovers in Niger calculate subsistence costs on a per head rather than a per diem basis. Nonetheless, even when costs are compounded (drover's fee + subsistence), journeys greater than 50 km appear to incur lower per head charges than shorter journeys. This suggests that in Niger economies of scale are obtained as a function of distance traveled, rather than numbers of animals conveyed.

6.2.3 The Organization of Trekking

The manpower required for trekking livestock over long distances is minimally composed of one trek boss and several drovers. The number of drovers utilized is, in turn, a function of herd size, resource availability, and specifics of the route to be followed.

The trek boss serves as a facilitator, scout, and intermediary with local authorities along the route. As the senior member of the trek team, he is often related to one or several of the herd's owners or has established a relationship of trust with them as the result of prior service.

The trek boss is also the team's banker. The herd owners place cash in his keeping to cover subsistence costs of drovers and any incidental payments exacted from the herd along its itinerary. In the event of cattle mortality or forced sales along the route, the trek boss negotiates sale prices for liquidated stock or carries the skins of dead animals (as proof to their owners that the animals have died).

On occasion, trekking itineraries are planned so that herds will pass near collection or regroupment markets. Stops at these markets have several purposes. In addition to affording the herd a period of rest and nourishment, the trek boss may also be empowered to visit markets to negotiate sales of weakened animals or purchases of livestock to be added to the herd. At the largest markets along the

itinerary, the trek boss may rendezvous with herd owners who purchase new stock and hire additional drovers as necessary.

Trek bosses need to carry a large amount of cash to cover daily subsistence payments to drovers, transit or grazing fees to traditional local authorities, watering fees to the owners of wells, veterinary costs for the treatment of sick animals, and indemnities to farmers whose crops are damaged by the herd. Because trek bosses and drovers are often victims of armed attacks, traders sometimes manage risk by arranging for disbursements of cash by relatives or associates who reside in towns along the trekking route.

Typically, the trek boss has some means of transportation that allows him to move several hours ahead of the herd each day in order to scout for water, pasture, and camp sites along the itinerary.³¹ The trek boss will also call on local authorities and visit markets to obtain information regarding problems along the route. Of particular concern are reports on pasture and water, banditry, disease or toxic plants, social or political tensions, and official or quasi-official harassment of herders.

Because trekked herds carry little or no baggage, daily food supplies must also be purchased by the trek boss, who will usually prepare meals after the herd has made camp at the end of each day. On occasion, where the herd owner, trek boss, or drovers have social ties with the residents of villages near the trekking itinerary, gifts of food or prepared meals may be provided to the trekking team.

6.2.4 Labor Requirements for Trekking

Labor requirements for drovers and for routine herding differ for several reasons. Routine herding is essentially a subsistence activity which combines daily herd maintenance (grazing and watering) with longer term herd management and the conduct of social and economic relations. Trekking, on the other hand, is a well-ordered activity with a single objective: assuring that livestock arrive in sound condition at a particular destination and within a specified timeframe. Unlike routine herding activity, trekking takes place in environments that may be unfamiliar to livestock in the herd, often crossing several ecosystems. A pace is maintained to which livestock may be unaccustomed. In order to avoid losses due to stress, theft, wandering, or conflict, drovers must be more vigilant than usual around the clock throughout the entire trek.

Trekked livestock are typically drawn from a wide variety of herds and are often less gregarious than normal. Market herds are generally composed largely of bulls and steers, which tend to be aggressive, particularly in the absence of established "leaders" (mature stock that assume positions of leadership in the hierarchy of a domestic herd). Hence, trekked animals are insecure and

³¹ Herds traveling through the pastoral zone are typically accompanied by one or several camels which are used for transportation by the trek boss or drovers. For herds traveling along major roads or in more densely-populated areas, trek bosses will typically use bicycles or, more rarely, mobyettes.

frequently bolt from herders in response to unfamiliar environments, persons, or vehicles.

The number of drovers hired to accompany trek herds is thus a function of herd size and the degree of vigilance required for the itinerary. A minimum of three drovers is required for any herd up to 70 animals. Herds of between 70 and 120 animals are generally accompanied by four drovers, while herds of between 120 and 170 animals take five drovers. However, during rainy season and for itineraries that pass through heavily cultivated areas, additional drovers may be necessary to ensure that animals do not damage fields.

The maximum herd size is determined by several factors. The first, and most obvious of these is the amount of investment capital available to individual merchants. To share costs and risks, it is not uncommon for consortia of traders to co-assemble trekked herds. A second factor is resource availability. Trekked herds assembled during the dry season may find pasture or water unavailable. Even where water is available, fees paid to owners of wells can elevate the cost of bringing herds to market and limit herd size. While larger herds can be easily managed in the sparsely populated pastoral zone, it is nonetheless rare for trekked herds to have more than 170-180 animals. It is common, however, for larger trekked herds to divide into two or more smaller herds, traveling and grazing within several hundred yards of one another throughout the day and reassembling at night.

The number of drovers recruited for a particular trek also reflects the level of risk attributed to particular itineraries. Armed attacks on herds occur with relative frequency in certain regions, most notably along itineraries near the Chadian and Malian border (north of the Ayorou-Agadez diagonal) and in Bornu State (Nigeria). While herd owners generally seek to avoid areas where banditry occurs, but when this is not possible, additional drovers may be recruited.

The selection of drovers is a rigorous process, which takes into account not only the ability of individual recruits, but also their social identity. Trek bosses and herd owners seek to recruit at least several experienced drovers who are familiar with the itinerary to be followed. This familiarity is especially important for long treks which pass through different ecosystems and areas where drought, population density, or political conditions constrain access to pasture and water. Because they specialize in livestock husbandry, members of the Fulbe³² ethnic group tend to dominate the ranks of drovers. While Tamasheq (Tuareg) and Bella drovers are often found in Niger, they are not commonly engaged for cross-border trekking, except by herd owners of their own ethnic group.

Compensation to drovers is paid as a flat fee upon delivery at a terminal market or transportation hub, regardless of the number of days or weeks required for the journey. A portion of the drovers' fee is generally paid out at the start of longer journeys (more than a week's duration), with the remainder paid

³² Also known as Fulani (Hausa) or Peul (French).

upon completion of the trek. Daily subsistence allowances are periodically disbursed by the trek boss, who retains a portion for the daily purchase of food.

Payment to drovers for voyages home are usually negotiated on a case-by-case basis and are made either in the fee to the drover or as a separate item upon arrival at the trekking destination. Owners rarely pay performance bonuses or cash gifts to drovers, except where drovers maintain long-standing ties to their employer or where they have encountered unforeseen and unpreventable difficulties.

7. TRUCKING

7.1 Background

Niger's status as a landlocked nation has contributed to the emergence of a diversified road transport industry, which has grown apace with extension of the national route infrastructure. However, this development has been uneven, and a number of critical gaps remain that constrain development of livestock exports.

- Existing vehicle cargo capacity represents only between 75 and 92 percent of the requirement for all cattle exported and between 31 and 40 percent for small ruminants. The transport capacity shortfall for aggregate exports of both species appears to be far greater.
- Between 1977 and 1985, pastoral zone locations and towns along livestock market routes were served by a relatively higher proportion of cargo vehicles to passenger vehicles than principal export routes were, although some observers argue that the pastoral zone and major livestock markets are poorly served by cargo transport.
- Progressive isolation of livestock production and marketing zones does, however, appear to be emerging. Recent Government of Niger traffic counts indicate an overall decline in the rate of traffic growth since the 1985 road counts, to an average annual rate of only 2 percent. Traffic flows on the principal axes between Nigeria and Birni N'Konni, and Nigeria and Maradi have, however, increased by as much as 40 percent. Only 45 percent of all vehicle traffic takes place between locations within Niger, while 55 percent is between Niger and neighboring countries. The remaining 5 percent is through-traffic.
- Officially decreed tariffs for road transport produce inadequate revenues to operate and maintain transport enterprises. Rates which are freely negotiated in the marketplace are, therefore, significantly higher than those cited in official rate schedules.
- Livestock transport rates in the open market are responsive not only to supply and demand factors, but also to the relatively higher unit value of small ruminants in the marketplace. This is reflected in higher transport costs for small ruminants, as measured in per head and per ton/kilometer charges.

As elsewhere in the Sahel, road transport in Niger is characterized by high costs and inefficiency. This is due principally to the following factors:

- High import duties on vehicles, spare parts, and fuel;
- High administrative costs and fees for the registration and operation of vehicles;
- Tariff rates which are set too low, thereby limiting profitability and reinvestment;
- High transactions costs in the form of bribes, extortion, and other corrupt behavior by uniformed services responsible for controls; and
- Weak demand for transport services.

An additional factor which lessens the efficiency of road transportation in the Sahel is poor road maintenance, often attributed to government spending priorities that favor road creation. Niger is unique in the region, however, in the quality and magnitude of resources devoted to road maintenance.

7.2 Overview of the Transport Sector

The public transport sector comprises three categories of activity:

- Fuel transport is carried out by approximately 1,000 tankers, registered in Niger, with a total capacity of 4,000 M³.
- Passenger transport is provided by approximately 1,100 vehicles, with a capacity of roughly 26,000 seats. All types of vehicles provide public transport ranging from compact urban taxis to large-capacity buses. The majority of passenger vehicles are minibuses, with capacity of between 16 and 19 passengers.
- Goods transport (including livestock carriage) is provided by approximately 1,400 vehicles, with a total cargo capacity of between 30,000 and 35,000 tons.

Freight transport in Niger is dominated by the Societ  Nationale des Transports Nigeriens (SNTN), an autonomous mixed public-private company with a fleet of nearly 500 cargo vehicles. While SNTN enjoys a monopoly on uranium exports and uranium industry-related imports, the majority of its business is from competitive bidding and negotiation with private and parastatal companies. The second and third largest transport companies are the Societ  Nationale de Ramassage des Arachides, which operates 20 vehicles, and the Office des Produits Vivriers du Niger, with approximately 60 vehicles.

Approximately 300 private transport entrepreneurs or incorporated companies own and operate some 400 goods vehicles in Niger. Many of these transporters are

members of the Syndicat National des Transporteurs, an industry organization which assures equitable distribution of haulage among its members, negotiates SNTN sub-contracts, and plays an advocacy role vis-a-vis the government. According to the World Bank (1988), approximately 65 percent of private transport entrepreneurs own only one vehicle; 12 percent have two vehicles; and only 1 percent own more than 40 vehicles each.

7.3 Route Infrastructure

7.3.1 Domestic Route Infrastructure

Niger's principal road network is based on three key axes:

- The West-East Route Nationale 1, which traverses Niger from its border with Mali to Lake Chad. Only 1,574 of its 1,850 km are paved and included in the "classified" network of routes maintained under the supervision of the Ministry of Public Works.
- The north-south axis, which comprises principally the 697 km Tahoua-Agadez-Arlit paved road (which is maintained by the national uranium mining company), and Route Nationale 11, which covers some 800 km between Agadez, Zinder, and the Nigerian border. A third north-south route, is the 2,900-km road which crosses the Sahara desert, linking Agadez with the Algerian cities of Tamanrasset, Ghardaia, and the port of Algiers.
- A diagonal link between the east-west and north-south axis is provided by the 525-km Route Nationale 29 and the Tahoua-Agadez segment of the Trans-African highway.

7.3.2 Export Route Infrastructure

Transportation links between Niger and the West African coast comprise three main corridors:

- The Nigerian road network links central and eastern Niger with Lagos, Ibadan, and Port Harcourt, a distance of approximately 1,450 km. At least five paved roadways in excellent condition join the Niger road system at the border. Cargo vehicles serving Niger can also link up with the Nigerian rail services at Kano.
- The Togo corridor, 1,350 km long, passes through Burkina Faso, and terminates at the Togolese port of Lomé.
- The Benin route, 1,100 km long, connects southwestern Niger with road and rail lines to Cotonou and Port Novo. This route has been poorly maintained during the past decade but is nonetheless the preferred point of entry and departure for goods shipped by sea.

A much less significant route also links Niger with the Côte d'Ivoire port of Abidjan. This route passes through Burkina Faso, where both road and rail links continue on to Abidjan. The total distance of this corridor is approximately 1,720 km.

The importance of these external links to the Niger economy is underlined by Ministry of Transport estimates for the mid-1980s concluding that only 43 percent of all vehicle traffic took place between locations within Niger, while 55 percent was between Niger and Nigeria. (The remaining 2 percent was through-traffic.)

7.4 Vehicle Requirements and Availability

The examination of constraints on increased use of road transport for livestock exports considers several aspects of vehicle availability: the existence of vehicles suitable for livestock transport, aggregate cargo capacity, and the accessibility of suitable vehicles in production zones.

7.4.1 Vehicle Requirements for Livestock Transport

While all vehicle types are utilized to transport livestock, the physical requirements of livestock as a cargo type and cost/benefit considerations for long-distance haulage limit commercial transport activity to three types of vehicle:

- Medium-sized trucks with a 10- or 12-ton capacity, used primarily to transport small ruminants distances of 100-600 km within Niger, or for the full length of the north-south axis in Nigeria. Livestock capacity for a 10-ton truck is approximately 80 small ruminants or 12 cattle.³³
- Medium-sized trucks with a 15-ton capacity for small ruminant and cattle transport (e.g. Mercedes 1924L) over distances similar to those for 10-ton vehicles. Capacity for a 15-ton truck is 100 small ruminants or 15 cattle.
- Tractor-trailers with a 30- to 40-ton load capacity, mainly used for cattle transport. The category of trailer most frequently used for livestock transport is marketed by manufacturers as a "steel produce trailer." Average capacity is 26 cattle or 130 small ruminants.

³³ Figures utilized are those provided by livestock traders and observed in the field. Interviewees noted that more animals can be carried than the number cited, but claim that mortality due to stress and injury rises when larger numbers than those cited are shipped.

Not all vehicles with adequate cargo capacity and engine power may be used to transport livestock, however. Cisterns or tank trucks used to import petroleum and other liquids, flatbed vehicles for hauling containerized cargo, and ore carriers are incapable of carrying live cargo. Similarly, hygiene considerations preclude the use of vehicles that transport foods, beverages, tobacco, and pharmaceutical products to transport livestock. (As discussed subsequently in this report, meats may be transported in any frozen or refrigerated vehicle; however, these vehicles must be specially outfitted to satisfy the requirements imposed by retail and industrial buyers in urban markets.)

7.4.2 Vehicle Availability

Data from Niger's Ministry of Transport and Tourism are not sufficiently current or detailed to precisely indicate available transport capacity for livestock. Analysis of several different vehicle categories in Ministry data nonetheless provides a point of departure for general conclusions.

Exhibit 7.1 summarizes annual new vehicle registration data for the period 1970-84, broken down by passenger vehicle (cars, vans, and buses) and cargo vehicle. The latter group includes three categories: trucks (including two and three-axle vehicles up to 15-ton capacity), tractors (cabs/engines), and cargo trailers (including flatbeds, cisterns, and steel produce trailers).

Between 1970 and 1974, new vehicle registrations for goods vehicles increased by a mean figure of only 10.9 percent. However, for the 1975-79 period, new goods vehicle registrations increased by a mean 267 percent. This growth was undoubtedly the result of three key developments: project development activities related to the Arlit uranium mines, the construction of the Agadez-Arlit highway, and economic growth driven by uranium exports.³⁴ During this same period, petroleum-driven economic growth in Nigeria peaked, stimulating increased bilateral trade and transport activity between the two nations.

New goods vehicle registrations between 1980 and 1984 plummeted, however, by a mean of -66.5 percent, coinciding with contraction of the Nigerien and Nigerian economies.

By comparison, between 1977 and 1981, the total number of vehicles registered and on the road in Niger grew at an average annual rate of 12 percent, rising from 13,200 to 21,200. Between 1982 and 1986, however, the total number of vehicles on the road remained relatively unchanged, at 23,000.³⁵

³⁴ Niger's GNP growth was negative throughout the 1965-73 period, at -2.6 percent per year, but grew at an average of 2.6 percent between 1973-80. Between 1980-87, however, GNP growth became negative again, at an average of -4.9 per year.

³⁵ For further discussion, see Annexes 3 and 4, World Bank (1988).

Exhibit 7.1

New Vehicle Registration Statistics, 1970-1984

Year	Passenger Vehicles			Goods Vehicles		
	Cars	Vans	Buses	Trucks	Tractors	Trailers
1970	835	231	33	154	98	47
1971	690	506	22	108	50	21
1972	745	416	33	168	50	38
1973	744	485	49	215	85	59
1974	842	397	68	216	78	53
Growth for 5-year period (%)	1.01	71.9	106.1	40.3	-20.4	12.8
1975	816	354	69	251	123	51
1976	725	576	89	166	130	109
1977	1,280	697	67	232	207	160
1978	1,208	717	104	276	287	185
1979	1,735	1,001	219	431	259	214
Growth for 5-year period (%)	113	283	317	172	211	420
1980	2,005	1,027	166	375	203	164
1981	1,858	921	217	290	78	71
1982	1,993	788	198	179	99	81
1983	1,604	567	176	90	57	41
1984	1,279	609	175	111	66	63
Growth for 5-year period (%)	-36.2	-40.7	5.4	-70.4	-67.5	-61.6

Source: World Bank, Niger Transport Sector Project,
Staff Appraisal Report, May 1986

7.4.3 Derived Cargo Capacity for Livestock

Despite the absence of precise and current data, it is possible to derive a hypothetical minimum capacity for Niger livestock cargo of between 5,700 and 7,390 tons. To arrive at this figure, it is first necessary to deduct from the total number of registered vehicles those that are known to engage in other forms of cargo carriage, and to identify relative proportions of trucks, tractors and trailers for the remainder.

In 1988, the last year for which comprehensive data are available from the Ministry of Transport and Tourism, the total number of non-cistern goods vehicles was 1,388, including 736 two and three-axle trucks, and 652 articulated vehicles (tractor-trailers). A total of 1,110, or 80 percent of all goods vehicles had a cargo capacity of greater than 15 tons, qualifying them as hypothetically suitable for long-haul transport of livestock.³⁶

However, one may deduct a total of 689 vehicles from the pool of vehicles hypothetically suitable for livestock transport. These would include 609 vehicles (338 tractors, 262 trailers, and 9 trucks) utilized by the SNTN for non-livestock goods and commodities; 20 vehicles owned and operated by the Société Nationale de Ramassage des Arachides; and 60 vehicles owned by the Office des Produits vivriers du Niger, which are used exclusively to transport peanuts, cereals, and other farm produce.

On the basis of proportional new registrations of trucks, tractors and trailers for the period 1970-84, it may be assumed that between 40 and 50 percent of all remaining vehicles (or between 168 and 210 vehicles) are two and three-axle trucks; 26 percent of all vehicles (109 vehicles) are tractors; and between 102 and 144 vehicles are trailers.³⁷ Given the requirement that tractors and trailers must operate in tandem, the total hypothetical available tractor-trailer capacity would be 102 units.

Given that the maximum capacity is 15 tons for three-axle trucks and 30 or 40 tons for tractor-trailers, the derived maximum capacity calculated for the above vehicles is between 5,700 and 7,390 tons for any single rotation of all vehicles.

³⁶ It is interesting to note that data for fuel consumption during the periods described above reflect a different trend from those of vehicle registrations. Between 1982 and 1986, Niger's annual consumption of diesel fuel, which is used primarily by heavy goods vehicles, has declined annually by 15 percent since 1982. While some of this is due to declining overall vehicle numbers, one must also consider the effects of clandestine entry of less costly Nigerian fuel. The decline in fuel consumption reversed in 1987, due largely to the Government's decision to decrease fuel taxes by 30 percent, resulting in increased consumption of all engine fuels by 13 percent that year.

³⁷ According to the World Bank (1988), the average age of non-SNTN goods haulage vehicles is 10 years.

Alternately, in terms most relevant to participants in the market, this capacity may be expressed as between 27,220 and 34,780 small ruminants or between 4,772 and 5,906 cattle for any single rotation of all vehicles.

If it is assumed that each vehicle can make 20 round-trip voyages per year between Niger and the Nigerian coastal cities, total minimum annual cargo capacity would be between 544,000 and 695,600 small ruminants, or between 95,440 and 118,120 cattle.

When compared with annual average estimated export statistics (controlled exports + estimated clandestine exports) reported by the Ministry of Animal Resources for the period 1981-87, it can be seen that existing minimum cargo capacity represents between 75 and 92 percent of the requirement for all cattle exported and between 31 and 40 percent for small ruminants. The transport capacity shortfall for aggregate exports of both species would be far greater. This shortfall is masked, however, by the prevalent practice of trekking livestock to border-markets in Nigeria, whence they are trucked onward.

While these figures are admittedly hypothetical, they suggest that there may be a shortfall in existing Nigerien transport capacity for livestock.

7.4.4 Traffic Penetration into Production Zones and Markets

As noted above, 80 percent of the Nigerien road system is located below the Abala-N'Guigmi line, south of Niger's pastoral production zone. This raises the critical issue of accessibility to road transport for Niger's livestock exporters. To assess whether transport service to the pastoral zone and major livestock marketing centers and along export routes has exhibited growth equal to that in other areas of the country, some analysis of traffic flows is in order.

In 1976/77 Government of Niger agents carried out traffic counts at 24 survey points near major towns located along the nation's principal roadways. In 1985 an expanded exercise was carried out, comprising traffic counts at some 93 points on the Nigerien road network. Comparative results of these exercises are found in Exhibit 7.2.

For 24 road segments counted in both exercises, overall growth rates ranged between 5 and 50 percent per year, with the highest rates occurring on the principal paved arteries of the network. This included 50 percent growth for the Tahoua-Agadez segment; 32 percent growth for the Agadez-Arlit segment; and 25 percent for the Birni N'Konni-Tahoua segment. Growth on a number of important unpaved linkages was also high, due largely to secondary and feeder road improvements carried out under World Bank transport sector projects.

However, when growth rates in daily traffic flow are compared according to several categories, relative uniformity is evident nationwide.³⁸

³⁸ Original World Bank data was reported only on the basis of origin and destination of individual linkages. Aggregation of categories in Exhibit 7.5 was carried out for the purpose of this study.

Exhibit 7.2

Comparison of Traffic Levels on Principal Nigerien Roads, 1977 and 1985
(Vehicles per day)

Market-Link (Direction)	1977 Traffic	1985 Traffic	2-Axle Truck	3-Axle Truck	Tractor Trailer	Annual Growth Rate
PASTORAL ZONE						
Tahoua-Agadez	16	239	--	--	--	50
Birni N'Konni-Tahoua	50	303	--	--	--	25
Agadez-Arlit	14	127	25	2	22	32
Zinder-Tanout (U)	25	50	--	--	--	8
Tanout-Agadez (U)	13	16	--	--	--	3
Maradi-Dakoro (U)	25	131	--	--	--	36
EXPORT ROUTES						
Gaya-Nigeria border	22	92	0	0	1	20
Dosso-Gaya	86	264	10	0	111	17
Maradi-Nigeria border	106	827	33	0	25	29
Zinder-Nigeria border	14	155	4	2	24	35
Takieta-Nigeria border	82	219	5	0	2	9
Matamaye-Magaria (U)	7	50	11	0	0	28
OTHER ROUTES						
Niamey-Torodi	48	159	20	1	38	17
Niamey-Gotheye	91	269	70	3	6	15
Gotheye-Tillaberi	48	171	9	1	5	17
Niamey-Baleyara	62	154	15	1	4	12
Baleyara-Filingue	46	106	10	1	5	11
Niamey-Kollo	61	497	24	1	9	30
Niamey-Dosso	156	650	--	--	--	20
Dosso-Bolbol	103	418	21	2	79	19
Dogondoutchi-Birni N'Konni	95	143	29	3	93	5
Madaoua-Maradi	90	695	43	4	57	29
Tchadaoua-Takieta	37	251	14	1	28	27
Takieta-Zinder	141	277	14	3	27	9
Niamey-Ouallam (U)	36	45	9	0	6	3
Niamey-Say (U)	20	127	10	2	3	26
Gotheye-Tera (U)	18	40	7	1	1	11
Tillaberi-Ayorou (U)	5	31	6	0	4	26
Bouza-Keita (U)	2	24	11	0	2	36
Tchadaoua-Mayahi (U)	3	55	2	0	1	47
Mean Annual Growth						
Pastoral Zone	26					
Export Routes	23					
Other Routes	20					
Paved Routes	21					
Unpaved Routes	22					

Source: World Bank, Niger Transport Sector Project, Staff Appraisal Report, 1986

Exhibit 7.3

Mean Annual Growth Rates of Traffic on Nigerien Roads, 1977-1985

Category	Mean Annual Growth Rate (%)
Pastoral Zone	25.67
Export Routes	23.00
"Other" Routes	20.00
Paved Routes	18.29
Unpaved Routes	22.40

While overall traffic flow figures indicate general trends in growth, they are of little utility in assessing the degree to which the livestock sector is served by transport services. Exhibit 7.4 provides more precise data on the proportionate distribution of traffic to 42 pastoral zone locations, livestock markets, and export linkages with Nigeria by vehicle type.³⁹

Conclusions drawn from the data are contrary to an initial hypothesis considered by the author: Inadequate penetration of cargo vehicles into the pastoral zone constrains road transport of livestock. The data suggest, instead, that pastoral zone locations and towns along key livestock market routes are served by a relatively higher proportion of cargo vehicles than are principal export routes outside the pastoral zone. (Areas where no cargo-vehicle transportation flows were observed are, nonetheless, located exclusively in the pastoral zone and along unimproved tracks, suggesting the relative isolation of those regions.) It is possible, however, to attribute the growth in traffic flow into Niger's pastoral zone between 1977 and 1985 principally to new road construction linking key southern cities with the uranium mines in Arlit and industrial activity there.

According to Niger's Ministry of Transport and Tourism, traffic growth rates since the 1985 road counts have declined to an average annual rate of only 2 percent. Traffic flow on the principal axes between Nigeria and Birni N'Konni, and Nigeria and Maradi have, however, increased by as much as 40 percent in the aggregate since the last count. The Ministry also estimates that only 43 percent of all vehicle traffic occurs between locations within Niger, while approximately 55 percent is between Niger and adjacent states. This would suggest a progressive isolation of pastoral regions and major livestock marketing centers north of the Zinder-Niamey axis.

³⁹ As in Exhibit 7.4, data derived from World Bank traffic counts have been aggregated and restructured for the purpose of this analysis.

Exhibit 7.4

Comparison of Traffic Levels to Nigerien Livestock Markets, 1985
(Vehicles per day)

Market-Link (Direction)	Total Vehicles	Passenger Vehicles	2-Axle Truck	3-Axle Truck	Tractor Trailer	Trucks as % of total
PASTORAL ZONE ROUTES						
Ayorou-Mali border	26	16	5	0	5	38.5
Banibangou-Mali border	3	2	1	0	0	33.3
Baleyara-Banibangou	11	6	4	0	1	45.5
Agadez-Arlit (West)	128	88	18	0	22	31.3
Agadez-Arlit (East)	30	21	7	2	0	30.0
Agadez-Bilma	6	2	2	0	2	66.7
Agadez-Agadez	2	2	0	0	0	0.0
Assaouas-Teguidda-n-Tessoum	1	1	0	0	0	0.0
Agadez-Assamaka (Algeria border)	8	4	2	2	0	50.0
Kao-RN25	51	27	17	2	5	47.1
Tahoua-Baramou	25	23	2	0	0	8.0
Tahoua-Bambeye	6	5	1	0	0	16.7
N'Guigmi-Chad	14	5	8	1	0	64.3
					Mean	35.0
LIVESTOCK MARKET ROUTES						
Total Vehicles	Passenger Vehicles	2-Axle Truck	3-Axle Truck	Tractor Trailer	Trucks as % of total	
Dabna-Badegui-Chiri-Tahoua	302	222	25	1	54	26.5
Tahoua-Abalak	239	166	31	3	39	30.5
Agadez-Sabonkafi	17	5	4	1	7	70.6
Assaouas-Ingall	4	2	2	0	0	50.0
Ingall-Teguidda	4	2	2	0	0	50.0
Inouagar-Ingall	1	1	0	0	0	0.0
Tebaram-Tahoua	3	3	0	0	0	0.0
Tebaram-Bedeguichiri	66	55	8	2	1	16.7
Malbaza-Dabnou	13	8	4	0	1	38.5
Bouza-Keita	23	10	11	0	2	56.5
Keita-Tahoua	72	59	11	0	2	18.1
Diffa-N'Guigmi	33	20	12	1	0	39.4
Zinder-Sabonkafi	50	28	11	0	11	44.0
RN1E-Dakoro	131	100	24	0	7	23.7
Dakoro-Belbelji	23	20	3	0	0	13.0
Keita-Dakoro	10	9	1	0	0	10.0
Tchadoua-Mayahi	56	53	2	0	1	5.4
					Mean	27.1
EXPORT ROUTES						
Dosso-Gaya	264	143	10	0	111	45.8
Gaya-Kamba (Nigeria)	91	90	0	0	1	1.1
RN1-Bangui (Nigeria)	33	31	2	0	0	6.1
Margou-Gaya (Benin & Nigeria)	47	34	10	0	3	27.7
Maradi-Nigeria	827	769	33	0	25	7.0
Takeita-Nigeria	219	212	5	0	2	3.2
Zinder-Nigeria	155	125	4	2	24	19.4
Timkin-Nigeria	100	90	10	0	0	10.0
Magaria-Nigeria	32	29	3	0	0	9.4
Madaroumfa-Nigeria	110	94	13	0	3	14.5
					Mean	13.9

Source: World Bank, Niger Transport Sector Project Staff Appraisal Report, May 1986

7.5 Road Transport Costs

7.5.1 Government Controls and Domestic Tariffs

Although the Government of Niger establishes and controls domestic road transportation tariffs by decree, these are not generally enforced. Rather, they serve as a basis for transporters and their clients to negotiate competitive rates. The principal exception is in Government transactions with SNTN, which protect its relatively advantageous position in negotiating tariff rates on service to government agencies. In spite of fluctuations in vehicle operating costs related to CFA franc value, increased fuel charges, and official levies, the current tariff schedule has not been altered since August 1982. The Government of Niger's laxity in enforcing decreed tariffs allows transporters to negotiate higher rates in the private sector.

As indicated in Exhibits 7.5 and 7.6, official tariffs are established on the basis of three criteria: category of cargo, transport on either paved or unpaved roads, and official tariffs prescribed for particular itineraries. (Prescribed mileage-based calculations for particular itineraries do not necessarily reflect the realities of route infrastructure. Tariff formulas occasionally refer to paved road surfaces which do not exist except in tariff calculations, or which are so degraded that their categorization as such is questionable, such as, for example, the Diffa-N'Guigmi route.)

Cargo categories reflect the value and ease of handling particular commodities, allowing lower rates for foods and goods which may be shipped in concentrated loads and which use all available shipping space or volume. The highest rates are prescribed for cargo which has high unit-value (e.g. manufactured goods), or which requires special handling (e.g. livestock). The marginal difference in tariff rates is only 13 percent for the least and most costly categories of cargo.

7.5.2 Domestic Market Price of Livestock Transport

Although government tariff schedules are based on prescribed calculations of unit value and distance, in practice transporters levy charges quoted exclusively on a per head basis for the number of animals transported. As indicated in Exhibits 7.7 and 7.8, privately-negotiated tariffs for livestock transport can vary from official rates by as much as 67 percent. On a seasonal basis, freely negotiated tariffs can fluctuate by as much as 40 to 50 percent. These seasonal fluctuations are principally due to peak demand for small ruminants in domestic and export markets during the period immediately prior to the Moslem holiday of Eid-el-Kebir or Tabaski.

Exhibit 7.5

Domestic Cargo Tariffs for Road Transport in Niger

Cargo Category	Tariff (CFA Francs/Ton kilometer)	
	Paved Road	Unpaved Road
Category I1:		
Cereals, flour, pasta, salt, beans, and pulses	24.76	32.94
Category I2:		
Cotton, kola nuts, fruits, peanuts, sugar cane	25.89	32.94
Category I3:		
Cotton cake, sugar, sweets, milk, tomatoes, beverages	25.89	32.94
Category III1:		
Textiles, matches, soap, fertilizer	25.89	32.94
Category II2:		
Wood, cement, steel, iron ingots	27.01	34.43
Category II3:		
Other general goods	28.14	35.93

Source: Republique du Niger, Ministère du Commerce et des Transports, Arrete No. 023/MC/T/DCP du 30/8/1982 fixent les tarifs de transports de marchandises.

Exhibit 7.6

Official Route Tariff Calculations for Domestic Cargo

Itinerary	Base Distance for Tariff Calculation (km)		Derived Tariff: 30-Ton Truck (000 CFA)	
	Paved	Unpaved	Cereals	Cattle
Inter-Prefecture Routes				
Niamey-Dosso	137	0	101,763	115,655
Niamey-Tahoua	550	0	408,540	464,310
Niamey-Agadez	974	0	723,487	822,250
Niamey-Maradi	662	0	491,733	558,860
Niamey-Zinder	891	0	661,834	752,182
Niamey-Diffa	1,362	152	1,161,899	1,313,640
Agadez-Maradi (via Zinder)	229	445	320,307	672,986
Agadez-Zinder	0	445	439,749	479,665
Prefecture Routes				
Niamey-Tillabery	114	0	84,679	96,238
Niamey-Ouallam	0	99	97,831	106,712
Niamey-Say	0	55	54,351	59,284
Niamey-Filingue	183	0	135,932	197,255
Niamey-Tera	63	113	158,462	174,986
Dosso-Birni N'Gaore	32	0	23,769	27,014
Dosso-Dogondoutchi	137	0	101,763	115,655
Dosso-Gaya	151	0	112,162	97,083
Dosso-Loga	0	74	73,126	79,764
Tahoua-Bouza	0	149	147,241	160,607
Tahoua-Keita	0	94	92,890	101,322
Tahoua-Birni N'Konni	133	0	98,792	112,278
Tahoua-Madoua	0	196	193,687	211,268
Tahoua-Malbaza	199	0	147,817	167,995
Tahoua-Illela	50	15	51,963	58,378
Tahoua-Tchintabaraden	73	80	133,280	147,858
Maradi-Dakoro	0	126	124,513	135,815
Maradi-Mayahi	35	54	79,360	87,753
Maradi-Tessaoua	115	0	85,422	97,083
Zinder-Goure	101	0	75,022	85,264
Zinder-Magaria	146	0	108,448	123,253
Zinder-Mirriah	14	0	10,399	11,818
Zinder-Tanout	0	149	147,241	160,607
Agadez-Arlit	246	0	182,728	207,673
Diffa-Maine Soroa	72	0	53,481	60,782
Diffa-N'Guigmi	130	0	96,564	109,746

Exhibit 7.7

Comparison of Free Market and Official Tariffs for Livestock Transport in Niger: 10-Ton Trucks

Small Ruminants

Itinerary	Distance (km)	Official Tariff		Free Market Tariff			Average Cost Per Head Per 100 km		
		Tariff	Cost Per Small Ruminant	Small Ruminants Low	Small Ruminants High	Low	Cost Per Head High	Mean	100 km
Ayorou-Niamey	204	35,803	447	40,000	60,000	500	750	625	306
Badeguichiri-Birni N'Konni	73	20,542	256	16,000	20,000	200	250	225	308
Tanout-Zinder	139	39,114	488	40,000	60,000	500	750	625	449
Birni N'Konni-Niamey	420	118,188	1,477	120,000	176,000	1,500	2,200	1,850	440
Goure-Zinder	166	59,643	745	60,000	64,000	750	800	775	466
Abalak-Tahoua	125	35,175	439	36,000	52,000	450	650	550	440
								Unweighted Mean	402

Cattle Itinerary

Itinerary	Distance (km)	Official Tariff		Free Market Tariff		Average Cost Per head Per 100 km	
		Tariff	Cost Per Head Cattle	Free Market Cost	Tariff Cost Per Head		
Ayorou-Niamey	204	35,803	2,983	36,000	3,000	1,470	
Badeguichiri-Birni N'Konni	73	20,542	1,711	15,600	1,300	1,780	
Tanout-Zinder	139	39,114	3,259	39,000	3,250	2,338	
Birni N'Konni-Niamey	420	118,188	9,849	96,000	8,000	1,904	
Goure-Zinder	166	59,643	4,970	57,000	4,750	2,861	
Abalak-Tahoua	125	35,175	2,931	33,000	2,750	2,200	
						Unweighted Mean	1,569

Exhibit 7.8

Comparison of Free Market and Official Tariffs for Livestock Transport in Niger: 30-Ton Trucks

Small Ruminants

Itinerary	Distance (km)	Official Tariff		Free Market Tariff			Cost Per Head			Average Cost Per Head Per 100 km
		Tariff	Cost Per Small Ruminant	Small Ruminants Low	Small Ruminants High	Low	High	Mean		
Ayorou-Niamey	204	186,781	747	65,000	97,500	500	750	625	306	
Badeguichiri-Birni N'Konni	73	61,626	246	32,500	48,750	250	375	312	428	
Tanout-Zinder	139	117,342	469	65,000	97,500	500	750	625	449	
Birni N'Konni-Niami	420	354,564	1,418	195,000	286,000	1,500	2,200	1,850	440	
Goure-Zinder	166	178,931	715	97,500	104,000	750	800	775	466	
Abalak-Tahoua	125	105,525	422	58,500	84,500	450	650	550	440	
								Unweighted Mean	422	

Cattle

Itinerary	Distance (km)	Official Tariff		Free Market Tariff		Average	Cost Per Head Per 100 km	
		Tariff	Cost Per Head Cattle	Total	Cost Per Head			
Ayorou-Niamey	204	186,781	7,183	90,000	3,461		1,696	
Badeguichiri-Birni N'Konni	73	61,626	2,370	40,000	1,538		2,107	
Tanout-Zinder	139	117,342	4,513	100,000	3,846		2,767	
Birni N'Konni-Niami	420	354,564	13,637	250,000	9,615		2,289	
Goure-Zinder	166	178,931	6,881	140,000	5,384		3,243	
Abalak-Tahoua	125	105,525	4,058	80,000	3,077		2,461	
							Unweighted Mean	2,427

The tables also indicate a significant degree of variation in transport costs for small ruminants and cattle. For all itineraries studied in the field, costs of shipping cattle appear to be discounted when compared with those of transporting small ruminants. In general transporters attribute higher relative market value to shipments of sheep and goats, and therefore charge higher rates for small ruminant shipments. The result of this practice is preference by transporters for shipments of small ruminants, due to the higher revenues they generate. During periods of competitive demand for transport, the difference in revenue derived from hauling small ruminants can be so great as to create major bottlenecks in the flow of cattle to urban markets.

One example--the Ayorou-Niamey itinerary--illustrates this point well. At the time the author visited Ayorou markets, two weeks prior to Tabaski, livestock merchants complained that they had been unable to obtain "reasonably priced" transport for their cattle for a period of several weeks. Per head shipping charges of 750 CFA francs for small ruminants resulted in per load gross revenue of 60,000 CFA francs for each 10-ton truck departing from Ayorou market. This compared with standard transport rates of 3,000 CFA francs per head for cattle, or only 36,000 CFA per load. Cattle merchants claimed that they would suffer losses if they were to pay more than the standard year-round charge on their animals.⁴⁰

This phenomenon is attributable to two factors: the practice of quoting livestock transport rates on a per head basis, and the relative ease of shipping small ruminants. While large numbers of sheep and goats can be loaded into trucks with little negative consequence, cattle are especially susceptible to trampling and goring when shipped in crowded conditions. As a result of this difference, however, Nigerien transporters have practical economic reasons to favor small ruminants over cattle, even during periods of low demand.

A second major observation derived from comparative data on livestock transport appears to be that no practical economies of scale are derived from larger shipments of livestock by road. Exhibit 7.9 compares average shipping costs for 10- and 30-ton vehicles on the basis of costs per head per 100 kilometers, and costs per ton/kilometer for small ruminants and cattle. The data for small ruminants indicate that unit costs by either of the two criteria are between 5 and 9 percent higher for 30-ton vehicles.

⁴⁰ While charges listed in Exhibits 7.7 and 7.8 for a 30-ton load of small ruminants from Ayorou market are derived from the reports of livestock merchants, no shipments of that size were seen. Nonetheless, it should be noted that on the basis of "per head" charges, the hypothetical difference between a 30-ton shipment of 250 small ruminants (187,500 CFA) and a similar shipment of cattle at "standard" rates (90,000 CFA) is greater than 20 percent.

Exhibit 7.9

Comparative Costs of Livestock Shipment in 10-Ton and 30-Ton Trucks (CFA)

	--Small Ruminants--		Varia-	-----Cattle-----		Varia-
	10-ton	30-ton	tion	10-ton	30-ton	tion
	Truck	Truck	(% +/-)	Truck	Truck	(% +/-)
Average Cost Per Head Per 100 Km	401.5	421.5	5.0	1,569.0	2,427.0	54.6
Average Cost Per Ton/ Kilometer	32.1	35.2	9.3	25.1	21.0	(16.21)

For cattle, however, these data are somewhat contradictory. Per head costs per 100 kilometers are grossly higher for 30-ton vehicles (by over 50 percent). However, as measured in costs per ton/kilometer, economies of scale of approximately 16 percent can be obtained. In spite of this apparent contradiction within the data, it can be assumed that unit costs of shipping livestock by 30-ton vehicles are generally higher.

7.5.3 Border Prices and Domestic Transport Costs in Nigeria

The respective governments establish international transport tariffs for vehicles traveling the Niger-Nigeria corridor, although on occasion they have been the result of bilateral negotiations.

The most recent instance of tariff adjustment by the Government of Nigeria occurred in April 1989, when transport rates were increased by 150 percent. However, just as official tariffs appear to have little bearing on privately negotiated rates in Niger, Nigerian transporters regularly disregard official guidelines. Privately negotiated rates observed in the field typically ran at only 25-33 percent of official rates. Informants in the field noted that official rates are generally applied only to carriers working on a contractual basis for the government. Because these rates are so much higher than those in the free market, competition in Nigeria is intense for such contracts.

It should be noted, however, that the official tariffs listed below apply to all categories of goods. Given that the majority of cargo traffic between Niger and Nigeria comprises imports traveling a south to north trajectory, the generally lower rates utilized for livestock appear to be discounted for back-haul commodities. Unlike containerized or densely-packed imports, most back-haul commodities (including livestock) are bulky and of low unit-value.

Exhibit 7.10

Official Nigerian Tariffs
for the Niger-Nigeria Corridor
(30-ton trucks)

Itinerary	Cost in Naira	Distance (km)	Charge per ton/km (NAIRA)
Lagos-Maradi	15,000	1,393	2.78
Lagos-Zinder	15,000	1,367	2.73
Lagos-Tahoua	16,000	1,322	2.48
Lagos-Niamey	22,000	1,482	2.02

A principal difference between official tariffs in Niger and Nigeria is their relation to actual market value of road transport. Whereas tariffs in Niger appear to serve as only a floor-price for road transport, in Nigeria they represent the highest negotiable rates, generally obtainable only where the federal government is the client. Informants in the field noted the great disparity between transport agreements negotiated with government and quasi-public entities and private sector clients. Government tariffs are reported to run between 30 and 50 percent higher than those in the open market.

Exhibits 7.11 and 7.12 summarize interview data pertaining to livestock transport tariffs for five cross-border itineraries and 10 principal domestic itineraries in Nigeria.

Exhibit 7.11

Border Road Transport Costs for Livestock in Niger

Itinerary	Distance (km)	10-Ton Truck		Unit Cost (per ton/km)		30-Ton Truck		Unit Cost (per ton/km)	
		Naira	FCFA	Naira	FCFA	Naira	FCFA	Naira	FCFA
Birni N'Konni-Zaria	406	--	--	--	--	4,000	121,200	0.33	9.95
Birni N'Konni-Lagos	1,200	--	--	--	--	5,000	151,500	0.14	4.20
Maradi-Djibiya	50	825	25,000	1.70	50.00	--	--	--	--
Zinder-Lagos (a)	1,367	--	--	--	--	6,500	196,000	0.16	4.78
Zinder-Lagos (b)	1,367	--	--	--	--	10,000	303,000	0.24	7.37
Mean				1.70	50.00			0.22	6.5
Standard Deviation								0.12	2.2

Note: Zinder-Lagos route (a) is for vehicles arriving in Zinder without cargo from Zaria; Zinder-Lagos route (b) is for vehicles arriving empty from Kano.

Source: Interviews with traders and transporters in Niger and Nigeria.

Exhibit 7.12

Domestic Road Transport Costs for Livestock in Nigeria

Itinerary	Distance (km)	10-Ton Truck		Unit Cost (per ton/km)		30-Ton Truck		Unit Cost (per ton/km)	
		Naira	FCFA	Naira	FCFA	Naira	FCFA	Naira	FCFA
Danbatta-Kano	70	250	7,575	0.36	10.82	--	--	--	--
Danbatta-Kaduna	256	600	18,180	0.23	7.10	--	--	--	--
Djibiya-Ibadan	1,079	3,000	99,000	0.27	9.17	--	--	--	--
Sokoto-Lagos (L)	1,107	--	--	--	--	3,000	90,900	0.09	2.74
Sokoto-Lagos (H)	1,107	--	--	--	--	4,000	121,200	0.12	3.65
Maiadoua-Lagos	1,237	2,500	82,500	0.20	6.66	4,400	133,000	0.12	3.58
Danbatta-Lagos	1,216	2,500	82,500	0.20	6.78	4,400	133,000	0.12	3.64
Kano-Lagos (L)	1,127	--	--	--	--	3,000	90,900	0.09	2.69
Kano-Lagos (H)	1,127	--	--	--	--	5,000	151,500	0.15	4.48
Kano-Enugu (L)	1,036	--	--	--	--	3,000	90,900	0.09	2.92
Kano-Enugu (H)	1,036	--	--	--	--	6,000	181,800	0.19	5.85
Kano-Ibadan (L)	872	--	--	--	--	3,000	90,900	0.11	3.47
Kano-Ibadan (H)	872	--	--	--	--	4,000	121,200	0.15	4.63
Kano-Port Harcourt (L)	1,358	--	--	--	--	5,000	151,500	0.12	3.72
Kano-Port Harcourt (H)	1,358	--	--	--	--	6,000	181,800	0.15	4.46
Mean				0.25	8.11			0.13	3.81
Standard Deviation				0.06	1.63			0.03	0.87

Note: H = Rate during period of highest demand.
L = Rate during period of lowest demand.

Source: Interviews with traders and transporters in Niger and Nigeria.

A number of observations can be made regarding this data. Rate differences for high and low demand periods for these itineraries are similar to those observed in the Nigerian domestic market. Variation between high and low rates ranges between 33 and 66 percent, with the greatest variation observed in eastern Nigeria.

Utilizing costs per ton kilometer as an indicator, it can be noted that transport tariffs for cross-border travel are significantly higher than those for domestic transport in Nigeria. Ranging between 4.2 and 9.95 CFA francs per ton/kilometer, and with a mean of 6.58 CFA per ton/kilometer (or .22 naira per ton/kilometer), cross border rates are roughly 70 percent higher than those for domestic routes.

Hypothetically, higher fuel and other costs in Niger might be used as a rationale for significantly higher tariffs. In practice, however, cross-border transporters rarely purchase fuel or spare parts in Niger. Instead, the sole explanations offered by interviewees pertained to the effects of supply and demand and the significant waiting time and transaction costs (e.g. bribes to border guards, police, and customs agents) encountered in any cross-border itinerary.

The second major difference between cross-border and Nigerian tariffs and those for domestic transport in Niger are the economies of scale obtained through the use of 30-ton tractor-trailers. Unit costs for 10-ton trucks are nearly double those for larger vehicles.

8. COMPARATIVE ANALYSIS OF LIVESTOCK TRADING COSTS AND RETURNS

Previous sections of this report have discussed the structure and magnitude of individual cost components of the livestock marketing process. These factors are compared in this section utilizing sample marketing budgets constructed from data obtained in informal interviews with livestock traders. Although the sample is limited in size, it includes marketing efforts encompassing a variety of national origins, species, modes of transport, and sales in four different markets.

The data presented are representative costs and returns for livestock marketed in both Niger and Nigeria. They demonstrate the comparative efficiency and competitiveness of different modes of transport and marketing channels.

The author is confident of the quality of data pertaining to various cost factors in the marketing process. However, several caveats are in order. Because informants are usually reticent to give information on personal income, data pertaining to net proceeds from sales should be treated cautiously. Also, because of the strong economic links between export and backhaul activity, analysis would ideally treat them as combined activities in order to estimate total returns on trading activity. A study of this magnitude was beyond the mandate and resources of this effort.

8.1 Characteristics of the Sample

Five case studies are presented below, each with background information.

8.1.1 Livestock Trading Budget No. 1

These data were obtained during an interview in Ayorou, Niger with a Sonray trader having 30 years of experience in the livestock trade and cereals trade. The trader purchased 28 cattle in both collection markets along the Mali border and in Ayorou market. Several purchases had been made the previous year, with cattle entrusted to the care of their original owners residing in Mali. Livestock were collected in Ayorou for the onward trek to the Niamey/Lazaret market, a distance of approximately 200 km. On the day that the interview took place, the informant was assembling a second herd for shipment to Niamey.

8.1.2 Livestock Trading Budget No. 2

A Hausa petty trader in Abalak market provided this data pertaining to a recent transaction approximately two weeks prior to the Eid el Kabir (Tabaski) holiday. Claiming that he had insufficient capital to transport his sheep by road, the informant had engaged three Tuareg drovers to convey 36 animals to the Ibohamane regroupement market. The trek was timed so that the livestock would arrive in Ibohamane on a market day for immediate resale.

Exhibit 8.1

Costs of Marketing 28 Cattle from Ayorou to Niamey (Niger)
With Conveyance by Trekking, June 1990

Item	Cost per head (CFA)	Total Cost (CFA)	As % of costs	As % of costs, less animal purchase
Purchase of 28 cattle at Ayorou market	73,857	2,067,996	92.51	--
Commissions				
-Commission to Ayorou intermediary	2,000	56,000		
-Gift to Niamey "lodgeur"	107	2,996		
Sub-total	2,107	58,996	2.64	35.21
Transportation & Handling Costs				
-Marking of cattle	15	420		
-Drovers' (3) Fees	500	14,000		
-Drovers' subsistence	50	1,400		
-Return voyage for 3 drovers	54	1,512		
-Round trip voyage for trader	54	1,512		
-Watchman's fee (Niamey)	54	1,512		
-Water and fodder (Niamey)	43	1,204		
Sub-total	770	21,560	0.96	12.87
Official Costs				
-"Identification" tax at Ayorou	500	14,000		
-Market tax (Niamey)	500	14,000		
-Patente (Amortized)	1,840	51,520		
Sub-total	2,840	79,520	3.56	47.46
Bribes and Extortion				
-Customs at Ayorou	107	2,996		
-Police, Gendarmes en route	89	2,492		
-Market Police in Niamey	71	1,988		
Sub-total	267	7,476	0.33	4.46
Total Costs	79,841	2,235,548	100.00	100.00
Cash Proceeds from Sale of 28 Cattle	82,142	2,299,976	102.88	--
Net Cash Returns	2,301	64,428	2.88	--
Net Cash Returns/Investment	0.029	0.029	--	--

Exhibit 8.2

Costs of Trekking 36 Small Ruminants
from Abalak to Ibohamane (Niger), July 1990

Item	Cost Per head (CFA)	Total Cost (CFA)	As % of total costs	As % of costs, less animal purchase
Purchase of 36 male sheep at Abalak market	18,250	657,000	94.92%	--
Commissions				
-Commission to Abalak intermediary	225	8,100		
Sub-total	225	8,100	1.17%	23.05%
Transportation & Handling Costs				
-Marking of sheep at Abalak	10	360		
-Drivers (3) Fees	300	10,800		
-Watering fee en route	10	360		
-Watering fee at market	10	360		
-Trader transportation to markets (Abalak-Tahoua-Ibohamane)	83	2,988		
Sub-total	413	14,868	2.15%	42.32%
Official Costs				
-"Identification" tax at Abalak	200	7,200		
-Market tax at Ibohamane	50	1,800		
-Patente (Amortized)	60	2,160		
Sub-total	310	11,160	1.61%	31.76%
Bribes and Extortion				
-Military at Abalak	28	1,008		
Sub-total	28	1,008	0.15%	2.87%
Total Costs (Capital invested for five days)				
	19,226	692,136	100.00%	100.00%
Cash Proceeds from Sale of 36 sheep	20,222	728,000	105.18%	--
Net Cash Returns	996	35,860	5.18%	--
Net Cash Returns/Investment	0.052	0.052	--	--

8.1.3 Livestock Trading Budget No. 3

This budget summarizes a clandestine cross-border trek from the Guiden Ider (Niger) regroupement market to a much larger border market in Illela, Nigeria. The trader, a Fulani/Hausa residing in Birni N'Konni, Niger, was interviewed in Illela. At the time of the interview, sale of the herd was not fully negotiated. However, the informant was confident that he would be able to obtain the amount reported in the "cash proceeds" category.

It is notable that although the herd in question crossed the border clandestinely, bribes in the form of "transit fees" were paid to both Nigerien and Nigerian border agents. This allowed the trader to evade payment of the patente and other official charges. This case suggests strongly that many clandestine border crossings may occur with the full knowledge and cooperation of government officials charged with enforcement of export regulations.

8.1.4 Livestock Trading Budget No. 4

This data was gathered from a Nigerien Sonray trader who is a long-time resident of Lagos and a prominent figure in the Nigerien expatriate businessmen community there. The budget describes the marketing of 27 cattle of Nigerien provenance, purchased at the Maiadoua border market and shipped onward to Lagos by truck. The interview was conducted in the presence of several intermediaries (dillalis), who concurred on the description of cost factors provided by the informant.

8.1.5 Livestock Trading Budget No. 5

The informant was a Hausa entrepreneur residing in Zinder who traded livestock, cereals, tobacco, and diverse commodities. The informant noted that his principal economic activity was importing consumer goods and building materials. He stated that he exported many commodities as a means of generating capital for back-haul trade in consumer goods.

A salaried Tuareg agent in Belbeji market, north of Zinder, purchased 28 cattle and loaded them onto trucks for immediate shipment to Lagos.

8.2 Comparative Costs and Returns

Comparative costs and returns for trekked livestock are presented in Exhibit 8.6, while those for trucked animals are summarized in Exhibit 8.7. These tables attempt to provide a ranking of individual cost factors. As the tables demonstrate, purchase price is the largest single cost factor in the livestock trade, while the proportion of costs generated by other factors varies widely. The dynamic range of cost factors as a proportion of total costs in the data yield no conclusive evidence of competitive advantages for trekking versus trucking.

Exhibit 8.3

Cost of Marketing 20 Cattle, Trekked from Guiden Ider (Niger) to Illela (Nigeria)
(June 1990)

Item	Cost per head (Naira)	Total Cost (Naira)	Cost per head (CFA)	Total Cost (CFA)	As % of total cost	As % of costs less animal purchase
Purchase of 20 cattle at Guiden Ider	2,524.5	50,490.0	76,500.0	1,530,000.0	95.87%	--
Commissions						
-Commission to Guiden Ider intermediary	33.0	660.0	1,000.0	20,000.0		
Sub-total	33.0	660.0	1,000.0	20,000.0	1.25%	30.36%
Transportation & Handling Costs						
-Marking of cattle at Guiden Ider	0.3	6.6	10.0	200.0		
-Drovers' (2) Fee	9.9	198.0	300.0	6,000.0		
-Travel by Trader (Birni N'Konni-Guiden Ider-Birni N'Konni-Illela)	5.0	99.0	150.0	3,000.0		
Sub-total	15.2	303.6	460.0	9,200.0	0.58%	13.96%
Official Costs						
-"Identification" tax at Guiden Ider	16.5	330.0	500.0	10,000.0		
-Market tax at Illela	1.0	19.8	30.0	600.0		
Sub-total	17.5	349.8	530.0	10,600.0	0.66%	16.09%
Bribes and Extortion						
-Transit fee at border (Niger)	33.0	660.0	1,000.0	20,000.0		
-Transit fee at border (Nigeria)	5.0	100.3	152.0	3,040.0		
-Veterinary "inspection"	5.0	100.3	152.0	3,040.0		
Sub-total	10.0	200.6	1,304.0	26,080.0	1.63%	39.59%
Total Costs	2,600.2	52,004.0	79,794.0	1,595,880.0	100.00%	100.00%
Cash Proceeds from Sale of 20 Cattle	2,712.6	54,252.0	82,200.0	1,644,000.0	103.02%	--
Net Cash Returns	112.4	2,248.0	2,406.0	48,120.0	3.02%	--
Net Cash Returns/Investment	0.043	0.043	0.030	0.030	--	--

Exhibit 8.4

Costs of Trucking 27 Cattle from Maiadoua, Nigeria to Lagos
(November 1990)

Item	Cost per head (Naira)	Total Cost (Naira)	Cost per head (CFA)	Total Cost (CFA)	As % of total costs	As % of costs less animal purchase
Purchase of 27 cattle at Maiadoua market	3,188.9	86,100.0	96,636.4	2,609,090.9	93.79%	--
Commissions						
-Commission to Maiadoua intermediary	30.0	810.0	909.1	24,545.5		
-Commission/gift to Lagos "Lodger"	3.0	81.0	90.9	2,454.5		
Sub-total	33.0	891.0	1,000.0	27,000.0	0.97%	15.63%
Transportation & Handling Costs						
-Rental of Mercedes LS1924 ton truck and trailer	100.0	2,700.0	3,030.3	81,818.2		
-Loading at market	1.5	54.0	60.6	1,636.4		
-Straw bedding for truck-bed	1.1	30.0	33.7	909.1		
-Drivers/handlers for cattle (2)	14.8	400.0	448.9	12,121.2		
-Highway tolls	3.7	100.0	112.2	3,030.3		
-Travel to Lagos by trader (round trip)	18.5	500.0	575.8	15,151.5		
-Watchman's fee (Lagos)	2.5	81.0	90.9	2,454.5		
-Water and fodder (Lagos)	5.5	162.0	181.8	4,909.1		
Sub-total	147.6	4,027.0	4,534.2	122,030.3	4.39%	70.64%
Official Costs						
-Vaccination charges	0.3	8.1	9.2	245.5		
-State govt stock fee	18.0	486.0	545.5	14,727.3		
-Union fees at LGA of animal origin	1.0	27.0	30.3	818.2		
-Trade permit	0.9	27.0	30.3	818.2		
-Market fee (Lagos)	5.0	135.0	151.5	4,090.9		
Sub-total	25.2	683.1	766.8	20,700.0	0.74%	11.98%
Bribes and Extortion						
-Police at road barriers	2.2	60.0	67.3	1,818.2		
-Market police (Lagos)	1.5	40.0	44.9	1,212.1		
Sub-total	3.7	100.0	112.2	3,030.3	0.11%	1.75%

Exhibit 8.4 (Continued)

Costs of Trucking 27 Cattle from Maiadoua, Nigeria to Lagos
(November 1990)

Total Costs (Capital invested for one-half month)	3,398.4	91,801.1	103,049.6	2,781,851.5	100.00%	100.00%
Cash Proceeds from Sale of 27 Cattle	3,574.1	96,500.0	108,303.0	2,924,242.4	105.12%	--
Net Cash Returns	175.7	4,698.9	5,253.5	142,390.9	5.12%	--
Net Cash Returns/Investment	0.052	0.051	0.051	0.051	--	--

Exhibit 8.5

Costs of Trucking 28 Cattle from Zinder (Niger) to Lagos (Nigeria)

Item	Cost per head (Naira)	Total Cost (Naira)	Cost per head (CFA)	Total Cost (CFA)	As % of total costs	As % of costs less animal purchase
Purchase of 27 cattle at Belbeji market	2,045.0	57,272.0	67,500.0	1,890,000.0	82.14%	--
Commissions						
-Commission/salary to purchasing agent	36.4	1,018.0	1,200.0	33,600.0		
-Commission/gift to Lagos "Lodger"	3.0	84.0	90.9	2,545.0		
Sub-total	39.4	1,102.0	1,290.9	36,145.0	1.57%	8.80%
Transportation & Handling Costs						
-Marking of cattle	0.3	8.5	10.0	280.0		
-Rental of Mercedes LS1924 ton truck and trailer	220.0	6,166.0	7,268.0	203,500.0		
-Loading at market	5.4	152.0	179.0	5,000.0		
-Straw bedding for truck-bed	0.5	15.2	19.0	500.0		
-Handlers/guards for cattle (3)	9.8	275.0	325.0	9,090.0		
-Highway tolls (Nigeria)	3.6	100.0	109.0	3,030.0		
-Travel to Lagos by trader (round trip)	17.9	500.0	541.0	15,150.0		
-Watchman's fee (Lagos)	2.5	70.0	75.7	2,120.0		
-Water and fodder (Lagos)	5.5	154.0	167.0	4,666.0		
Sub-total	265.5	7,440.7	8,693.7	243,336.0	10.58%	59.22%
Official Costs						
-Patente (amortization)	118.0	3,309.0	3,900.0	109,200.0		
-Vaccination charges	0.3	8.4	9.1	254.0		
-Trade permit	0.9	24.0	25.9	727.0		
-Market fee (Lagos)	5.0	140.0	151.5	4,242.0		
Sub-total	124.2	3,481.4	4,086.5	114,423.0	4.97%	27.85%
Bribes and Extortion						
-Police at road barriers	2.1	60.0	64.0	1,818.0		
-Market police (Lagos)	18.0	500.0	541.0	15,152.0		
Sub-total	20.1	560.0	605.0	16,970.0	0.74%	4.13%
Total Costs	2,494.2	69,856.1	82,176.1	2,300,874.0	100.00%	100.00%
Cash Proceeds from Sale of 28 Cattle	3,138.0	87,878.8	103,571.4	2,900,000.0	126.04%	--
Net Cash Returns	643.8	18,022.7	21,395.3	599,126.0	26.04%	--
Net Cash Returns/Investment	0.258	0.258	0.260	0.260	--	--

Exhibit 8.6

Comparison of Marketing Cost Factors for Three Sample Trekked Herds
(Late 1990)

Cost Category	<<<<<<<<<< Herd "A" >>>>>>>>>			<<<<<<<<<< Herd "B" >>>>>>>>>			<<<<<<<<<< Herd "C" >>>>>>>>>		
	Total (CFA)	As % of total	As % of total less purchase cost	Total (CFA)	As % of total	As % of total less purchase cost	Total (CFA)	As % of total	As % of total less purchase cost
Purchase Price	2,067,996	92.51%	--	657,000	94.92%	--	1,530,000	95.87%	--
Purchase & Sale Commissions	58,996	2.64%	35.21	8,100	1.17%	23.05%	20,000	1.25%	30.36%
Transport & Handling	21,560	0.96%	12.87%	14,868	2.15%	42.32	9,200	0.58%	13.96%
Taxes & Official Costs	79,520	3.56%	47.46%	11,160	1.61%	31.76%	10,600	0.66%	16.09%
Bribes & Extortion	7,476	0.33%	4.46%	1,008	0.15%	2.87%	26,080	1.63%	39.59%
Total Costs	2,235,548	100.00%	100.00%	692,136	100.00%	100.00%	1,595,880	100.00%	100.00%
Proceeds From Sale	2,299,976	102.88%	--	728,000	105.18	--	1,644,000	103.02%	--
Net Return	64,428	2.88%	--	35,860	5.18	--	48,120	3.02%	--

8.2.1 Purchase Costs

The principal cost component of livestock marketing is the purchase of animals. As a proportion of total costs, these are nearly the same for four of the budgets in the sample, ranging between 94 percent and 96 percent. The one exception to this range is Herd E, trucked from Zinder to Lagos.

Purchase costs differ from other marketing expenditures in being an investment cost rather than an operating cost. Although informants did not always provide detailed information on herd composition, they acknowledged that shipments of livestock regularly include animals from a variety of origins:

- Livestock owned by traders and their kin (for which no immediate cash outlay is required);
- Livestock purchased on credit and repaid after final sale; and,
- Livestock purchased for cash prior to shipment.

Hence, it is possible that the costs of livestock purchase relative to operating costs are probably lower than the marketing budgets suggest. This conclusion is significant in that it suggests that capital may be less of a barrier to entry in the livestock trade than is often assumed. Livestock ownership, "pooling" of livestock by consortia of traders, and access to livestock on informal producer credit can substitute for financial resources.

Cost factors are reported in the livestock trading budgets as both a percentage of total marketing costs and a percentage of total costs exclusive of livestock purchase costs. The following discussion refers directly only to the latter except where otherwise noted.

8.2.2 Transportation and Handling Costs

For purposes of analysis, this category includes not only the direct costs of transportation, but also labor costs for drovers or agents who accompany livestock to market, costs contingent on particular modes of transport (e.g. drover's subsistence costs, straw bedding for trucks, loading and unloading fees), and transportation costs incurred by traders in the course of buying and selling livestock.

Data gathered in the field suggest one of the most critical findings of this study: Neither trucking nor trekking is implicitly more cost-effective in Niger. Rather, costs other than transportation and handling may determine the selection of a particular mode of transport.

The lowest relative transportation costs for herds analyzed here (4 percent) were for Herd C (Exhibit 8.3), which travel led less distance than any other herd in the sample. The herd also crossed the Niger-Nigeria border by clandestine means, thereby minimizing official costs. The highest relative costs incurred (59 percent) were for Herd D (Table 8.6), trucked solely within Nigeria.

8.2.3 Taxes and Official Costs

The cost of official government levies ranged between 17 and 32 percent for trekked herds, and 12 and 28 percent for trucked herds. The lowest rate reported for trekked herds was not surprisingly that for Herd C, which evaded official controls in its border passage. The lowest proportion represented by official charges for trucked livestock (12 percent) was for Herd D, which traveled only within Nigeria.

Within Niger, the highest consistent official cost item was the "identification" tax: a municipal levy imposed on livestock purchases at market in the amount of 200 CFA francs for small ruminants and 500 CFA for cattle. It is interesting to note that Budget E did not mention this tax, suggesting either evasion or an unintentional omission by the informant. Had this tax been paid it would have reduced the trader's net return by 14,000 CFA francs, lowering net cash returns from 26 to 25.4 percent and increasing the proportion of official costs in total costs to 32 percent.

Additional variation in official costs within Niger appears related to the type of patente purchased by traders. Several budgets indicate that traders had inappropriately paid patente fees applicable to intermediaries (46,000 CFA/annum for 50 cattle or 200 small ruminants). Patente fees applicable to traders are significantly higher: 195,000 CFA for 50 cattle or 81,250 CFA for 200 sheep. A second factor to be considered is that patente fees in smaller, rural markets are poorly monitored, resulting in lower assessments on traders and lengthier amortization of patente fees.

Numerous informants in the field pointed out that market officials are easily and inexpensively bribed to record transactions inaccurately, recording lower sales volume against per head fees paid in patente calculations.

It should also be noted that suppression of the livestock export tax in Niger has very significantly reduced the proportion of official costs in livestock trading budgets. This tax was formerly levied at 5,600 CFA/head for cattle, 1,000 CFA/head for sheep, and 500 CFA/head for goats. Had this tax still been in force during the field study, official costs for Herd E would have increased by an additional 137 percent. This would have reduced net cash returns by 156,800 CFA, elevating official costs to 47 percent of total costs.

8.2.4 Bribery and Extortion

Contrary to the author's initial assumption, the costs of bribery, extortion, and other tracasseries administrative for the Niger-Nigeria corridor were no higher than for other nations in the region. These costs were low for the trucked herds (2 and 4 percent) as well as for two of the three trekked herds (6.2 and 3 percent). At the same time, the sole herd which crossed the Niger-Nigeria border clandestinely (Herd C) paid the highest proportion of total costs (41 percent) as "transit fees" to border guards in both nations.

Most bribery and extortion costs were paid to members of the uniformed services manning border posts and control posts along major roads. In one case (Herd A) a bribe was paid in order to evade import and transit charges for livestock originating in Mali.

8.2.5 Purchase and Sale Commissions

Unlike other nations in the region, intermediaries in Niger and Nigeria impose charges solely on the purchasers of livestock. However, it is common practice for sellers to make cash gifts to intermediaries who assist them in identifying purchasers. While buyer commissions are fixed on a per head basis, gifts to dillalis are determined by sellers based on whether or not an established, ongoing relationship exists with the intermediary as well as on the magnitude of assistance the intermediary provides for a particular transaction.

Commissions varied widely as a proportion of total costs, ranging between 9.0 and 48.7 percent. This may be explained solely by commission amounts established at each market. These were highest at Ayorou market (2,000 CFA/head for cattle) and lowest at Maiadoua, Nigeria (909 CFA).

8.2.6 Returns to Livestock Trading

Returns to traders in the sample were calculated against all costs, including livestock purchase. Returns were uniform (5 percent) for three of the herds sampled (A, B, and D) but reached 26 percent for Herd E.

No significant correlation appears to exist between marginal returns and the mode of transport utilized. The single greatest determinant of returns appears to be the difference between price paid for livestock and the selling price. For four of the five herds sampled, purchase price accounted for between 94 and 96 percent of total costs. For Herd E, where purchase price constituted only 82 percent of all costs, the difference between purchase and sale prices was greater than for all other herds. This was most likely the result of the selection of high-value individual animals during the constitution of the herd.

It should be noted that livestock trading requires skill in estimating live weights and likely returns in markets from sales of animals of different weights, age-sex characteristics, and breeds. Traders who are well-informed of conditions and trends in terminal markets enjoy an advantage in that they may be able to time their sales to periods when prices are high. The sheer size of the Nigerian market and the disparate origins of traders who serve the market nonetheless make it difficult for traders to anticipate market conditions beyond a period of several days.

9. EXPORT PROSPECTS FOR CHILLED AND FROZEN MEAT

One focus of this study is the assessment of prospects for exports of chilled and frozen meat from Niger to Nigeria. This chapter identifies the policy trends and economic factors that have constrained the development of a meat export industry in Niger, examines the appropriateness of existing infrastructure for meat exports, and reviews the economic prospects for this industry over the short term.

The ultimate conclusion of this chapter is not encouraging. Data suggest that prospects for exporting chilled, frozen, and transformed meats from Niger will remain poor, due largely to low returns stemming from exchange rate differentials between Nigeria and the CFA zone.

9.1 Trends in Nigerian Consumption

After reviewing available production, import, and slaughter data for Nigeria, Williams (1989) concluded that aggregate consumption of meat products in Nigeria virtually doubled between 1972 and 1986. Per capita beef, mutton, and poultry consumption for this period increased by almost 50 percent, while goat meat consumption remained relatively stable. During this same period, production of cattle and sheep in Nigeria nearly doubled, while goat production increased by roughly 50 percent.

Growth in Nigerian meat demand during this period resulted from several phenomena. Population growth accelerated from 2.5 percent between 1973 and 1980, to 3.4 percent in the 1980s, resulting in an estimated population of 107 million persons in 1987. A sharp rise in oil revenues, beginning in 1974 and continuing through the early 1980s, increased per capita income. Although estimates of income elasticities for meat in Nigerian markets vary, rising per capita income directly correlated with increased meat consumption.

Nigerian production gains for this period were significant, as was the volume of net imports, which more than doubled. The proportion of imported meat in aggregate consumption decreased from 23 percent between 1972 and 1976 to 20 percent beginning in the late 1970s. In per capita terms, however, the gap between domestic production and consumption increased during this period.

9.2 Evolution of Nigerian Policy on Trade in Livestock and Meat Products

Nigerian policy on livestock and meat imports has long been driven by economic factors unrelated to performance of the livestock sector. Chief among these have been the national balance of payments position and the performance of Nigerian exports in world markets.

It is important to note that Nigeria's recurrent policy of discouraging or barring the importation of meats has never focused on regional suppliers. Protection has been aimed, instead, at curbing imports of subsidized and dumped meats of non-African origin. Williams (1989) notes, however, that between 1973 and 1984, domestic price levels for Nigerian beef and mutton moved from below to above world equivalent prices. While the effects of protection may have been

dampened by adjustments for Nigeria's over-valued currency during this period, market prices in and of themselves appear to have been a powerful stimulus for clandestine trade from the Sahelian countries.

During the period immediately following independence, imported meat, as well as dairy products, were subject to a 20 percent duty but no quantitative restrictions. Between 1960 and 1965 this rate rose to 66.7 percent for imported meats. Between 1967 and 1970 Nigeria's civil war led to concerns about the nation's declining balance of payments position, triggering the imposition of quantitative restrictions on livestock and meat imports. These were regulated through the use of import licensing. In the immediate aftermath of the war import bans were instituted for beef and poultry, motivated by the need to decrease imports and to protect domestic livestock production.

Beginning in the mid-1970s Nigeria's oil boom led authorities to relax restrictions on livestock and meat imports. Between 1975 and 1977, quantitative import restrictions were lifted and tariffs were reduced to between 10 and 30 percent for livestock and dairy products. At the same time, however, massive inflows of foreign exchange and capital resulting from the oil boom had an inflationary effect on the Nigerian economy. Failure to depreciate the overvalued naira, combined with regulatory restrictions on livestock and meat imports and scarcity following the Sahel drought of the early 1970s, combined to drive livestock prices upward in Nigeria.

Cook (1989) points out that while supply and policy factors combined to keep livestock prices high throughout the 1975-85 period, the price of livestock and meat relative to other commodities declined. His position is supported by Williams (1989), who demonstrates that between 1974 and 1985, beef, mutton, and poultry prices declined relative to cereals by approximately 50 percent. This would seem to indicate that the Government of Nigeria's policy objective of increasing domestic livestock production during this period may have been limited by disincentives in the marketplace. Efforts to increase livestock production through protection and investment in the sub-sector were offset by declining returns for the sector.

The downturn in world oil markets which began after 1979 rapidly ended Nigeria's experiment with liberalization. While livestock and beef were spared under a broad-ranging prohibition on imports, including live poultry and dairy products, tariffs rebounded and import licensing was reinstated. During this period, Nigeria's Federal Government established compulsory deposits for livestock imports equal to 50 percent of import value. Price instability related to increased regulation of imports and rent-seeking by those charged with regulation were compounded during this period by monetary instability.

Among the provisions of Nigeria's Structural Adjustment Program, which began in late 1986, was the massive devaluation of the naira from approximate parity with the U.S. dollar to a rate of 4.6 naira to one U.S. dollar. The immediate effect of devaluation was to trigger a major rise of livestock and meat prices. Seeking to counter any new influx of imported livestock and related products, Nigerian authorities raised import duties from 15 percent to 20 percent in 1986 and, in 1988, banned all trade in fresh, chilled, or frozen meats.

The effects of strict import regulation in Nigeria have not been harsh for Niger's exporters, due to several factors. The effects of drought are a driving force in the livestock trade. During the early 1970s and again in 1984, trade regulations failed to stanch the flow of large numbers of animals onto the market, as the severe drought prompted liquidation of herds. During post-drought periods, when herd reconstitution has been a policy priority, authorities in Niger have sought to ban exports. However, post-drought periods are marked by generalized supply shortages in markets and rising prices. As a result, economic incentives for clandestine trade are high. Indeed, regardless of the policy priorities or regulations of the moment, border controls have not worked as mechanisms of enforcement. As discussed elsewhere in this report has emphasized, "clandestine" trade is often conducted with the full cooperation of officials charged with controls for the personal gain of everyone involved. A second factor which has frequently come into play has been bilateral agreements between Niger and Nigeria. As a key economic partner, Niger has sometimes been able to negotiate exemptions with regard to import controls.

9.3 Supply, Demand and Price Issues

9.3.1 The Difficulty of Projecting Market Requirements

Conventional wisdom in the region holds that prices are highest in the urban markets of southern Nigeria, and lowest in the cattle-producing regions of the north. Cook's (1989) analysis of geographical and temporal trends in Nigerian meat prices confirms that this is the case, even if periodic price fluctuations are taken into account.

Data presented in Chapter 7 of this study validate Cook's hypothesis that low transportation prices in Nigeria narrow the cost margins observed between northern and southern markets. Hence, the prevalent practice among traders from Niger of making most sales in the northern border markets does not greatly limit export earnings.

Extreme fluctuations in supply are common for Nigeria's markets, with predictable results for livestock prices. Cook argues that "official price data and traders' descriptions both paint a picture of supply-side anarchy which simultaneously offers the possibility of windfall profits and unpredictable losses" (1989; 84). However, interviews with traders in northern and southern Nigeria suggest that Cook may be overstating his case. Coordination, if not collusion, is characteristic among traders in northern Nigeria, where consortia of traders and intermediaries maintain multiple daily contacts with southern livestock markets. Livestock purchasing is generally scheduled so as to generate the fastest possible turnover of investment capital. These efforts are offset, however, by the fact that the community of livestock traders is widely dispersed throughout Nigeria and adjacent countries.

Although traders from Niger attempt to keep informed of conditions in coastal markets, they operate at a relative disadvantage for several reasons. In purchasing livestock at regional collection and regroupment markets, they are unable to generate rapid turnover of their capital. Protracted delivery delays from Niger's interior to border markets often preclude the luxury of "waiting out" periods of depressed prices related to oversupply. Because Niger is more

sensitive to resource availability than its southern neighbor is, it is sometimes extremely difficult to maintain livestock in marketable condition while awaiting more favorable prices. Seasonal fluctuations in pastoral resources can be dramatic, leading to oversupply of livestock in markets during periods when grazing conditions are deteriorating. During such periods, critical resource shortfalls can preclude the option of market-timing deliveries.

9.3.2 The Price Disincentive to Increased Exports

Price is the most critical factor in determining market potential for meat from Niger in Nigerian markets. The prospective profitability of chilled, frozen, and transformed meat in Nigerian markets has long been debated. Field data gathered during the course of study firmly indicate that profitable exports of meat from Niger may not be possible at present, due to overvaluation of the CFA franc in relation to the Nigerian naira.

Exhibit 9.2 shows available current price data for beef in Niger and Nigeria. Prices for boneless beef are only marginally higher in Nigeria than in Niger. Prices for all other beef, including beef with bone, beef quarters, and premium topside and trimmed boneless beef are lower in Nigeria than in Niger. Even if Nigerian prices were marginally higher than those in Niger, other factors weigh against exports of beef.

The current unavailability of suitable transport equipment to deliver chilled or frozen meat to Nigerian markets would necessitate significant investment costs over the short term.

It is possible, however, that comparably lower prices for meat in Nigeria might not totally preclude increased exports. Long-term supply contracts and pre-negotiated conditions of sale are possible for the upper end of the Nigerian market (i.e. industrial meat processors and specialty butchers). The ability to lock in long-term supply agreements and revenues and to amortize investments might be sufficient incentives for Nigerian traders who have adequate capital to cover initial costs. As Cook noted in his discussion of traders' responses to price fluctuation in Nigerian markets, it is the long-term rate of return to trading capital that is the decisive factor in strategies employed by well-capitalized traders.

9.4 Infrastructure and Market Organization in Niger

9.4.1 The Niamey Refrigerated Abattoir

At present, Niger has only one facility capable of providing refrigerated meats to the export market. The Niamey abattoir, built in 1967, is generally well-maintained. It is capable of producing 10,000 tons of chilled meat per year (or 40,000 live head of cattle equivalents), in addition to processing some 14,000 tons of unchilled meat for local consumption. Cattle, sheep, goats, and camels are all butchered at this site.

Since 1984, the Niamey abattoir has operated far below capacity, at an average of 7,050 tons per year, due largely to management difficulties and high debt loads.

The refrigerated abattoir currently operates as a public enterprise with financial autonomy. All its revenues are derived from the sale of services provided by its personnel and from charges for the use of the facility: slaughtering, butchering, chilling, and storage. The abattoir generally operates only between 10 p.m. and 7 a.m.

The clientele of the Niamey abattoir comprises approximately 100 butchers, wholesalers, and retailers. Informants at the site report that half of the meat marketed in Niamey is slaughtered at this facility. A recent UNDP study (INTER G, 1990) claims that the five largest users of the facility alone provide 40 percent of Niamey's butchered meat. Little or none of the meat processed at this facility is exported.

Cattle slaughtering operations at the facility are well-organized along a chain of "posts" at which various steps of the slaughtering and butchering process are carried out. When the facility is operating optimally, 20 to 25 cattle can be slaughtered and butchered each hour. In practice, only 12 to 15 animals are generally processed per hour. The UNDP study (INTER G, 1989) attributes this discrepancy to "poor motivation" among the abattoir personnel.

Small ruminant processing is a problem at this facility due to efforts to reduce personnel costs by allowing independent butchers to utilize the facility. Apprentice butchers, in the employ of butchers not affiliated with the facility, carry out slaughter and skinning operations on its concrete floors, exacerbating already unsanitary conditions. In practice, wholesale and retail butchers regularly operate from the abattoir, sometimes in place of designated personnel in its employ.

Efforts to reduce operating costs have been made at the expense of efficiency. Sanitary conditions are poor, particularly for the treatment of offal and the disposal of organic waste. Equipment is not well-maintained, and temperature controls in half of the refrigerated storage units are unreliable.

The refrigeration plant of the abattoir comprises 1,200 m³ of refrigerated storage space, sub-divided into six cold rooms with a 40-ton capacity, and four cold rooms with a 10-ton capacity. The facility is also equipped with a 100 m² cutting/butchering room, a 600m³ storage room for boxed, chilled meat, a small sales room, office, and loading docks.

User fees at the abattoir are established for each of the services performed: slaughter (10 CFA francs/kilo carcass weight); refrigeration (10 CFA/kilo); and local transport of livestock (100 CFA/head for cattle and 35 CFA/head for small ruminants). Between 1978 and 1990, user fees were adjusted only once for rising costs. At the same time, transportation levies for abattoir users fail to cover more than half of the costs incurred in operating and maintaining vehicles. While annual turnover (chiffre d'affaires) of the abattoir is about 200 million CFA, rising personnel costs and failure to adjust user fees over time have led to progressively declining net returns for the facility.

A number of recent technical studies on the prospects for the Niamey abattoir have unanimously recommended that the facility be replaced, renovated,

or expanded. Without donor subsidies, however, it is unlikely that it will be improved in the near future.

9.4.2 Provincial Abattoirs

None of Niger's three provincial "industrial abattoirs" is equipped to process chilled, frozen, or transformed meats. Located in Tahoua, Maradi, and Zinder, these facilities have a combined potential output of approximately 3,000 tons per year, permitting them to satisfy urban demand for fresh meat at their respective locations. Each is equipped with cold storage rooms, ranging in capacity from 10 to 20 tons. Cold storage facilities are underutilized, however, with space rented out to local retailers of non-meat products. Annual operations for each facility, as measured in volume, are near installed capacity.

The respective municipal governments currently control the operations of these facilities. Users' fees at two of the sites are weight-based for slaughter and butchering operations. The Tahoua and Maradi facilities levy a charge of 20 CFA francs/kilo of carcass weight for slaughter operations and 35 to 100 CFA francs/head for the transport of livestock from municipal markets to the abattoirs. Charges at the Zinder abattoir are considerably lower, with slaughter/butchering fees of 300 CFA francs/head for cattle, 200 CFA/head for camels, and 100 CFA/head for small ruminants.

While these facilities provide an important local service, their fiscal contribution to respective municipalities is reportedly modest. Annual turnover for 1988 at each site was reportedly 14 million CFA francs for Tahoua and 20,800,000 CFA for Maradi. It should be noted that the user fees levied for the Zinder abattoir are approximately one-tenth the level of fees at other urban facilities. Hence, the 26 million CFA turnover for Zinder indicates that municipal revenues would be considerably enhanced if user fees were levied on a par with those of similar facilities in Niger.

9.4.3 Infrastructure for Meat Transport to Nigeria

During field research, the author was unable to identify any vehicles registered in Niger which are suitable for exports of chilled or frozen meat. Hence, any immediate efforts to promote exports of this type would require the use of Nigerian vehicles or the creation of incentives for investors in Niger to purchase appropriate vehicles. Because of existing restrictions and disincentives for the use of Nigerian vehicles for backhaul, it is unlikely that they can be utilized profitably.

Two types of vehicle are appropriate for the long-haul transport of meat and meat products: refrigerated trucks (referred to in French as "positifs" because they operate at temperatures above zero degrees centigrade), and freezer trucks ("negatifs" because they operate at temperatures below zero degrees centigrade).

Demand in Nigerian markets is the principal determinant of the kinds of equipment required. Nigerian meat buyers interviewed for this study were

generally interested in only specific types of meat, transported under rigorous technical guidelines. Chilled meat demand is limited to beef carcasses or quarters, transported in refrigerated trucks. These must be suspended from hooks with adequate air space between hanging quarters or carcasses. Hence, trucks used for this purpose must be specially outfitted. Refrigerated vehicles currently operating in Niger, however, are generally confined to specific uses (such as transporting vaccines) which preclude even their occasional use for transporting meat.

The latitude is greater for shipments of frozen meats. Nigerian buyers express interest in purchasing frozen, deboned forequarters; frozen boneless, trimmed beef that is vacuum-wrapped; and frozen, trimmed specialty cuts of premium quality. Because these may be boxed, they can be shipped in virtually any vehicle capable of maintaining the appropriate sub-zero temperature.

Equipment requirements must also correspond to the limited storage capability of buyers in Nigeria. Informants interviewed at several Nigerian establishments note that storage space for frozen meats is both limited and costly. Hence, prospective trade would generally be negotiated for 12-ton deliveries on specific days of the week. This type of schedule would allow for rapid delivery, off-loading, processing, and turnaround.

9.5 Market Infrastructure for Chilled and Frozen Meat in Nigeria

The greatest volume of meat sales in Nigeria occurs in markets similar to those in Niger: open-air markets and municipal slaughter facilities. Sales of livestock are negotiated daily on an as-needed basis in traditional markets. Prospects for meat sales to this segment of the market are virtually nil, given religious strictures and preferences requiring that live animals be slaughtered at or near market sites.

The middle segment of the market comprises retail meat shops, generally located in large towns and cities. These shops generally purchase crude cuts of chilled meat from a variety of sources. Informants in the field note that the emergence of this type of establishment was closely associated with the increase in imports of subsidized non-African meats that coincided with Nigeria's oil boom beginning in the 1970s. As small operations, they depended greatly on purchases from large importers in coastal cities. Subsequent prohibition of imported meats has forced many of them to either close or develop local butchers or large commercial farms as sources.

The "upper" end of the Nigerian market for meats comprises small industrial suppliers, which are generally subsidiaries of large privately owned or state-operated companies. Several of these were interviewed for this study.

The Nigeria Food Company (NFC) was originally created by the Borno State Government in the 1970s. With investment capital derived from petroleum revenues, the NFC sought to establish itself as a supplier vertically linked to large urban markets. Abattoirs were constructed adjacent to roads and rail lines. The terminus of the NFC operation was located at the Lagos railhead. This facility, a refrigerated warehouse with a 6,500 ton capacity, is the largest facility of its type in West Africa. Nigeria's volatile economy and

mismanagement combined, however, to bring about the collapse of the NFC in the mid-1980s. Under a current reorganization plan, NFC has been restructured and partially privatized.

As a principal meat supplier to supermarkets, meat shops, and the non-traditional market, the NFC maintains supply agreements with approximately 100 wholesalers and retailers. In order to provide price incentives to suppliers, the NFC bases its prices on an average of live animal prices as determined by its agents in Kano, Borno, Plateau, and Katsina States. The NFC claims that the margin on sales from its Lagos facility ranges between 25 and 35 percent of its costs.

Monthly meat requirements of the facility are 60 tons of carcass beef, 35 tons of beef quarters, and 20 tons of minced beef. Suppliers in northern Nigeria are often unable to satisfy NFC demand and shipments are erratic. This had led NFC management to negotiate permission from federal authorities to obtain meat from neighboring countries through outright cash sales or commodity swaps.

To satisfy projected demand, the NFC expressed interest in negotiating multi-year supply contracts for weekly and bi-weekly deliveries from suppliers in Niger.

The meat processing division of UTC Nigeria Ltd. is a subsidiary of one of Nigeria's largest conglomerates. As a supplier to supermarkets and other retail outlets, its principal area of interest is premium and specialty cuts and processed meats (sausages, pates, and other charcuterie).

Demand at UTC's Lagos processing facility is approximately 5 tons of beef per week. Factory output comprises 38 tons/month of sausages and other charcuterie, 20 tons of boneless beef, and 19 tons of pork products. Expansion of the UTC processing facility in 1991 will result in monthly demand projected at 30-35 tons of boneless beef or 50 tons of carcass/quarter meat. UTC bases prices paid to suppliers on market rates in Lagos or market of origin.

UTC acknowledges problems in obtaining adequate regular supply in terms of both quantity and quality. Efforts to obtain long-term supply agreements have generally failed, due to default by suppliers in northern Nigeria. Because the factory has storage capacity sufficient for only two to three days of its needs, it must purchase meat daily on the open market from livestock traders and butchers.

UTC management imposes rigorous guidelines on suppliers and is especially strict regarding long-haul deliveries. Because of past problems with spoilage, it no longer purchases beef carcasses or quarters from northern Nigeria. It would be willing to resume this type of purchase, however, if carcasses or quarters were carried in specially outfitted vehicles that could maintain adequate air circulation between chilled, hung carcasses. Deboned, trimmed or chipped meats must be delivered within two to three days of slaughter in frozen, vacuum-wrapped boxes.

9.6 Prospects and Opportunities for Meat Exports

Economic constraints are currently the principal impediment to the export of chilled, frozen, or transformed meats from Niger. While official costs of doing business in the formal sector are high, the fact remains that there are few market incentives for this trade in Nigeria at present. Barring downward movement in nominal CFA prices and costs, subsidies to the livestock sector, or other policy incentives to stimulate investment in the activity, this situation is unlikely to change over the short to medium term.

High investment, maintenance, and operating costs for chilling and freezing equipment, including transport vehicles, prohibit all but the best-capitalized entrepreneurs from investing in the activity. Weighed against the risks of doing business in an export market and the narrow margins currently obtainable in Nigeria, it is not surprising that this activity would attract little interest in Niger's business community.

The prospect of obtaining long-term purchase agreements with reputable Nigerian firms should, nonetheless, be explored further. While margins might be narrow for suppliers in this trade, secure agreements which include periodic price reviews would give suppliers a hedge against market shocks. Long-term agreements would also allow for amortization of investment costs and could be used to secure negotiated credit with financial institutions.

10. POLICY CONCLUSIONS AND RECOMMENDATIONS

10.1 Improve Monitoring and Further Examine Trends in Livestock Population and Production

Long-term data for Niger and other Sahelian nations provide highly significant indications of two distinct trends in the prospects for increased Sahelian livestock exports: outmigration of pastoral populations and strategic shifts in pastoral species orientation.

These conclusions are based on admittedly poor and inconsistently reported data. Shifts in donor attention away from livestock production projects toward broader macroeconomic and agricultural sector policy reform during the past 10 years have led to progressive erosion in the quality and availability of reliable data on livestock population and production in most nations of the Sahel. At the same time, critical gaps are emerging in our awareness of pastoralist well-being, income, and nutritional status in the wake of successive droughts and production strategies for herd composition and demography.

The hypothetical shift of the traditional geographical "center of gravity" of Sahelian pastoralism and the growing focus of pastoralism on small ruminant production may profoundly affect the economy and ecology of Niger, as well as of other nations in the region.

The donor community should immediately consider support for a comprehensive national livestock census and program to support long-term monitoring of livestock populations and their distribution on the range. This should be complemented by a series of short-term studies to assess pastoralist household income and nutritional levels in central and eastern Niger.

USAID/Niamey should also provide continued assistance to the market information unit of the Ministère de l'agriculture et de l'élevage to assure that its extensive database on livestock market activity and pricing is maintained and synthesized on a timely basis, and that this data is adequately distributed to relevant agencies.

10.2 Study Livestock Production Cost Factors

Data gathered in the course of this study unequivocally underline the dominance of livestock purchase costs as a factor in export marketing. While policy remedies can be readily identified to diminish official levies and transport costs, the problem of reducing livestock production costs presents a far greater challenge to the Sahelian livestock subsector. Nonetheless, the absence of current data on livestock distribution, producer strategies, resource availability, production technologies, and their costs preclude the recommendation of measures to render production more cost-effective. In the absence of such data, it is also difficult to recommend government or donor support for particular production technologies or systems.

As government and donor resources are likely to decline in real terms during the 1990s in many Sahelian countries, improved knowledge of livestock production costs will better inform the regional debate on comparative advantage. If it is established that Sahelian livestock cannot be competitively produced and marketed in coastal West African countries, government and donor support for commercial livestock production and exports will likely decline.

10.3 Support Niger's Open Border Policy for Pastoralists

In the absence of any data suggesting that Niger's policy of maintaining open borders for transhumant herds has damaged pastoral ecology or animal health, this policy should be supported. The Government of Niger has long maintained an enlightened stance in this regard, recognizing that the marginal productivity of the pastoral zone requires that pastoralists be granted the freedom to exploit the range with minimal official interference. Should the current trend of outmigration by cattle-herding pastoralists continue, political pressures to halt emigration might increase. Any such efforts would be ill-advised and ineffective.

10.4 Further Deregulate Trade and Transportation

10.4.1 Eliminate Discretionary Regulation

While the Government of Niger has made significant progress in consolidating the formalities required for livestock exports, the measures fall far short of deregulation. Economic reforms have attempted to diminish the cost and complexity of adherence to the law. However, remaining procedures do little to enhance the competitive position of Niger's citizens in their transactions with neighboring countries. Official regulation of trade and transport activities continues to provide an incentive to clandestine economic activity.

While revenue considerations must remain a critical factor in determining the extent to which liberalization is acceptable to the Government of Niger, a number of regulatory procedures are irrelevant to this issue. The most questionable of these are authorizations for the purchase of vehicles or establishment of trading enterprises, which are presently granted at the discretion of either centrally appointed officials (prefets) or committees (Conseils régionaux de développement).

For road transporters, authorizing committees include current or prospective competitors whose decisions are bound to be prejudiced by self-interest. Proofs of personal legitimacy (including national identity documents, police records, and attestations of solvency from a bank) required of prospective transporters or exporters are similarly discriminatory, requiring the personal approval of those charged with their issuance. Proofs of financial solvency imply the existence of barriers to entry in the form of liquidity or collateral.

None of these formalities generate revenue for central or regional government accounts. All are laden with the potential for abuse in the form of bribery or anti-competitive prejudice. The termination of these requirements would introduce more competition to export markets and more transport vehicles for livestock and other commodities.

10.4.2 Eliminate "Participatory Contributions" and to Replace the CNUT Contribution with a Transport User Fee

Participatory contributions--membership in the Chamber of Commerce and contributions to the Conseil national des utilisateurs des transports (CNUT)--are mandatory for all businesses, including livestock export and transport. These should be eliminated as a business requirement.

Niger's Chamber of Commerce is mandated to act as an advocate for the interests of its members. However, it is neither self-governing nor free to take positions that conflict with official policy. Its leaders are appointed by central government authorities and participation (in the form of annual dues) is mandatory for businessmen. With regard to regulatory procedures for new venture start-ups, the chamber also serves a control function in the registration and collection of "patente" fees. "Participatory contributions" to the Chamber of Commerce, in fact, subsidize its operations. These are an onerous burden on small entrepreneurs in all sectors of the economy and a barrier to entry for new businesses. While elimination of the mandatory subscription would undermine the financial well-being of the Chamber of Commerce, it would not affect national accounts or the productive functions of government.

As for the transport industry, "participatory contributions" to the Chamber of Commerce are somewhat redundant. The political and commercial interests of transporters are well-represented by the Syndicat des transporteurs, an independent and voluntary constituent organization.

The CNUT officially represents the Government of Niger in international conferences on maritime transport, coastal entrepots, and bilateral discussions of transport tariffs. It performs a valuable function in the dissemination of information; however, mandatory subscriptions serve solely as a subsidy for its official activities. A more equitable means of supporting the CNUT would be through a combination of direct Government contributions to its budget and the establishment of a CNUT surcharge or users' fee for cargo passing through maritime ports and entrepots.

10.5 Eliminate Double Taxation of Imported Transport Vehicles and Equipment

Capital requirements for new transport enterprises are high, due to the costs of imported equipment and one-time customs and administrative charges. These costs are compounded by the practice of double taxing imported vehicles, which are subject to customs duties in the countries where they are purchased and also upon entry into Niger. The latter levy is based not only on the basic retail value of equipment, but also on customs duties which are levied at the point of purchase. The Government of Niger should enter into negotiations with authorities in Nigeria to eliminate this practice.

Termination of the levy would entail minor revenue loss for the Government of Niger, which would be obliged to base customs levies solely on the CIF value of newly purchased vehicles exclusive of Government of Nigeria customs levies. Lowering the investment cost barriers for new transport entrepreneurs would likely generate increased investment in this sector. It is possible that revenue collected from remaining levies would offset any short-term revenue losses.

10.6 Simplify and Reduce the Cost of New Vehicle Registration

Administrative formalities required to establish a transport enterprise using goods vehicles include 11 separate procedures, each with its own official and unofficial costs. Both the cost and the complexity of this process serve as a disincentive to new transport entrepreneurs.

The Government of Niger should be encouraged to consolidate and simplify these procedures as much as possible. The underlying premise and a model for such consolidation has already been established in the "guichet unique" for livestock exporters. Transport entrepreneurs should emulate this model.

10.7 Revise the Patente Procedure for Transporters

Like all other businesses operating in the formal sector, cargo transporters must pay an annual patente fee. Unlike other businesses, whose fees are based on estimated or established annual turnover, transport operators' fees are based on the cargo capacity of their vehicle. Patente fees are discounted for transporters owning more than one vehicle.

Two aspects of this policy merit reconsideration. First, the establishment of patente fees on the basis of cargo capacity does not account for down-time of vehicles and presumes that cargo is generally obtainable for round-trip vehicle rotations. Field observations and interviews with transporters indicate that maintenance difficulties related to poor roads and the frequent difficulty of obtaining replacement parts result in as much as 30 percent down-time for trucks and trailers. At the same time, transporters complain of difficulties in obtaining cargo for many of their journeys, resulting in a high proportion of empty backhaul itineraries.

This suggests that a more equitable formula for determining patente fees should be studied. The conversion to a user fee or surcharge on actual cargo hauled would be a reasonable alternative, although it would be difficult to enforce.

A second issue relates to the practice of discounting patente fees for transporters owning more than one vehicle. This practice discriminates in favor of large operators and against new entrepreneurs. If the Government of Niger wishes to introduce greater competition and lower prices for road transport, it should reverse this practice that discriminates against the owners of single vehicles.

10.8 Liberalize Regulations Governing the Operation of Nigeria-Registered Vehicles in Niger

Regulations in Niger currently discriminate against vehicles from Nigeria in the interest of protecting domestic transporters. While the Government of Niger's concerns in this regard are for its own constituency, the consequences are higher costs to Niger's consumers for goods imported from Nigeria and diminished competitiveness for Niger's exporters.

At the same time, however, Niger does not have an adequate fleet of vehicles capable of transporting chilled and frozen meat to markets in Nigeria. To promote these exports, the Government of Niger should consider selective

deregulation aimed at encouraging the operators of refrigerated and freezer vehicles that are registered in Nigeria to service Niger.

10.9 Create Incentives for Investment in Refrigerated and Freezer Vehicles for Meat Exports

High investment, maintenance, and operating costs for chilling and freezing equipment, including transport vehicles, prevent all but the best-capitalized entrepreneurs from investing in this activity at present. Considering the risks of doing business in an export market and the narrow margins currently obtainable in Nigeria, it not surprising that this activity would attract little interest in Niger's business community.

This study has identified prospects for long-term supply agreements with reputable Nigerian firms. While margins might be narrow for suppliers in this trade, secure agreements which include periodic price reviews would provide them with a hedge against market shocks. Long-term agreements would also allow for amortization of investment costs and could be used to secure negotiated credit with financial institutions.

If the Government of Niger seeks to expand foreign exchange earnings from the export of chilled and frozen meat, it must consider the creation of strong financial incentives for investment in this activity. Any fiscal concessions that it might make in this regard would have no negative impact on official revenues, given that they would aim to create a new sector of commercial activity that does not yet contribute to national accounts.

Among the incentives to be considered would be relief from *patentes*, customs duties, the *impôt forfaitaire*, and export taxes for a period of three to five years. Renewal of concessions might be stipulated for transporters and exporters who maintain a pre-determined volume of sales, with normal fiscal obligations phased in beginning in year eight. This measure might implicitly favor large firms in Niger that are capable of committing investment resources over the longer term.

10.10 Assess the Impact of Monetary Policy on the Competitiveness of Exports

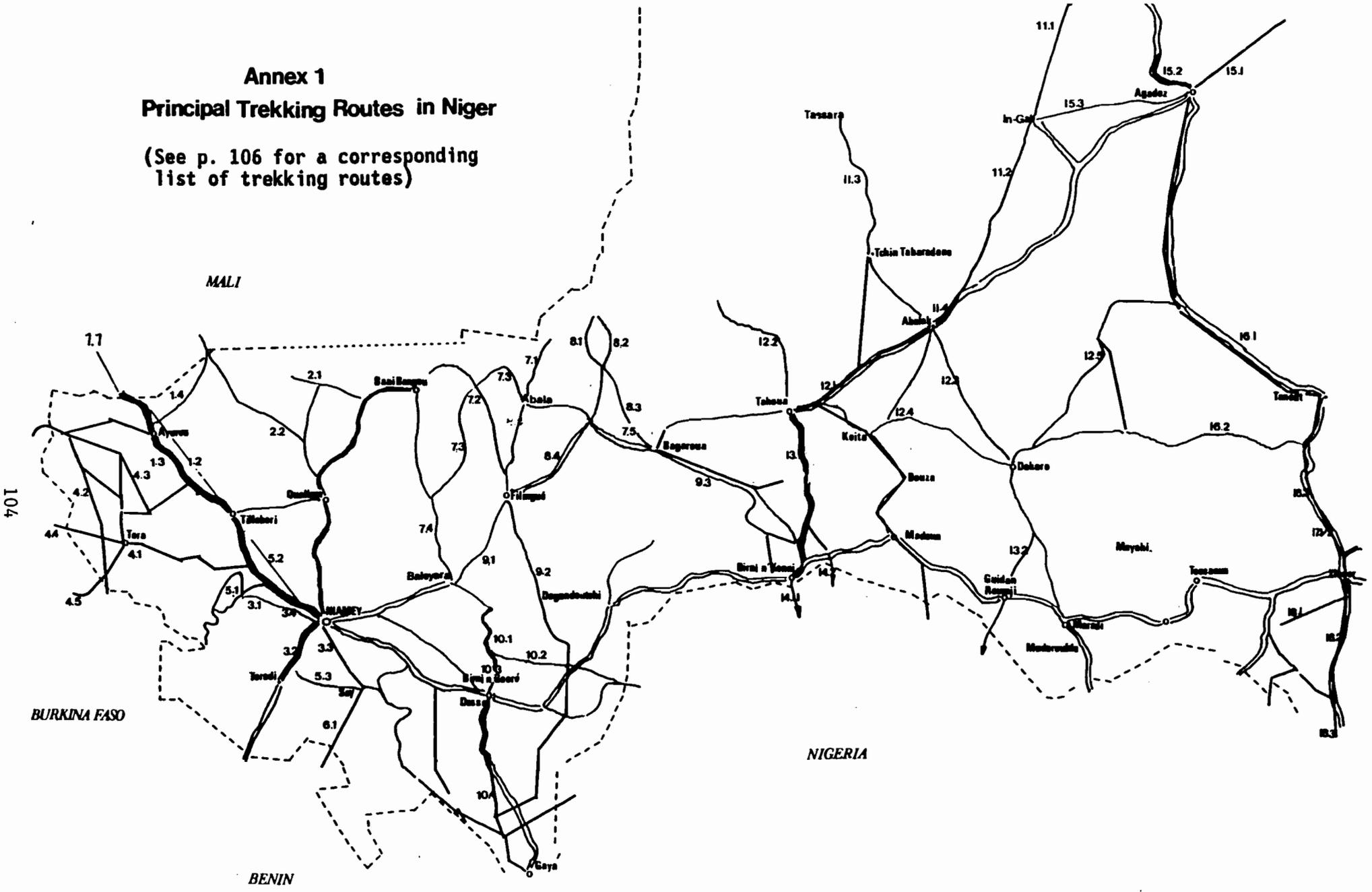
The strength of the CFA franc relative to other currencies in the region is a hotly debated issue among monetary authorities in the CFA zone. The maintenance of a pegged exchange rate relative to the French franc has, to a limited extent, protected CFA zone countries from external shocks. Depreciation of the naira after 1984 has improved the purchasing power of Niger's consumers with regard to goods purchased in Nigeria. Coupled with the naira devaluation, the overvaluation of the CFA franc has penalized exports from Niger. The effect of monetary policy in the CFA zone on exports to Nigeria must be examined in a manner which allows Niger's monetary authorities and policymakers to assess its impact on export trade. In the short run, the prospects for decreasing the costs of livestock exports in Nigerian terms is probably very limited. This is critical in light of data which suggest that production and marketing costs may be an impediment to increased livestock and meat exports.

ANNEXES

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Annex 1
Principal Trekking Routes in Niger

(See p. 106 for a corresponding list of trekking routes)

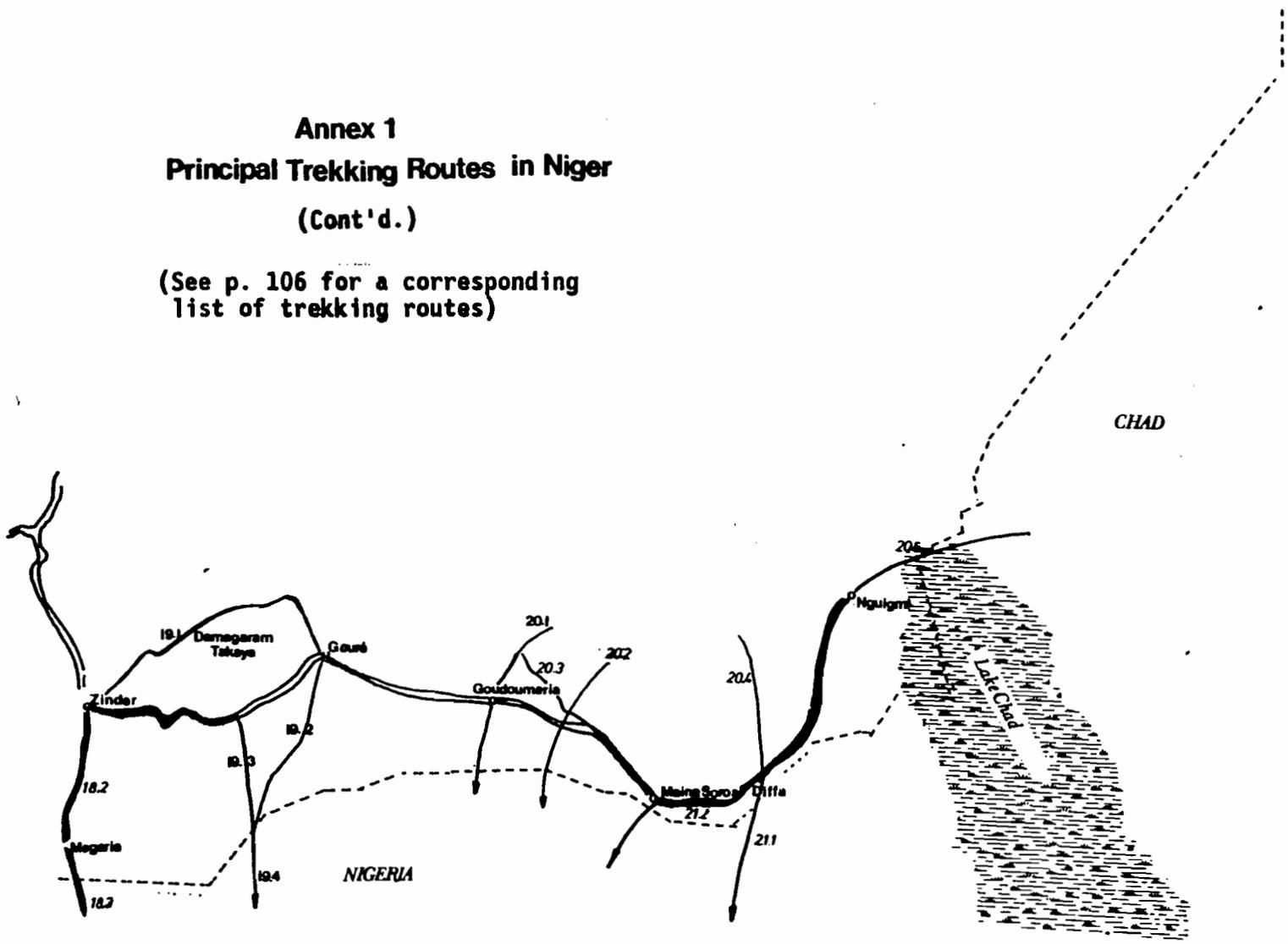


104

Annex 1
Principal Trekking Routes in Niger
(Cont'd.)

(See p. 106 for a corresponding
list of trekking routes)

105



**List of Principal Trekking Routes
in Niger**

(Note: Trekking route numbers correspond to route numbers identified
on preceding map.)

Area 1			
1.1 Gao Ansongo Fafa Ouatagouna (Mali) Ayorou	1.2 Ayorou Bonfeba Tillaberi Namoro Niamey	1.3 Ayorou Mehana Yelwani Tillaberi Namoro Niamey	1.4 Inates Tinguirra Mangaize
Area 2			
2.1 Mangaize Kinibaye Tiloua Tizegorou Banibangou Chinegod Mile Abala Toukounous Filingue	2.2 Mangaize Cewane Foygorou Dabre Hassou Banne Beri Goube Niamey		
Area 3			
3.1 Kossey Namaro Balati Yoreize Kouira Bangou-Kouarey Gorou Niamey	3.2 Torodi Roubire Bougoum Niamey	3.3 Kirtachi Banguire Soungo-Beri Tiraferi Windikor-koye Kollo Boboye	3.4 Boboye Dantiandou Fandou-Beri Barkiawal Niamey

Area 4				
4.1 Higa Herou Taka Tera Gotheye	4.2 Kolmane Bankilare Alamboule Doungouro Tera Gotheye	4.3 Zaney Mehana Yelwani Gotheye	4.4 Setanga (Burkina Faso) Petelkoli Osolo Tera Gotheye	4.5 Seba (Burkina Faso) Bangare Tera Gotheye
Area 5				
5.1 Gotheye Namara Boubon Niamey	5.2 Tillaberi Ziguída Koulikoira Bangoutara Boukagou Say	5.3 Kokouro Koullaga Nabole Tongotongo Nioforou Say	5.4 Badio Doulgou Tchalgou Bouland- jounga Say	
Area 6				
6.1 Say Tamou Foetchango (Burkina Faso)				
Area 7				
7.1 Ekrafane Chimbarkawan Abala Tanchile Danbaguiro Talcho Filingue	7.2 Miyal Fadama Tamatchi Gorou Takoussa Toukounous Filingue	7.3 Miyal Tiguizifan Abala Filingue	7.4 Miyal Fadama Tamatchi Gorou Koukagana Bigahalip Zama Baleyara	7.5 Miyal Tiguizifan Abala Sanam Bagaroua Tahoua

Area 8			
8.1 Diguediga Tassakot	8.2 Diguediga Tassakot	8.3 Tassakot Ezza Tchignalga Bagaroua	8.4 Tassakot Rigial Kassari Sanam Dinkildimi Filingue
Area 9			
9.1 Filingue Louma Kanya Bonkougou Kobi Damana Tabla Loga	9.2 Filingue Itchiguine Kounnou Falouel Fadama Tibiri Makwa (Nigeria)	9.3 Filingue Sanam Bagaroua Guiden Ider	
Area 10			
10.1 Loga Moussadeye Mokko	10.2 Mokko Karabang Fadama Tibiri Makwa (Nigeria)	10.3 Mokko Dosso	10.4 Dosso Gole Guillaje Malgorou Yelou Kaingiwa (Nigeria)
Area 11			
11.1 Arlit Dannet Fagochia In-Gall	11.2 In-Gall Ameloulou In-Ouagar Tofamener Abalak	11.3 Tassara Targa Tchin- Salatine Tchin-Tabaden Abalak	11.4 Tafamener Ekismene Abalak

Area 12				
12.1 Abalak Tounfafi Tahoua	12.2 Tilemses Taza Tahoua	12.3 Abalak Sabon Machi Dakoro	12.4 Abalak Ibohamane Korohane Dakoro	12.5 Aderbissin Rabidine Seyidi Gadabeji Dakoro
Area 13				
13.1 Tahoua Badeguichiri Guidan Ider	13.2 Dakoro Kornaka Guidan Roumji Maradi Djibiya (Nigeria)			
Area 14				
14.1 Guiden Ider Dabnou Birni N'Konni Illela (Nigeria)	14.2 Guiden Ider Malbaza Illela (Nigeria)			
Area 15				
15.1 Timia Elmeki Agadez	15.2 Anou-Areghene Agadez	15.3 In-Gall Assaouas Agadez		
Area 16				
16.1 Aderbissinat Tadelaka Tchin-Garaguene Eliki-gounda Kelekele Tanout	16.2 Belbeji Samia Gangara Gandou Guezaoua Bakin-birji	16.3 Tanout Sabonkafi Guezaoua Bakin-birji		

Area 17				
17.1 Bakin-birji Gourbobo Zermou Mirria Bande	17.2 Bakin-birji Zinder			
Area 18				
18.1 Zinder Takieta Kantche Matameye Sassoum-bouroum Kongolam (Nigeria)	18.2 Zinder Dogo Bande	18.3 Bande Magaria Baban-Mutum (Nigeria)	18.4 Magaraoa Dungass Maigatari (Nigeria)	
Area 19				
19.1 Mirria/Zinder Damagaram- Takaya Birni-N'Kazoe Goure	19.2 Goure Boune Male-Male	19.3 Mirria/Zinder Guidigir Male-Male	19.4 Male-Male Nguru (Nigeria)	
Area 20				
20.1 Boutti Alkamari Gashua (Nigeria)	20.2 Tatakoutou Cheri Gashua (Nigeria)	20.3 Boutti Diffa	20.4 Tatakoutou Diffa	20.5 Nokou Rigrig (Chad) Nguigmi Diffa
Area 21				
21.1 Diffa Damasak (Nigeria) Maiduguri	21.2 Diffa Maine-Soroa Geidam (Nigeria)			

ANNEX II

List of Interviewees

USAID/Niamey

George Eaton, Director
Jack Slattery, Project Development Officer
George Taylor, Agricultural Development Officer
Michael Kerst, NEPRP Project Manager
George Callen, Niger Economic Policy Reform Project
Barry Rands, Natural Resource Management Project
John Mitchell, Agricultural Development Officer
Frank Martin, Economist
Fred Sowers, Agricultural Policy Project
Essama Nssah, Agricultural Policy Project
Georges Conde, Agricultural Policy Project
Thomas Price, Consultant
Peter Bloch, Consultant, Land Tenure Center (Wisconsin)
Hararou Djibo, Program Office

Government of Niger

Ministry of Transport and Tourism

Commandant Moussa-Gros Hamadou, Ministère de transport et de tourisme
Mansour Mamane Hadj Daddo, Director of Tourism
Djibo Boubacar, Director of Civil Aviation
Amadou Youssouf, Chef de Section, Transport Routière

Ministry of Animal Resources

Dr. Seydou Oumarou, Director, Animal Industries and Production
Maidagi Doukougou, Director, Livestock Marketing Information
Bagadou Maidagi, Advisor to the Minister

Ministry of Commerce, Industries and Artisanat

Boubacar Dioffo, Division of Studies and Regulation
Idrissa Seydou Magagi, Centre nigérien du commerce extérieur
Alfidja Hadji, Centre nigérien du commerce extérieur

Ministry of Economic Promotion

Madame Bala Mariama, Director, External Commerce
Magagi Souleymane Moussa, External Commerce
Moissaka Bagouari, External Commerce

Ministry of Finance

Boubacar Coulibaly, Chef de Section for Patentes, Commune of Niamey

Niamey: Private Businessmen and Other Informants

Conseil nigérien des utilisateurs des transports publics (CNUT)
Moussa Mossi, Secretary General,

Société nigérienne pour l'exploitation des ressources animales (SONERAM)
Issiakou Yerima, Chef, Service Commercial

United Nations Food and Agricultural Organization
Joachim Bendow, Food Security Consultant

Société navale et commerciale Delmas-Vieljeux
Mahamane Baba

Assurance Leyma
Harouna Naino
Tiemogo Samri

Regional Officials and Entrepreneurs

Abalak

Dahaman Cheick, Livestock Trader
An unidentified Touareg Dillali
Al Haji Bako, Livestock Trader
Group of four Touareg Herders

Ayorou

Lt.Kane Labo, Customs Service
Group of nine Traders/Intermediaries
Issaka Djibe, Agent, Livestock Service
Chaibou Kassoum, Petty Trader, Teacher, Madrassa d'Ayarou
Bakalla "Samari Dilalli," Livestock Trader/Intermediary
Oumarou Sita, Trader/Intermediary

Birni n'Konni

Mahamadou Attaari, Agriculture Service
El Hadji Issiakou "Mai Taba," Livestock and Tobacco Trader
Moktar Ibrahim, Veterinary Agent
Abdoulaye Albakara, Veterinary Agent
Sarkin Shaanu
Group of three WoDaabe Livestock Drovers

Guiden Ider

El Hadji Issaka Akka, Livestock Trader
Group of five Livestock Traders and Intermediaries
Group of three livestock Herders of the Jijiiru WoDaabe
Moktar Ibrahim, Veterinary Agent
Abdoullaye Al Bakary, Veterinary Agent

Maradi

Dr. Siddo Souley, Director, Regional Slaughterhouse
El Hadji Bello Dan Sanni, Livestock Trade and Agribusiness Entrepreneur
El Hadjh Djioula Magidadi, Livestock Trader
Mamane Labbo, Livestock Trader

Ibrahim Ide, Livestock Trader
Tidere Abarade, Livestock Trader

Tahoua

Dr. Barkire Halidou, Departmental Directorate for Animal Resources
Dr. Garba Laouali, Department Director for Animal Resources, Ibecetene
Hamidou Saley, Branch Chief, Chamber of Commerce
El Hadji Chatomi, Departmental Service for Commerce and Industry
Gamatche Issaka, Economic Promotion Service
Hamad Babati, Livestock Trader
Issa Oula, Livestock Trader

Zinder

Dr. Boubacar Boubacar, Departmental Directorate of Animal Resources
Diarou Badamassi, Departmental Directorate of Animal Resources
Rabo Alaou, Departmental Directorate of Animal Resources,
Projet d'elevage Centre-Est
Badamasi Ari Gouna, Departmental Directorate of Animal Resources
Abdou Boukari, Chamber of Commerce
Abdoulaye Sidibe, Chamber of Commerce
El Haji Yahiya Anzara, Livestock Trader and Transporter
Hassan Maina, Livestock Trader
Yahiya Dan Farou, Livestock Trader
Mallam Daouda, Livestock Trader

Kano

Hinsa Saibou, First Secretary, Consulate of Niger

Lagos

Mme. Baillet, Economic and commercial attaché, Embassy of the
Republic of Niger

Nigerian Officials and Entrepreneurs

Danbatta

Tahiroma Dan Tandi, Livestock Trader
Yacouba Mahomed, Veterinary Service Agent
El Hadji Abdou Gommaja, Transporter
El Haji Leko Dangou, Transporter

Illela

El Haji Moumouni, Livestock Transporter
El Hadji Issiakou, "Mai Taba," Livestock Trader and Transporter

Kano

Tchiroma Dan Tandi, Livestock Trader
El Hadji Armaya'u Abdullahi, Trader and Transporter
Mahomed Dan Barno, Livestock trader and Intermediary
Hayatou, Livestock Trader and Intermediary
Group of three Transport Expeditors

USAID/Lagos

Rudolph Thomas, Office of A.I.D. Affairs

Lagos

Solomon Ashamu, Director, International Division, E.O. Ashamu & Sons
Holdings Limited
Prince Matthew E. Ihioko, Salesman, Ekene Dili Chukwu Motors Ltd.
H. Lehmann, Manager, Food Processing Factory, UTC Nigeria Ltd.
Olufemi Vigo, Manager, Nigeria Food Company Ltd.

Maiadoua

El Haji Djioula Magidadi, Livestock Transporter
El Hadji Ladan Dengi, Livestock Trader
Bureyma Ousman, Livestock Trader
Group of five Transporters and Transport Expeditors

Sokoto

Tanko Maba, Livestock Trader
Abubakr, Intermediary
Ibrahim Oumar, Livestock Trader

Zaria

A.D. Barau, Department of Agricultural Economics, Ahmadu Bello
University
El Haji Tanure Ibrahim, Livestock Trader
Seydou Souley, Livestock Trader

ANNEX III

Registered Livestock Traders in Niger

Name	Location
Livestock Traders	
<u>Département d'Agadez</u>	
Ali Abdouramane	Agadez
Assaid Sidi Mohamed	Agadez
Bouboukrim Alaguis	Agadez
Hassane Sidi Mohamed	Agadez
Ibrahim Gatroni	Agadez
Omar Ahmed	Agadez
Youssouf Amdourhamane	Agadez
Mouleye Bachir	Agadez
<u>Communauté Urbaine de Niamey</u>	
Adamou Kore	Niamey
Adamou Djibo	Niamey
Adamou Saidou	Niamey
Boubakarim Alaguis	Niamey
Hima Amadou	Niamey
Hima Amadou	Niamey
Hamini Bandio	Niamey
Alzouma Oumarou	Lazaret-Niamey
El Hadji Hima Amadou Kanare	Lazaret-Niamey
Moussa Karimou	Lazaret-Niamey
Moussa Silaman	Lazaret-Niamey
Ousman Koro	Lazaret-Niamey
Saidou Soumana	Sidoure Lazaret-Niamey
Sani Modibo	Lazaret-Niamey
Zakou Ousseini	Lazaret-Niamey
Boubacar Sambo	Lamorde-Niamey
Boubacar Abdou	Gogaya-Niamey
Djibo Abdou	Yantala-Niamey
Issoufou Balla	Bani Zambou-Niamey
Marou Moussa	Balafon-Niamey
ounkaila Saidou	Bani Zambou-Niamey
Oumarou Boukari	Lamorde Bandio-Niamey
Oumarou Bahia	Lamorde Bandio-Niamey
<u>Département de Diffa</u>	
Amaroua Lawan Godji	Diffa
El Hadji Biri Kassoum Grema	Diffa
El Hadji Sabo Dan Falke	Diffa
Malam Issa Amadou	Diffa
Mallam Maine Boukar	Diffa
El Hadji Mahamadou Ibrahim	Diffa

Name	Location
Moussa Adam	Maine Soroa
El Hadji Abba Malam	Maine Soroa
El Hadji Animami Mamadou	Maine Soroa
El Hadji Boulama Mele	Maine Soroa
El Hadji Daguey Barma	Maine Soroa
El Hadji Damagouna	Maine Soroa
El Hadji Abdou Awandi	Maine Soroa
El Hadji Lawan Marouma	Maine Soroa
El Hadji Moustapha Ali	Maine Soroa
El Hadji Souley	Maine Soroa
El Hadji Tchari Gonidi	Maine Soroa
Goge Ali	Maine Soroa
El Hadji Boulama Kelzougana	Boutti-Maine Soroa
El Hadji Oumarou Goni	Maine Soroa
El Hadji Ari Toubo	N'Guigmi
El Hadji Issifou Moustapha	N'Guigmi
Inoussa Mai Manga	N'Guigmi
Issoufou Mahamadou	N'Guigmi

Département de Dosso

Mahamadou Idi	Gaya
Sani Djimraou	Gaya
Yanoussa Lilla	Gaya

Département de Maradi

El Hadji Hamza Bouzou	Maradi Commune
El Hadji Abbo Sarkin Shaanu	Tessaoua Commune
El Hadji Issouffou Abdou	Guidan Roumji
El Hadji Moussa Mahamane	Madarounfa

Département de Tahoua

Bawoji Hanou	Tahoua
Dahama Check	Tahoua
Mahamed Ben Moussa	Tahoua
Issa Oule	Birni N'Konni
Issaka Aka	Guidan Ider

Département de Tillabery

Aboubakar Oumarou	Dargueye-Kollo
Abdoulaye Daouda	Tondikoirey-Karma
Abdourihamane Souley	Gabou-Tillabery
Dodo Saibou	Libore-Kollo
Hima Saidou	Karma-Kollo
Ide Sambo	Koneberi-Karma-Kollo
Ibrahim Pita	Bonkourou-Filingue
Mossi Konatou	Tillabery
Saibou Boulhaidou	Tillabery
Mamoudou Tchabo	Mandou-Tillabery

Name	Location
<u>Département de Zinder</u>	
El Hadji Ali Barka	Zinder
Brah Doualle	Zinder
Boubacar Sanda	Zinder
Ado Bouhou	Zinder
Amadou Maman	Zinder
Amadou Zaneidou	Zinder
Boukassoum Younous	Zinder
Bounia Souley	Zinder
El Hadji Seyni Kolli	Zinder
Galadima Sultana	Zinder
Grema Mahaman	Zinder
Hassan Maiya	Zinder
Harouna Rachid Moustapha	Zinder
Ibrahim Amadou	Zinder
Lawali Dan Asoumi	Zinder
Lawali Sadjia	Zinder
Mahaman Sabo Boukari	Zinder
Mahaman Sinni	Zinder
Maillou Maman	Zinder
Maki Malam Sani	Zinder
Moumouni Amadou	Zinder
Ousseini Madougou	Zinder
Yacouba Abdou	Zinder
Yahaya Dan Zara	Zinder
El Hadji Abdou Mamadou	Zinder
Maki Malam Sani	Zinder
Maman Moussa	Zinder
El Hadji Abache Issa	Matameye
El Hadji Moutari Idi	Matameye
Mamani Issa	Matameye
El Hadji Manzo Mahamou Ladan	Magaria
Maman Dan Rouloum	Magaria
El Hadji Kassou Alla	Goure
El Hadji Saley Zakary	Goure
Bani Madou	Goure
Abdou Attanou	Goure
Kiarai Liman	Goure
Mahamat Wadougou	Goure
Malam Madou Kinamou	Goure
Mamadou Boukar	Goure
Maman Madou Kissamou	Goure
El Hadji Yacouba	Sassoumbroum
Hassan Moussa Angou	Saguimi
Kassoum Jattaou	Bande
El Hadji Lawal Bounnou	Guidemouni
Tahirou Habou	Dungass

Source: Exporter registries at departmental administrative offices. Data compiled by Amani Hamidou.

ANNEX IV

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