BIBLIOGRAPHIC DATA SHEET

PN-AAJ-213

LIVESTOCK AND MEAT MARKETING IN WEST AFRICA, VOL. II: BENIN, GHANA, LIBERIA, TOGO

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CORPORATE AUTHORS - MICH. UNIV. CTR. FOR RESEARCH ON ECONOMIC DEVELOPMENT

1979, 150P.
(VOLS. I-V: PN-AAJ-212 - PN-AAJ-216)

ARC NUMBER - AFR338.1762.M264
CONTRACT NUMBER - REDSO/WA-77-105
PROJECT NUMBERS -
SUBJECT CLASS - AL000000G190

DESCRIPTORS -

BENIN
LIVESTOCK
PRICES
LIVESTOCK MARKETING
GHANA
MARKETING
SUPPLY
POULTRY
LIBERIA
TRANSPORTATION
GOATS
DEMAND
TOGO
WEST AFRICA
SHEEP

AFR
338.1762
M624
Vol II

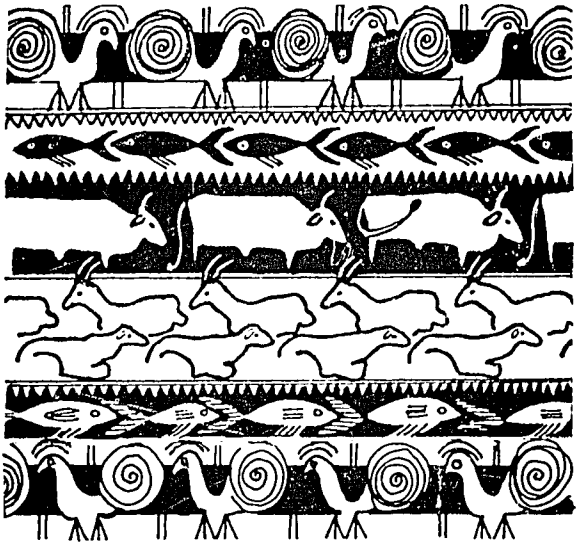
PN-AAJ-213

LIVESTOCK AND MEAT MARKETING IN WEST AFRICA

VOLUME II

Benin, Ghana, Liberia, Togo

Henri Josserand
Gregory Sullivan



Prepared by the CENTER FOR RESEARCH
ON ECONOMIC DEVELOPMENT,
the UNIVERSITY OF MICHIGAN

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REDSO/WA

1979

LIVESTOCK AND MEAT MARKETING IN WEST AFRICA

VOLUME II

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REDSO/WA

Center for Research on Economic Development
University of Michigan

Regional Economic Development Services Office, West Africa
Contract No. REDSO/WA 77-105

December 1979

PREFACE

This is the second volume of a study of livestock and meat marketing in Central West Africa conducted by the Center for Research on Economic Development of the University of Michigan under contract to the REDSO-WA office of the Agency for International Development.

The subject of the study has been the marketing of red meat and livestock in five West African coastal countries -- Liberia, Ivory Coast, Ghana, Togo and Benin -- and two Sahelian countries -- Mali and Upper Volta. Together they constitute a Central West African "corridor" along which there has long been an active trade of live animals from the states in the interior to the centers of consumption near the coast.

Prolonged drought in the Sahel in the early 1970s disrupted the customary trade pattern. By 1975 coastal consumers had turned to non-African suppliers to an unexpected degree, and the countries on the Gulf of Guinea became part of the world meat market. The desirability of studying the implications of this development for livestock development policies in the Sahel provides the main rationale for the study.

Volume II contains individual reports on four coastal deficit states: Liberia, Ghana, Togo and Benin. Reports for Ivory Coast, Mali and Upper Volta appear in separate volumes. In addition to the African countries, the study covers developments in the world meat market during the last decade, particularly those affecting the principal meat exporters: Australia, Argentina, New Zealand and Uruguay. European meat exports to West Africa will be treated in reports on France and Denmark. Market potential for Sahelian livestock products in North Africa will be evaluated in reports on Egypt and Algeria. Finally, a synthesis report presents the highlights of the various studies and draws appropriate policy implications. French translations of all materials are forthcoming.

Many people in several countries have contributed greatly toward the successful completion of these reports. Each author individually acknowledges their contributions and we join in expressing our

appreciation. Beth Fredrickson coordinated the numerous activities entailed in the project for the past two years and together with Tim Case shouldered the main responsibility for editing this volume.

The forebearance of Jayne Owen, Lori Roy, and Jeane Walkowski through the multiple revisions of the manuscripts merits special and grateful praise. Art work by Jane McCormick greatly enlivens these pages.

Ann Arbor, Michigan
November 1979

Edgar J. Ariza-Nino
Charles Steedman

LIVESTOCK AND MEAT MARKETING
IN WEST AFRICA
VOLUME II

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BENIN

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ACKNOWLEDGEMENTS

The field work upon which this report is based was carried out in Benin in November and December 1978 by Henri P. Josserand, Research Associate at the Center for Research on Economic Development (CRED) at the University of Michigan.

The author would like to express his gratitude to the government of Benin for the help and collaboration offered at various stages of this study, chiefly through officials of the Ministry of Rural Development and Cooperative Action, of state companies SODERA, SONAPECHE and of technical services such as the Direction de l'Elevage and Direction des Pêches. Particular thanks go to the directors and staff of these companies and services, expecially Drs. Tomagnimena, Assogbakpé and Gueilly, Messrs, Atrevy, Baguidi and Déguenon of SODREA, Messrs, Adje and Honvou of SONAPECHE, and Drs. Fabokova and Magoudou of the Fisheries and Livestock Services. Sincere thanks are also extended to Livestock Service agents in provincial towns and villages who contributed greatly to this investigation.

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ABSTRACT

Total consumption of meat and meat products in the People's Republic of Benin for 1976 is estimated to have been over 26.7 thousand metric tons, equivalent to 8.4 kg per capita. The domestic livestock subsector supplied virtually all the meat consumed; the shares contributed by the various animal species were: cattle, 40 percent; small ruminants, 20 percent; swine, 25 percent; and poultry, 15 percent.

Total consumption of fish reached over 31 thousand metric tons, about 40 percent of which was imported; per capita fish intake for 1976 was 9.8 kg.

Benin did not import significant amounts of livestock and meat during the 1966-76 period. Imports consisted mostly of live animals, chiefly from Niger and Upper Volta; the share of frozen meat became larger only in the last two years (1976-78) as a result of cattle import restrictions.

Official meat imports fell from 54.3 tons in 1966 to just over three tons in 1975. The dwindling contribution of West African suppliers is clearly observable: in 1966, Sahelian states -- Niger in particular -- supplied 83 percent of Benin's frozen and chilled meat imports. This share then decreased both in relative and absolute terms to 71 percent of 27 tons in 1967, 48 percent of 13.2 tons in 1968, and 40 percent of 11.2 tons in 1970. From then on, West African suppliers disappeared altogether from Benin's official meat import statistics.

Livestock imports during the 1966-76 period were severely affected by the Sahel drought. There were peaks in livestock exports by Niger and Upper Volta in 1973 and 1974, mostly as a result of destocking and resettlement of Sahelian herds in southern areas.

The emergence of Nigeria as an economic power has created a vast and profitable market for regional food products, including livestock, at Benin's doorstep. High cattle prices in Nigeria have led to export restrctions on the part of Benin "to protect the national policy of self-sufficiency in meat." Actually, illegal flows of cattle from Benin to Nigeria are acknowledged by livestock service officials. It is

likely that more attractive livestock prices would in fact encourage productivity in the domestic sector. Instead of restricting exports to "retain" exploitable livestock resources in the short term, the national policy should rather be to welcome higher returns so that domestic expansion of breeding stock, the only real long-term asset, will be encouraged. The initial slack in cattle supply to Benin's southern provinces which would result from permitting exports to Nigeria could be made up through imports of low-priced frozen meat from the world market. This strategy could be followed until the liveweight price differential between the two countries is reduced.

Under current restrictive livestock and meat trade policies, the growth of aggregate consumption of meat will be constrained by the low rate of increase in supply from a poorly stimulated domestic livestock subsector. With such restrictive policies we look for levels of total meat consumption approaching 29 thousand tons in 1980, 35 thousand in 1985 and 42.3 thousand tons by 1990. Per capita intake would increase at a very slow rate, from the current 8.4 kg/year to 8.85 kg/year in 1990.

Our economic analysis of the traditional livestock and meat marketing system based on the number of economic agents involved and their efforts to maximize profits through vertical integration, shows that the industry is both competitive and efficient. Widely held notions that there are excess profits by livestock merchants and that herders are exploited by large number of "useless intermediaries" have not been substantiated. As it turns out, the traditional private livestock marketing system is much more efficient than its public equivalent. Public intervention should be aimed at production rather than marketing. Finally, the wider use of animal traction for farming and transportation will not seriously affect livestock marketing.

ABSTRACT TABLE I

SUMMARY OF TOTAL AND PER CAPITA CONSUMPTION OF ALL MEATS, 1966-1976

	DOMESTIC MEAT SUPPLY (tons)						IMPORTS			TOTAL		
Year	Beef	Sheep/ Goat Meat	Pork	Poultry	Total	Per Capita Kg/year	Live Animals (tons)	Meat	Total Meat Imports	Total Meat Consumption	Domestic Production as % of Supply	Per Capita Consumption of all meats (kg/year)
1966	7,600.5	3,246.3	5,171.6	2,437	18,455.3	7.5	1,268.5	54.3	1,322.8	19,778.1	93.3	8.1
1967	7,915.6	3,472.3	5,977.1	2,573	19,938	7.9	-	27	-	-	-	-
1968	7,868.3	3,303.9	5,289.4	2,700	19,161.7	7.4	-	13.2	-	-	-	-
1969	8,485.1	3,559.7	5,622	2,870	20,537.7	7.7	-	1.3	-	-	-	-
1970	8,496	3,650.5	6,135	3,000	21,281.5	7.8	867.7	11.2	878.9	22,160.4	96	8.1
1971	8,817	3,707.1	6,194.5	3,200	21,918.5	7.8	717.8	5.7	723.5	22,642	96.8	8.1
1972	9,693	3,927.2	5,997.8	3,400	23,018	8	595.95	10.6	606.5	23,624.5	97.4	8.2
1973	10,256.4	4,912.1	6,081	3,600	24,849.4	8.4	2,915.5	9.1	2,924.6	27,774	89.5	9.4
1974	10,255.5	4,696.3	6,037.5	3,800	24,789.3	8.2	821	3.4	824.4	25,613.7	96.8	8.45
1975	10,825.7	4,913.1	6,078.9	4,000	25,817.7	8.3	251.9	3.1	255	26,072.7	99	8.4
1976	10,670.3	5,212.7	6,640.3	4,200	26,723.2	8.35	10.9	3	13.9	26,737.1	99.9	8.4
	39.9%	19.5%	24.9%	15.7%	100%							

ABSTRACT TABLE II

SUMMARY OF ALL OFFICIAL LIVESTOCK AND MEAT IMPORTS, 1966-1976

Year	(1) Cattle Imports No. Head	(2) Beef Equivalent (tons)	(3) Small Ruminants Imports (head)	(4) Sheep/ Goatmeat (tons)	(5) Total from Livestock (tons)	(6) Meat Imports (tons)	(7) Total (tons)
1966	8,457	1,268.5	--	--	1,268.5	54.3	1,322.8
1967	--	--	--	--	--	27	--
1968	--	--	--	--	--	13.2	--
1969	5,333	800	--	--	800	21.3	821.3
1970	5,541	831.1	3,537	36.6	867.7	11.2	878.9
1971	5,789	686.3	3,046	31.5	717.8	5.7	723.5
1972	3,482	522.3	7,116	73.6	595.9	10.6	606.5
1973	17,548	2,632.2	27,373	283.3	2,915.5	9.1	2,924.6
1974	4,026	603.9	20,974	217.1	821	3.4	824.4
1975	1,578	236.7	1,468	15.2	251.9	3.1	255
1976	40	6	473	4.9	10.9	3	13.9

SOURCE: Direction Nationale de l'Elevage.

NOTES: (1) and (3): see Tables F and G of the Statistical Appendix.
(2) = (1) x 150 kg
(4) = (3) x 10.35 kg
(7) = (2) + (4) + (6)

CHAPTER ONE

INTRODUCTION

Chapter Synthesis

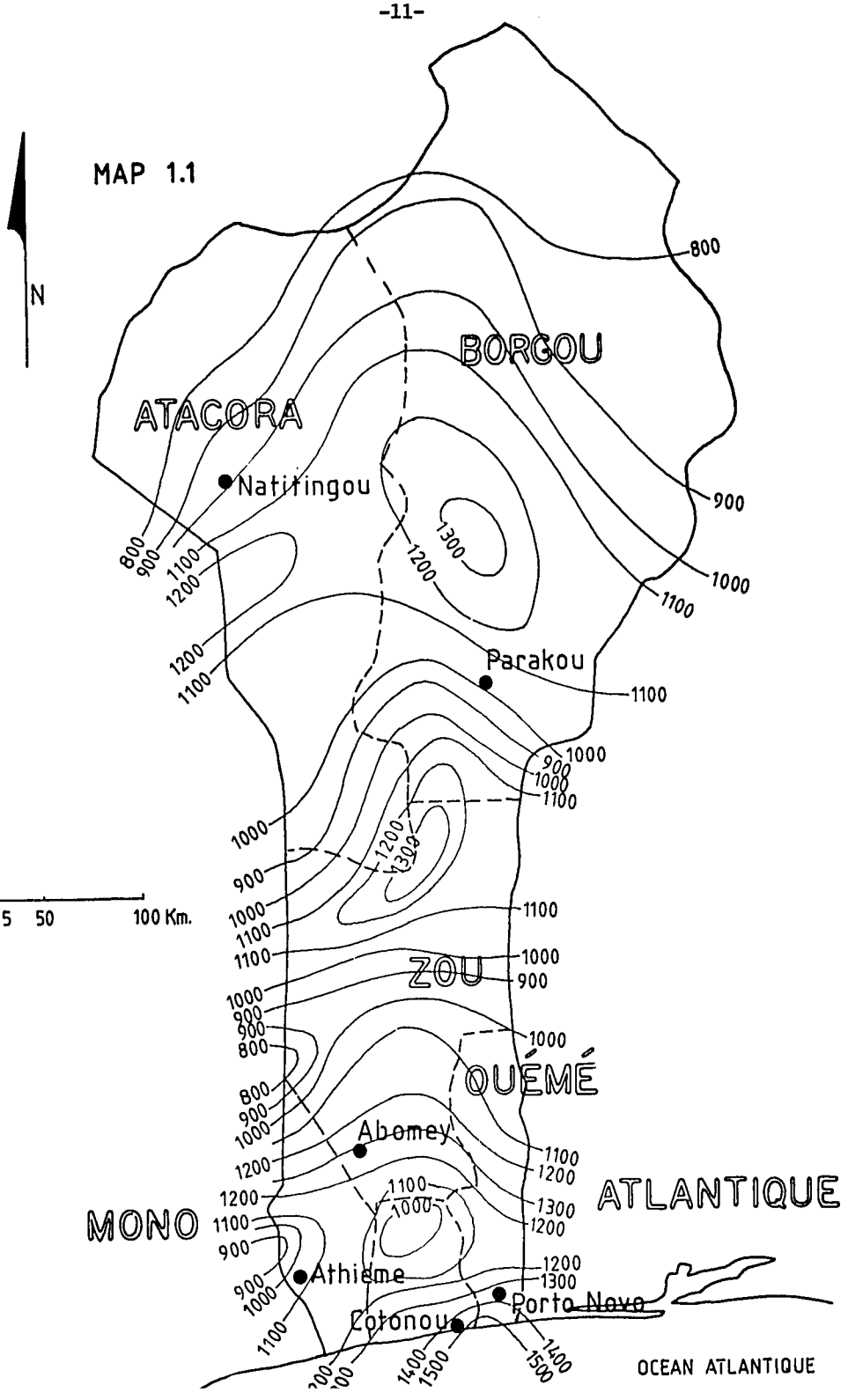
This chapter provides a physical and demographic description of the People's Republic of Benin. The section on economic situation and outlook includes a discussion of recent economic growth, evolution and current structure of GDP, and recent performance of the various sectors and subsectors. The determinants of Benin's economic growth are identified and discussed; finally, endogenous and exogenous development stimuli are used as a basis for an estimation of growth potential into the mid 1980s.

1.1 General Setting

Benin lies on the southern coast of the bulge of West Africa; the nation's territory covers about 112,600 square kilometers reaching northward from the narrow, 80 km coastline. The country fans out in the middle toward borders with Upper Volta and Niger in the northwest and northeast, respectively. Its neighbors on either side are Togo and Nigeria. Annual rainfall is highest near the coast and decreases from about 1,200 to 800 mm as one moves northward. As a whole, however, the country receives considerably less precipitation than its eastern or western neighbors.

The nation is divided into six administrative regions or provinces, from south to north: Atlantique, including Cotonou, along most of the coastline; the Oueme, in the southeast, including the city of Porto Novo; the Mono, in the southwest, with Lokossa; the Zou, including the city of Abomey, separating the three southern regions and the two northern ones; and the Atacora and Borgou (northwest) regions, with capitals in Natitingou and Parakou (see Map 1.1).

The three smaller southern regions, Atlantique, Mono and Oueme, have the highest population densities, and a relatively high proportion of their available land is cultivated (17 to 19 percent). Palm oil


MAP 1.1
N
BORGOU
ATACORA
Natitingou
Parakou
ZOU
QUÉMÉ
Abomey
MONO
Athième
Cotonou
Porto Novo
ATLANTIQUE
OCEAN ATLANTIQUE
0 25 50 100 Km.

constitutes their main cash crop, followed by coffee, cotton and rice. The Zou province provides the transition from the southern Guinean-type climate to the northern Sudanese environment. Population density and and proportion of cultivated to agricultural land are half that of the southern regions. Main cash crops are palm oil, cotton and groundnuts.

The two northern provinces, Atacora and Borgou, are much less populated. The land area under cultivation represents only 3 to 5 percent of available land. Cash crops consist of limited amounts of groundnuts, cotton and rice; major foodcrops are sorghum, maize and yams. Most of the livestock raising in Benin takes place in these two regions.

1.2 Population

Demographic data on the Republic of Benin are based on extrapolation from the 1970 national census and from a few recent sample surveys; population figures must therefore be used cautiously. The estimated evolution of total population for the period 1966-1976 and projections to 1990 may be summarized as follows:

TABLE 1.1

TOTAL POPULATION, 1966-1990

Year	Total Population (Thousands)	Year	Total Population (Thousands)
1966	2,449	1973	2,951
1967	2,515	1974	3,031
1968	2,583	1975	3,113
1969	2,653	1976	3,197
1970	2,725	1980	3,573
1971	2,798	1985	4.122
1972	2,874	1990	4,777

SOURCE: Institut National de la Statistique et de l'Analyse Economique (INSAE), 1976.

By 1976 the estimated total population reached nearly 3.2 million, with a net rate of growth of 2.7 to 2.8 percent. The proportion of total population in the 0-through-14 age groups amounted to 46 percent. Urban-rural distribution was such that only 13.5 percent lived in towns and cities. As previously noted, population density varied widely among provinces; in 1976, for example, its distribution was as follows:

TABLE 1.2

POPULATION DISTRIBUTION AND DENSITY, BY PROVINCES, 1976

Province	Population (Thousands)	Percentage of Total	Density (inhabitants/sq. km)
Atlantique	545	17.0	169.1
Oueme	682	21.3	145.0
Mono	452	14.1	118.9
Zou	681	21.3	36.4
Atacora	405	12.7	13.0
Borgou	432	13.5	8.5
TOTAL	3,197	100.0	28.4

SOURCE: INSAE, 1976.

In 1975, 84.4 percent of the male population was engaged in primary sector activities, divided as follows: agriculture, 80.4 percent; livestock, 1.2 percent; fishing, 2.7 percent; and hunting and forestry, 0.1 percent. Finally, it is estimated that the growth rate of the urban population nears 6 percent per annum, while in rural areas it amounts to only 2.3 percent. This implies that over the next decade the population of Benin would evolve as projected in Table 1.3.

TABLE 1.3

PROJECTED URBAN/RURAL POPULATION GROWTH,
1976, 1980, 1985 AND 1990
(Thousands)

Year	Urban Population	Rural Population	Total
1976	431 (13.5%)	2,766 (86.5%)	3,197 (100%)
1980	544 (15.0%)	3,029 (85.0%)	3,573 (100%)
1985	728 (17.7%)	3,394 (82.3%)	4,122 (100%)
1990	974.4 (20.4%)	3,802.9 (79.6%)	4,777.3 (100%)

SOURCE: Adapted from INSAE, 1976.

1.3 Overall Economic Situation and Outlook

The structure of Benin's gross domestic product illustrates the extent to which the economy depends upon primary sector activity and the implications of agricultural stagnation for the whole economy. Table 1.4 shows the growth and structure of Benin's GDP for the 1972-1976 period.

GDP at market prices grew at an average of 3 percent, from 105 to 118 billion CFA F in constant 1975 prices. The secondary sector, especially modern industry, led in growth with 11 percent annually. The tertiary sector posted an average rate of growth of 5.3 percent, led by commerce, while the primary sector, especially fisheries, recorded an overall decline of 1.1 percent per annum. For our purposes it is interesting to note that apart from forestry, livestock was the only primary sector activity to register any gain: 4.6 percent annually over the period considered. This increased its relative share of output in the primary sector from 7.3 percent in 1972 to 9.4 percent by 1976.

TABLE 1.4

GROWTH AND STRUCTURE OF GDP, 1972-1976
(Percent)

	1972-76 Real Growth, in 1975 CFAF prices	Structure 1972	Structure 1976
Primary Sector	-1.1	42.6	37.8
Foodcrops	-2.2	23.8	21.0
Industrial Crops	-3.7	5.3	3.4
Livestock	4.6	7.3	9.4
Fisheries	-12.8	3.8	2.0
Forestry	4.2	2.4	2.0
Secondary Sector	11.0	11.7	14.7
Modern Industry	16.4	5.3	7.9
Traditional Industry	0.9	2.7	2.4
Construction	9.3	3.7	4.4
Tertiary Sector	5.3	45.7	47.5
Commerce	7.9	18.1	22.6
Transport	3.1	5.3	5.2
Public Administration	3.6	13.5	11.4
Other Services	3.0	8.8	8.3
GDP at factor cost	3.3	100.0	100.0
GDP at market prices	3.0		

SOURCE: Ministère du Plan, Comptes de la Nation, 1975.

Several factors have contributed to keeping the rate of economic growth in the People's Republic at a level (3 percent annually) only slightly higher in the 1970s than it had been since independence (about 2.8 percent yearly). The first is certainly that output of the economy's dominant sector -- especially agriculture -- has been stagnant or declining. A number of factors, endogenous as well as exogenous to the economy, contributed to poor agricultural production: successive droughts, especially in 1976 and 1977; the institutional disruptions ushered in by political reorientation; and governmental attempts to keep down the prices of cash and foodcrops in the face of strong urban and Nigerian demand. The economy also suffered a substantial setback in fishing, whose relative contribution to GDP was nearly halved between 1972 and 1976. The drop in fish production was mainly due to an exodus of foreign capital soon after the introduction of new socialist economic policies. Slow economic growth has, however, also been brought about by more active interventions, such as the government's efforts to eliminate the budgetary deficit through tight control of public spending.

The early and mid-1970s have also meant a worsening both in the balance and terms of trade, particularly since exports were mostly palm products and cotton, whereas imports consisted primarily of capital goods, petroleum products, manufactured consumer goods and food. Table 1.5 summarizes the nation's external trade position.

TABLE 1.5

BALANCE AND TERMS OF TRADE, 1971-1976

Year	Exports (Million CFA F)	Imports (Million CFA F)	Balance of Trade (Million CFA F)
1971	11,648	21,202	- 9,554
1972	9,201	23,539	-14,338
1973	9,796	24,858	-15,064
1974	8,184	35,173	-26,989
1975	11,385	40,961	-29,576
1976	12,174	52,216	-40,042

	1972	1976
Export Price Index	100	163.4
Import Price Index	100	200.4
Terms of Trade	1	.815

SOURCE: BCEAO, Indicateurs Economiques, 1976.

There are more positive aspects to Benin's recent economic performance; again, these were endogenously as well as exogenously stimulated. Mention has been made of the government's efforts to balance the national budget; these met with success during the last few years. A more conservative external policy also helped by keeping down net foreign assets and the debt service ratio to manageable levels. Among exogenous positive factors, the chief economic stimulus was undoubtedly the Nigerian demand for Beninese agricultural products, and a host of consumption and investment goods re-exported by Benin. The growth of food grain and livestock production in Nigeria have failed to keep up with demand, and Benin has supplied such products. This trade is illegal and unreported, but takes place on a large scale nonetheless. Sub rosa exports of Beninese sorghum and maize in exchange for Nigerian-made consumption goods are estimated to have reached 30,000 to 40,000 tons (i.e. as high as 15 percent of total production) in some years. Estimates of livestock exports to Nigeria are set at several tens of thousand head yearly. The equally rapid growth of Nigerian demand for other goods also had a very favorable impact on Beninese import-substitution industries; this undoubtedly contributed to making the People's Republic secondary sector the national growth leader. Benin's geographical position and the close proximity of its only major port to the Nigerian border (35 km) have also greatly boosted the domestic trade and transportation subsectors.

It is quite likely that the growth of Nigerian demand for Beninese exports or re-exports will remain at its present high level for several years and will continue to stimulate its neighbor's economy. The Government of Benin appears to share this belief and is concentrating its efforts on the slower-growing primary sector. The bulk of the 1976-1979 Economic and Social Development Plan investments are earmarked for agriculture, in the form of agricultural inputs to be provided by a state company (SONAGRI), improvement of extension services, and establishment of an agricultural credit bank (CNCA). With respect to livestock, another state firm (SODERA), is charged with the improvement

of livestock production, while fisheries are placed under the responsibility of SONAPECHE, another state company. SONAPECHE will attempt to reconstitute the domestic deep-sea fishing fleet by buying several trawlers over the next few years. The rest of the Plan's investments will mostly be divided between light industry and transportation infrastructure.

The Plan's execution has been delayed for almost two years, mainly because of shortfalls in foreign assistance and financing. Considering the scope of the development work envisioned and the vastness of the target selected, one cannot reasonably expect to witness a significant structural improvement for several years. One therefore tends to conclude that Benin's overall real growth will remain at about 3 percent yearly until 1980, and could reach 4 to 5 percent in real terms over the following five years.

CHAPTER TWO

THE DOMESTIC LIVESTOCK SUBSECTOR

Chapter Synthesis

This chapter describes the organization and duties of the two government agencies responsible for livestock. The economic importance and chief characteristics are then discussed for each species, including rate of growth, spatial concentration, methods of husbandry, and contribution to the national meat supply. The government's goal of livestock and meat self-sufficiency and corollary external trade policies are outlined. Finally, the major specific livestock projects are introduced; their expected output will be taken into account later in this report, when the question of future livestock and meat supply is addressed.

2.1 Government Agencies

The responsibility for public intervention in the domestic livestock subsector falls to two agencies operating under the Ministry of Rural Development and Cooperative Action. The older institution is called Service de l'Elevage; it is one of the six central services placed under the Ministry. Headquarters are located in Parakou, capital of Borgou province. The Service is in charge of animal health, vaccination campaigns, extension work and control of livestock movements across borders and within Benin. The Service de l'Elevage also has the task of centralizing and publishing both the livestock statistics now collected by the CARDER (Centres d'Action Regionale pour le Developpement Rural) and data on recorded slaughters. The Service has regional offices in all provincial capitals and most towns of the Borgou and Atacora provinces.

The second public agency involved with livestock is a state company created in 1976, the Societe pour le Developpement des Resources Animales, SODERA. It is responsible for the supervision of livestock and meat marketing in Benin and for controling imports of live animals and meat. Headquartered in Botonou, SODERA is also charged with operation or supervision of the five existing or planned modern components of the domestic

livestock subsector, namely the various ranches and experimental production stations. Figure 2.1 provides an overview of the firm's organization. SODERA's marketing duties include the operation and regulation of the Cotonou and Porto-Novo abattoirs, the setting of official meat retail prices, the management of Cotonou's main butcher shop, and the provision of meat to neighboring small towns. The company is also the sole legal importer of frozen meat. With respect to livestock SODERA has two buying teams operating within Benin and occasionally in Upper Volta whose job is to purchase animals suitable for breeding on the various ranches and research stations. Finally, SODERA is responsible for the direction of five livestock projects: the Cotonou poultry stati the Okpara ranch and research station (in conjunction with the Service de l'Elevage) and -- with UNDP and the African Development Fund, -- the Kpinou, Samiondji and Mbetecoucou ranches.

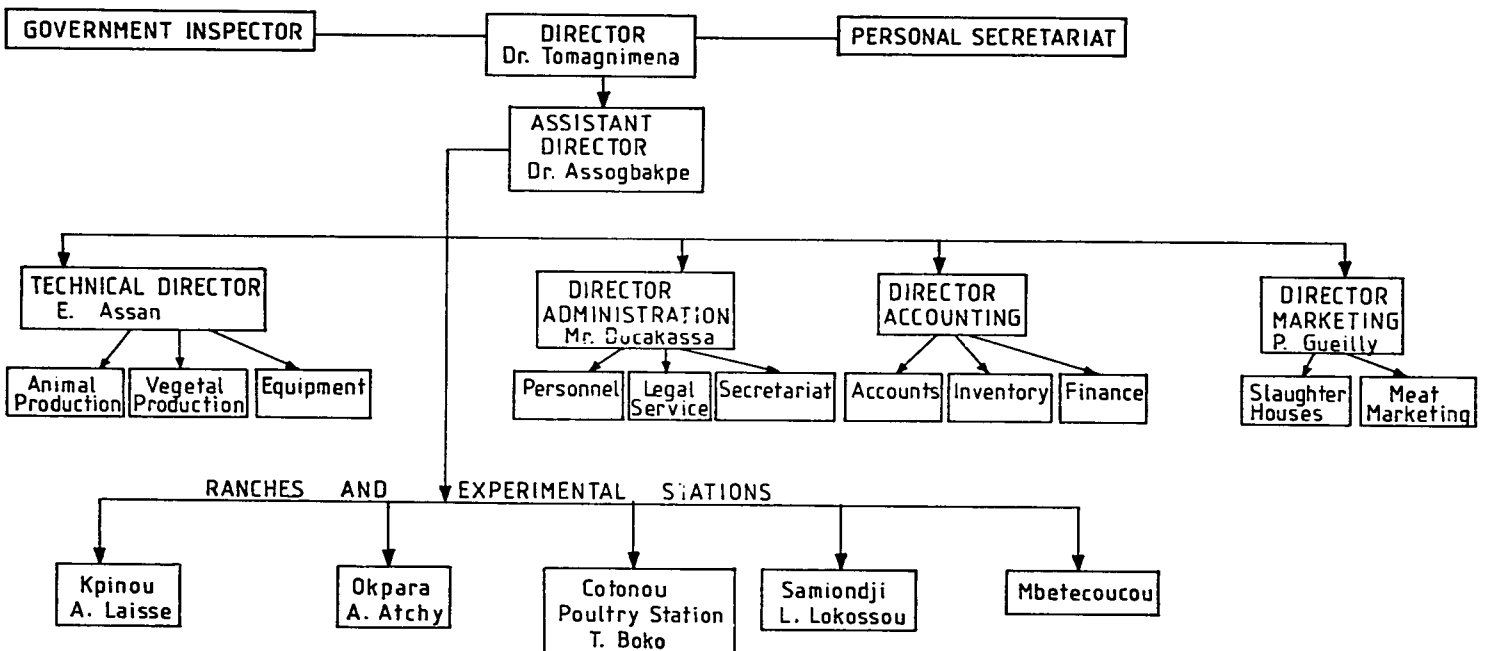
2.2 Economic Importance and Characteristics

The domestic livestock subsector led all primary sector activities in growth between 1972 and 1976 with an average yearly rate of increase of 4.6 percent. In the entire economy, it ranked fourth in growth behind modern industry, construction and commerce. The share of livestock increased from 17 percent of primary activity and 7.3 percent of total GDP in 1972 to 25 percent of primary activity and 9.4 percent of total GDP in 1976.

2.2.1 Cattle

Table 2.1 shows the evolution of the national cattle herd in the six provinces between 1966 and 1976. During this period, the combined effects of domestic herd growth (estimated at 2 percent per annum) and of net influx of cattle from Upper Volta and Niger yielded an average animal growth rate of 3.4 percent yearly. Data presented in the table indicate that about 85 percent of the national cattle herd is concentrated within the two northern provinces. The percentage is virtually

FIGURE 2.1: SODERA*



*Société pour le Développement des Ressources Animales

TABLE 2.1

SUMMARY OF LIVESTOCK RESOURCES
1966-1976 BY SPECIES
(number of head)

Year	Cattle	Small Ruminants	Swine	Poultry
1966	506,700	1,045,500	299,800	-
1967	527,704	1,118,300	346,500	-
1968	524,554	1,064,070	306,633	-
1969	565,670	1,146,440	325,970	-
1970	566,400	1,175,700	355,650	3,000,000
1971	587,800	1,193,900	359,100	3,200,000
1972	646,200	1,264,800	347,700	3,400,000
1973	683,760	1,581,990	352,520	3,600,000
1974	683,700	1,512,490	-	3,800,000
1975	721,712	1,582,320	352,400	4,000,000
1976	711,350	1,678,817	384,943	4,200,000

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

unchanged since 1966: Bougou has 66.5 percent and Atacora 19.1 percent. The percentage distribution in 1976 in the other four provinces was as follows: Zou, 7.7 percent; Oueme, 2.9 percent; Mono, 2 percent; and Atlantique, 1.7 percent (see Table A of the Statistical Appendix).

There are five distinct cattle breeds of either Bos Taurus or Bos Indicus subgenus in Benin. They are, from the coastal areas northward (see Map 2.1):

- -- Lagunaire cattle, raised in the lower Atlantique, Mono and Oueme provinces on natural pasture as well as on coconut and oil palm plantations;
- -- taller Borgou cattle of the Parakou area;
- -- Somba and Pabli Taurin cattle typical of the Atacora range; and
- -- larger yet, Bos Indicus Zebus found between Kandi and the Niger river.

Naturally, there has been extensive crossbreeding, especially between Lagunaire and Borgou, Borgou and Somba, and Borgou and Zebu animals. In 1975, breed distribution for the national cattle herd was estimated to be as follows:

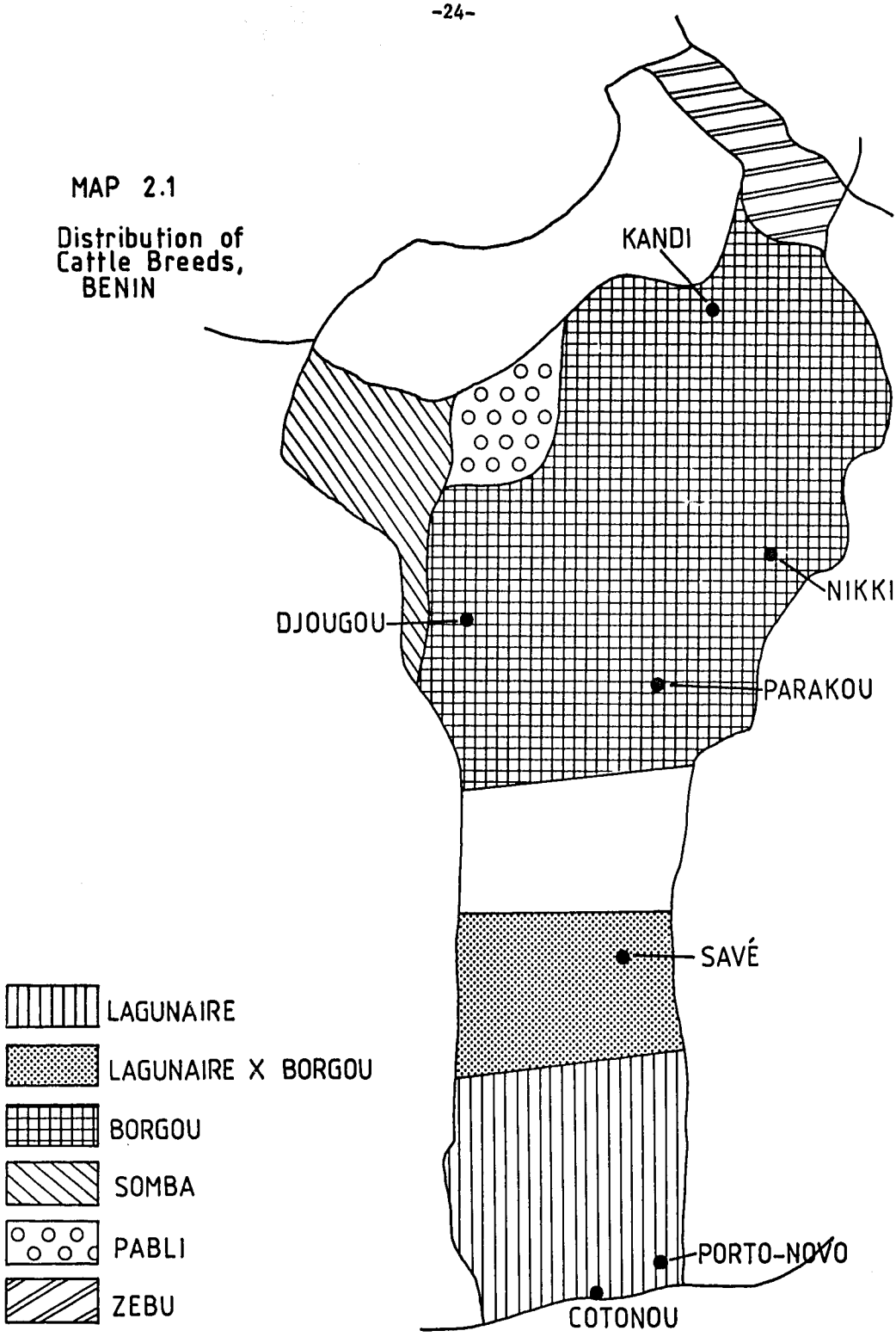
	Percent
Lagunaire (T)	3.7
Lagunaire x Borgou (T)	11.4
Borgou (T)	27.0
Borgou x Somba (T)	14.6
Somba (T)	.3
Borgou x Zebu (Z)	35.3
Zebu (Z)	7.7
	100.0

SOURCE: FAO, 1975.

The vast majority of cattle owned by the people of Benin are used mostly as a form of savings and are entrusted to Fulani herdsmen for management. The decision to sell such animals is, in most cases, taken

MAP 2.1

Distribution of Cattle Breeds, BENIN



jointly by owner and herder, although it may be instigated by either party; owners most often set the price range within which animals are to be sold. Fulani herdsmen derive their income from several sources. They receive a certain amount of money or goods for the gardiennage they provide,[2] or they obtain ownership rights to the second or third calf of cows entrusted to them. They also receive money gifts from the owner, worth between 250 and 500 CFA F each time they sell one of his cattle. Naturally, they get the use of milk and sometimes obtain compensation from farmers in exchange for having cattle manure fields. Fulani herdsmen also derive income through various degrees of involvement in the cattle trade. They receive, for example, salt and gifts as well as loans from the collecteurs they usually deal with; in fact, some Fulani reportedly act as collecteurs for cattle merchants. Some also earn money by smuggling animals belonging to Voltaic, Nigerian or Beninese merchants from Upper Volta and Niger into northwestern Nigeria. Naturally, herders get the proceeds of the sale of their own animals; it is estimated that they own up to 50 percent of the cattle they manage.

The growth of animal traction in Benin is quite noteworthy in a number of respects. In 1978 this phenomenon was rather concentrated in the Corgou province, especially the Nikki region and the area between Kandi and the Niger river. The number of oxen teams used for cultivatio and to produce transport was then around 8,000 and demand for suitable animals in these areas was still very strong. Unlike cattle owned as a store of wealth and entrusted to Fulani, oxen are kept by villagers on the farm, tended and watched by the household (most often young boys) and have become a fixture of northern Borgou village life. The implications of this phenomenon on livestock marketing will be discussed later in this report.

A 1975 UNDP/FAO study based mostly on surveys in the Borgou and Atacora provinces estimated the age/sex composition of the national cattle herd as described in Table 2.2. This age/sex distribution compares favorably, in terms of production and growth potential, with that

of commercial and industrial herds surveyed in Togo during 1978.[3] The Benin herd composition suggests that the widely used growth and offtake estimates (2 percent and 12 percent per year respectively) are fairly conservative. During the author's field research in November/December 1978, interviews with abattoir officials as well as with merchants and livestock agents in Cotonou, Parakou, Kandi, Malanville and Karimama revealed that cattle slaughters then involved mostly four-to-six-year-old males, especially bulls, and some culled cows (over ten years old). Table D of the Statistical Appendix presents data on recorded cattle slaughters in the various regions. No slaughters of young animals or reproductive cows were reported, although, as we shall see further on, these age/sex groups are extensively traded.

TABLE 2.2

HERD COMPOSITION, 1975
(percent)

Female Calves	12.2	
Heifers	20.6	
Reproductive Cows	43.7	
All Females		76.5
Male Calves	11.6	
Bullocks	10.4	
Bulls	1.5	
All Males		23.5
TOTAL		100.0

SOURCE: UNDP/FAO, 1975.

2.2.2 Small Ruminants, Swine and Poultry

The importance of these animals species has by now gained wide acknowledgement in Benin. Indeed, in 1976 they provided baout 60 percent of total meat supply. They are -- except for swine -- widely distributed all over the country and most often constitute on-the-farm sources of meat and readily convertible wealth.

The national small ruminant herd grew at an average of 4.8 percent yearly over the 1966-76 period, by the end of which it numbered nearly 1.7 million head (see Table B of the Statistical Appendix). The spatial distribution for sheep and goats shows less concentration than that of cattle, although Borgou and Atacora together accounted for nearly 59 percent of the total in 1976. The rest was divided among the Zou (22.5 percent), Mono (8.4 percent), Oueme (7.7 percent) and Atlantique (2.6 percent) Provinces.

The national swine herd has been growing at an average of 2.5 percent yearly between 1966 and 1976, by which time it numbered 384,943 head (see Table C of the Statistical Appendix). Their distribution is more concentrated than that of small ruminants. Most are found in the Zou (45.8 percent), the Mono (18.4 percent) and the Oueme (17.5 percent). Due to the greater influence of Islam in the two northern regions, only 8.3 percent of the country's swine are raised in the Borgou and Atacora. The Atlantique province accounts for nearly 10 percent.

The size of the national poultry flock, comprised of chickens, ducks, turkeys and Guinea fowl, is even more difficult to measure. Estimates for 1976 range between 4.2 and 8 million, depending whether one looks at Service de l'Elevage or UNDP/FAO figures. The former source is used in this report since in terms of meat availability and consumption, the inevitable margin of error is deemed preferable on the low rather than the high side.

2.3 Government Livestock Policy

The Government of the People's Republic of Benin is mindful of the importance and dynamism of the livestock subsector, especially in

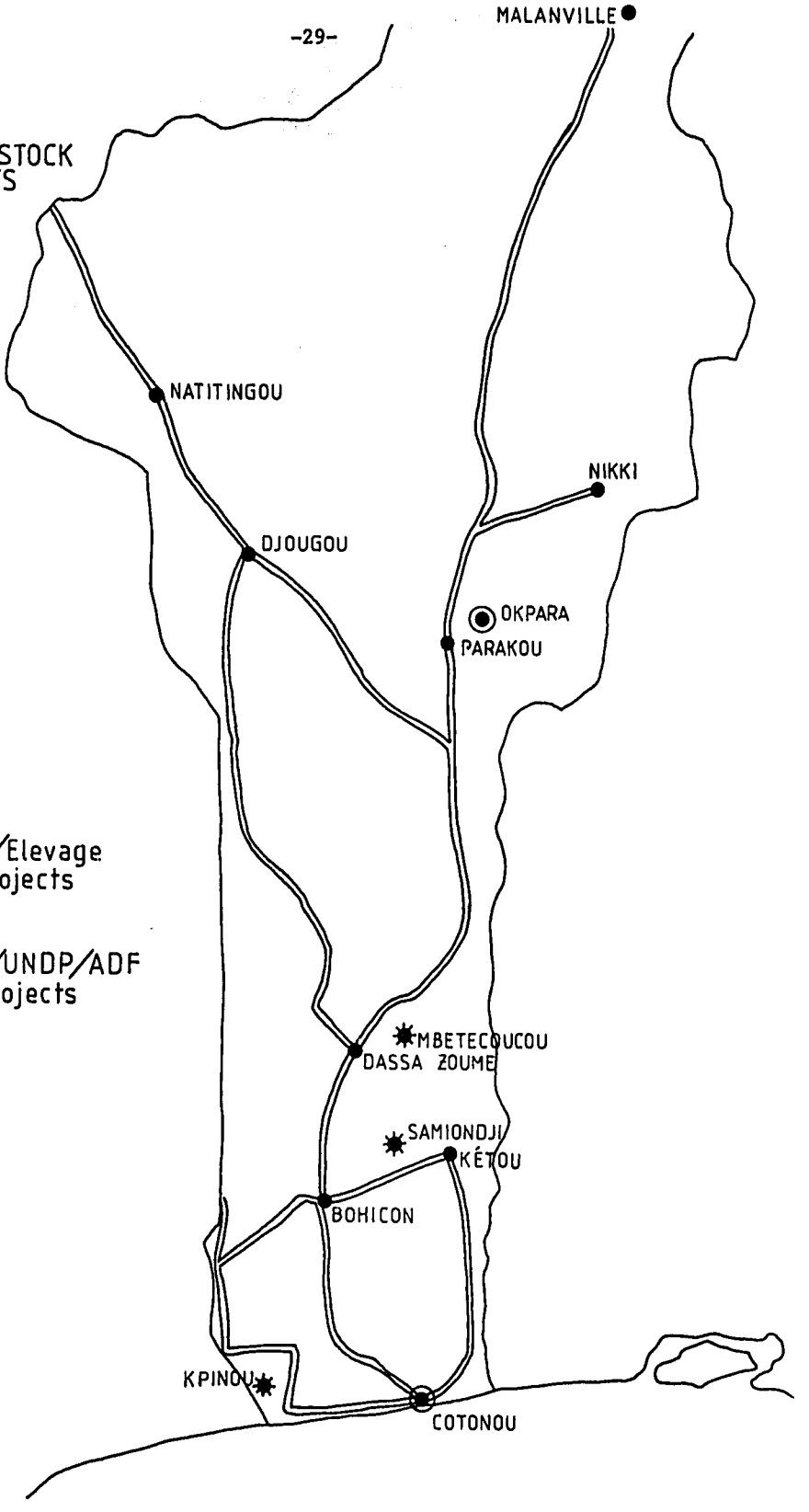
the face of sharp decreases in fish production. The national policy is naturally production-oriented; the various strategies are aimed at (a) increasing supply and consumption, (b) completing national self-sufficiency in cattle and meat, as well as (c) controlling marketing and consumer meat prices more firmly. Recent experience has shown that the objectives under (c) are, to a large extent, in conflict with the first two, since complete control of international cattle trade proved easier to decree than to enforce as we see in section 5.2.

The main thrust of livestock projects has been brought to bear on cattle, but there is a very keen awareness of the need to reach other species as well, and small ruminants, swine and poultry are currently included in projects with single or milti-species targets. In general the task of achieving overall quantitative and qualitative progress in livestock is given to the Service de l'Elevage, while SODERA is in charge of more specific policies and projects. The amount of domestic and foreign investment allocated to livestock for the three years of the current National Development Plan (1977 through 1979) amounts to 6.8 billion CFA F, about 26 percent of planned investment in the primary sector. During the Spring of 1978, however, only about a third of the total foreign assistance sought had been committed. Map 2.2 shows the major livestock projects being operated by SODERA with various degrees of foreign assistance as of the end of 1978.

The Okpara ranch and experimental station (40,000 ha) is located along the Okpara River, about 10 kilometers southeast of Parakou. Part of the station is used for the reproduction and selection of Borgou cattle for beef as well as animal traction purposes. The station also carries out forage and silage experiments with local grasses and raises swine and exotic sheep. In the Cotonou area, SODERA operates a poultry unit designed to popularize poultry raising in the Atlantique province.

SODERA is also beginning operations on three other ranches, with ADF and UNDP collaboration. The Kpinou, Samiondji and Mbetecoucou ranches are part of a system whereby cattle would be bought from the traditional sector and sent to one of the three ranches for breeding

MAP 2.2
SODERA LIVESTOCK PROJECTS



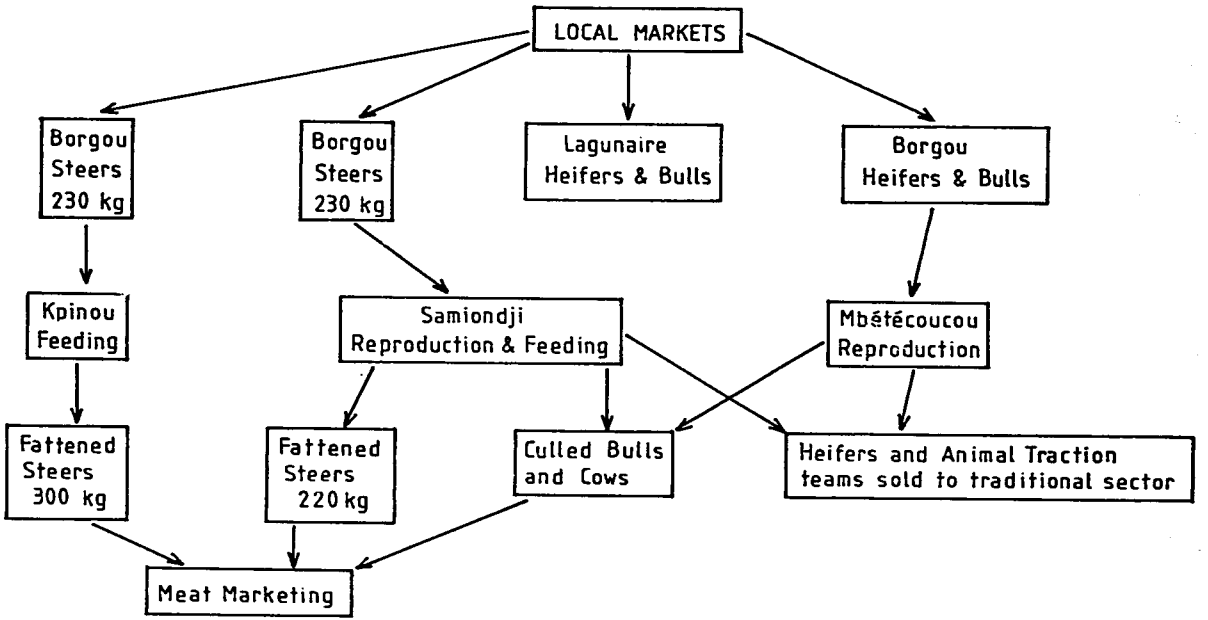
SODERA/Elevage Projects

SODERA/UNDP/ADF Projects

or fattening. Finished steers would then go through the SODERA meat processing and marketing chain, whereas other animals such as heifers and animal traction teams would re-enter the traditional sector (see Figure 2.2). The timetable for such projects is, however, usually an extended one and discernible effects may not materialize for five to ten years. A summary of the expected output from these three ranches, based on an ADF economic project analysis, is included in the Statistical Appendix.

FIGURE 2.2

UNDP/ADF/BENIN CATTLE & MEAT PRODUCTION PROGRAM



Source: African Development Fund, 1978

NOTES TO CHAPTER TWO

[1]The other five state companies are SONAFOR (forestry); SONIAH (oil palm); SONAGRI (agricultural production); SONAFEL (fruit and vegetable production); and SONAPECHE (fishing).

[2]In the district of Malanville, livestock service officials are attempting to normalize the contractual relationship between owner and herder. They propose to set the gardiennage rate at a flat 1,000 CFA F per head annually.

[3]cf. "Livestock and Meat Marketing in Togo." Chapter Two section 2.3.1 and Table 2.6 give the age/sex distribution of the Gbatope commercial and Avetonou industrial cattle herds.

CHAPTER THREE

TRANSPORTATION

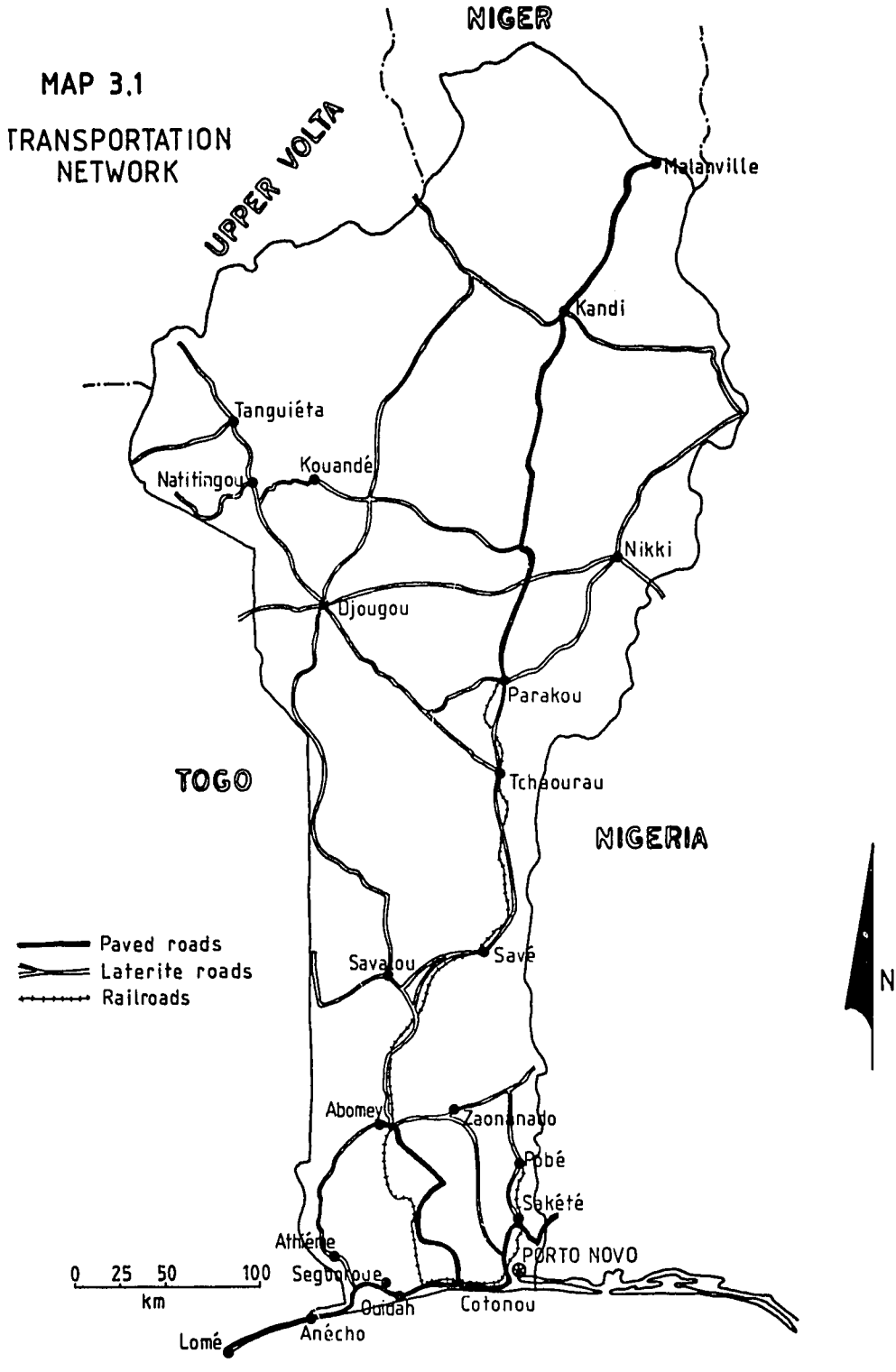
Chapter Synthesis

This chapter provides a description of Benin's transportation network and of the role played by its various components in the sharply increasing transit trade with Niger and Nigeria. The pattern of livestock flows is both well delineated and traditional; 88 percent of domestic cattle marketing involves the sale of animals driven south from the Borgou and Atacora provinces. Most of these cattle end up in the Atlantique province. Other flows, concentrated in Benin's northern reaches and bearing eastward, involve cattle illegally sent to Nigeria. Transport costs are low; merchants occasionally find it profitable to pay a premium for truck rather than train shipment. Undoubtedly, trucking has begun to play an increasing role in cattle transport.

3.1 General Network

3.1.1 Roads

Benin's road system in the fall of 1978 consisted of 760 km of paved roads, 2,600 km of all-weather laterite roads, and 3,800 km of dirt roads and tracks. The main roads run east and west along the coast from Cotonou and north up to Bohicon. The Bohicon-Parakou segment is unpaved and branches off at Tchaourou to reach the Atacora by way of Djougou, Natitingou and Tanguieta. Benin's best road now links Parakou to the Niger border by way of Kandi and Malanville (see Map 3.1). The road network carries about 70 percent of all freight and 90 percent of domestic passenger traffic. Most of Benin's road traffic travels along two routes: one between Cotonou and Nigeria by means of the Nigerian-built road segment from Seme to Gbadogri; the other between Cotonou and Niamey by road or train between the capital and Parakou, and by road from there onward through Malanville and Gaya. About a third of domestic freight volume consists of transit traffic for Niger and Nigeria. These two countries are expected to achieve rapid growth over the next five to ten years, and the role of Benin's transportation sector will certainly expand accordingly. The government of Benin is


MAP 3.1
TRANSPORTATION NETWORK
NIGER
UPPER VOLTA
Malanville
Kandi
Tanguiéta
Kouandé
Natitingou
Nikki
Djougou
Parakou
TOGO
Tchaourau
NIGERIA
Paved roads
Laterite roads
Railroads
Savalou
Savé
N
Abomey
Zaonanado
Pobé
Sakété
Athiémé
PORTO NOVO
0 25 50 100
km
Segbouroue
Ouidah
Cotonou
Lomé
Anécho

therefore improving the Cotonou-Niamey road link, the Bohicon-Dassa Zoume segment is now being paved, and plans are made for the paving of the Dassa Zoume-Parakou section in the early 1980s.

The Organization Commune Benin-Niger (OCBN), also in charge of the railroad network, regulates freight transit between the two countries. OCBN allocates the freight loaded or unloaded at the Parakou railroad between Niger and Benin truckers, and it sets the freight rates. The current low level of these rates constitutes an obstacle to any improvement in efficiency or expansion of the domestic trucking industry. The general shortage of trucks in the face of increasing transit needs is illustrated by the recent creation of a semi-public national transport company, TRANSBENIN, expected to purchase nearly 280 trucks for the Nigerian trade.

3.1.2 Railroads

Benin's railroads are operated by OCBN, and consist of a major north-south line between Cotonou and Parakou (438 km), and two shorter lines from the capital east to Pobe (107 km) and west to Segboroue (34 km). OCBN is said to be one of the best managed railways of Africa; however, the obsolescence of rolling stock and equipment and very stiff competition from trucking expected when the Bohicou-Parakou road is paved portend a significant decrease in the relative share of total transit freight handled by train.

3.1.3 Port of Cotonou

Quantity and composition of total port traffic in Cotonou have drastically changed over the last five years. In 1972, total traffic amounted to nearly 400,000 tons, most of it consisting of Beninese foreign trade. By 1977, total freight had reached nearly 700,000 tons, which is 70 percent of annual capacity, and transit to and from Niger and Nigeria represented nearly 70 percent of all goods handled. It is estimated that with planned investment in port facilities, the Niger

and Nigerian trade will increase from 466,000 tons of port traffic in 1977 to nearly 700,000 tons by 1981 and 544,000 tons by 1991.

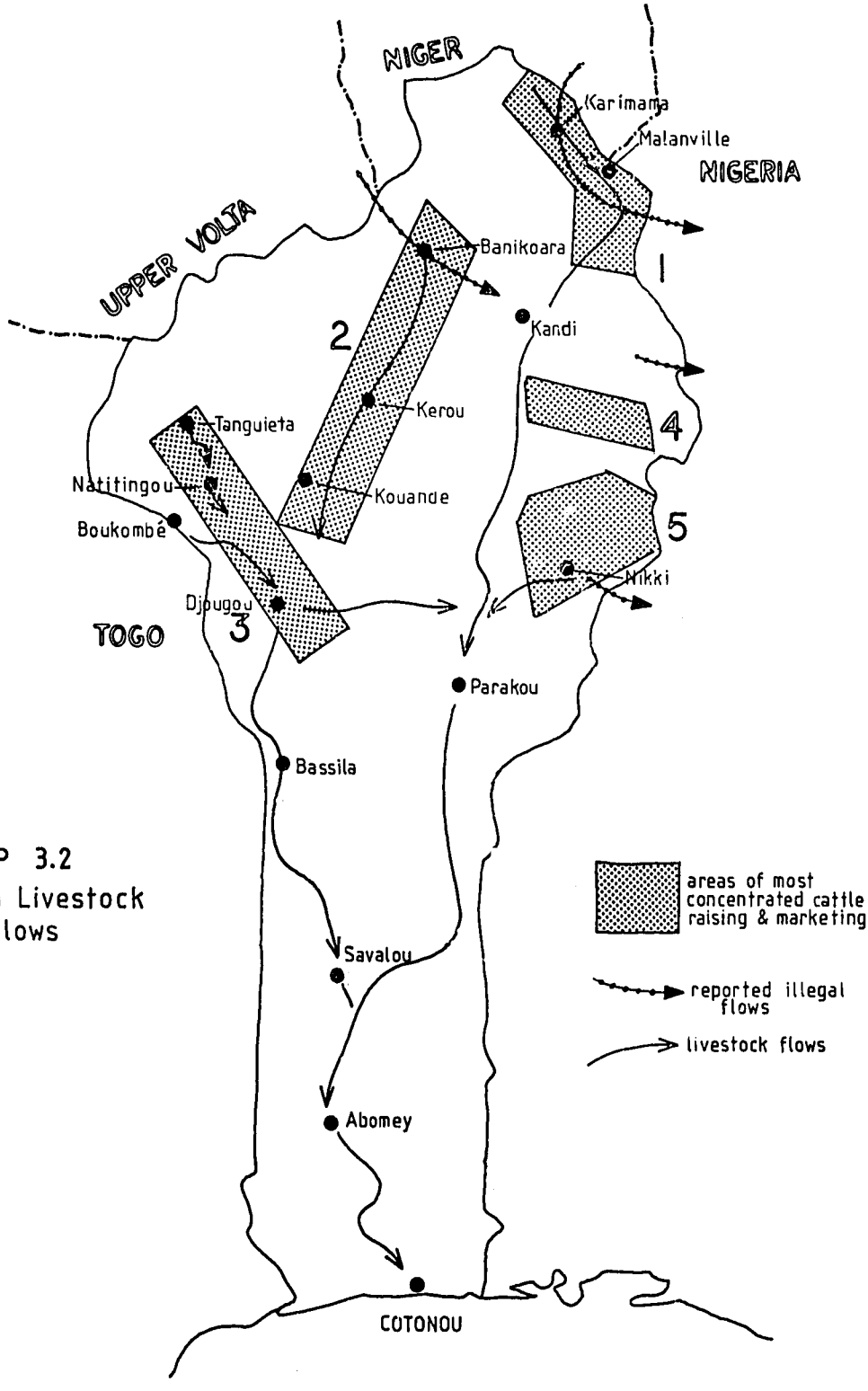
3.2 Livestock Transport Network

3.2.1 Ways and Means

The major cattle flows identified in Benin (see Map 3.2), are quite traditional and reflect a long-standing situation of supply concentrated within the Borgou and Atacora regions and demand in the southern provinces. Map 3.2 shows the location of major cattle raising and marketing areas in the Borgou and Atacora, as well as the principal overt flows and reported illegal routes. Area 1 lies along the Niger river between Campa, Karimama, and Malanville; it is an area of very high livestock density. From Malanville, cattle and small ruminants are sent south to Parakou through Kandi. Cattle may then be taken from there on to Cotonou or stay on trucks going all the way down to the capital. Train transport is never used for small ruminants. Areas 2 and 3 include the Banikoara-Goumore-Kerou-Pehonko-Kolokonde axis and the Atacora's Tanguieta-Natitingou-Boukombe-Djougou region. From there, cattle and small ruminants are trucked east to Parakou and sent south by train, or trucked to the Zou province by way of the Bassila-Savalou-Dassa Zoume-Bohicon road. From there on they join the main southern route to Cotonou. Areas 4 and 5 of Map 3.2 include the Sokotindji and Segbana districts and the region lying south of the Foret des Trois Rivieres and the Nikki district. Cattle from these two areas are usually trekked to Parakou for further shipment.

Official records of inter-regional cattle trade (Table 3.1) give an idea of the direction and volume of domestic cattle flows. About 90 percent of cattle shipments originated in the Borgou and Atacora provinces, and nearly two-thirds of these animals were sent to the Atlantique region.

The numbers are slightly misleading in the sense that many animals from the Atacora are sent south by way of Parakou, capital of the Borgou



MAP 3.2
Main Livestock Flows

TABLE 3.1

INTER-REGIONAL CATTLE TRADE, 1974 AND 1975

From	To	1974 No. of Head	1974 % of Total	1975 No. of Head	1975 % of Total
Borgou	Atlantique	14,252	63.5	11,507	61.6
	Atacora	4,208		2,437	
	Zou	870		769	
	Ouémé	449		1,841	
	Mono	11		10	
	Total	19,790	88	16,264	87
Atacora	Atlantique	332		1,393	
	Zou	171		639	
	Borgou	34		--	
	Total	537	2.4	2,032	11
Mono	Atlantique, Ouéme, Mono, Zou				
	Total	219	1	250	1.3
Zou	Atlantique, Borgou, Mono				
	Total	1,888	8.4	126	.7
	TOTAL	22,434	100.0	18,672	100.0

SOURCE: Directionale de l'Elevage, Annual Reports.

province, and are included in Borgou's total. The figures do reveal however, that few animals from the Atacora are sent to the Atlantique and Zou by way of Bassila and Savalou.

Map 3.2 includes reported illegal flows. Officially, imports and exports of cattle by Benin are restricted to public agencies; in reality, the acute meat shortage and high cattle prices in Nigeria provide a strong incentive for merchants from Benin as well as Upper Volta and Niger to organize shipments across northeastern Benin to Nigeria. It is naturally quite difficult to measure the extent of this smuggling; some livestock agents in the area estimate that at least 15,000 to 20,000 head of cattle are smuggled into Nigeria yearly. In nearly all cases this involves trekking the cattle to the Benin-Nigeria border south of the Niger river and going over the border during the night.

For marketing purposes, cattle are rarely trekked over distances exceeding fifty kilometers. They are usually walked to a redistribution market and trucked from there to Parakou. In Parakou, most are put on the train to Cotonou, while the rest go on south in the same truck; no trekking of northern cattle is allowed south of Parakou. Most of the trucks used for cattle transport belong to companies involved in the transit trade between Benin and Niger; trucks have operated mainly between Parakou and Niamey. Cattle merchants are, however, reporting that it is now much easier to find a truck going from Parakou to Cotonou than it was a few years ago. The average waiting period for truck transport in Parakou, which might have lasted up to a month in the past, is now reportedly reduced to a week. It is felt that truck transport of cattle may become the rule rather than the exception once the Bohicon-Parakou road is paved in the early 1980s.

3.2.2 Transport Costs

Truck and train transport costs for cattle, collected in November 1978, show that such costs in Benin compare quite favorably to those prevailing in neighboring Togo. The cost of trucking between Malanville

and Cotonou (658 km) was 3,000 CFA F/head in the Spring of 1978, although it may increase to 3,500 or 4,000 CFA F at the height of the produce marketing season. For Togo, the equivalent cost, Dapango-Lome (620 km), was about 3,300 CFA F/head.

If the merchant elects to use mixed transportation, e.g. truck between Malanville and Parakou, and train from there to Cotonou, costs are as follows:

Truck: Malanville-Parakou 1,000 CFA F/head

Train: Parakou-Cotonou, cattle car rental = 28,410 CFA F/car holding 24-27 head of cattle;
loading fee: 2,500 CFA F/car
broker's fee: 500 CFA F/car
TOTAL: 31,410/car, averaging 1,232 CFA F/head

Total cost for mixed transportation between Malanville and Cotonou would therefore average 2,232 CFA F/head, as opposed to 3,000 CFA F/head when trucking is utilized all the way. Considering that the trucks now used for cattle transport are Titan-type open semi-trailers with a capacity of fifty head of cattle, the premium paid by the cattle merchant for the use of a truck instead of mixed transport between Malanville and Cotonou amounts to 38,400 CFA F, (3,000 - 2,232 x 50). The fact that merchants do use truck as well as train transport suggests that they occasionally perceive that the extra profit to be made by using slightly more flexible truck transport will exceed the 768-CFA F/head additional freight cost.

It should be noted that in the case of both trains and trucks, additional expenses are incurred, mostly in the form of drovers' (convoyeurs') salaries. These men, who accompany the animals to the terminal market and hold them there until the merchant's arrival, are paid about 500 CFA F per day plus food and a 3,000 - 4,000 CFA F allowanace for the return trip. This may add about 40,000 CFA F to the cost of shipping 40-50 head south, or approximately 1,000 CFA F/head.

CHAPTER FOUR

LIVESTOCK AND MEAT MARKETING

Chapter Synthesis

This chapter provides a description of traditional livestock marketing practices and organization. An analysis of the system's economic efficiency follows. The channels and methods used for the marketing of meat in the interior as well as in Cotonou are discussed in the second part of the chapter. There is treatment of the competitiveness and efficiency of traditional meat marketing in Cotonou.

4.1 Livestock Marketing

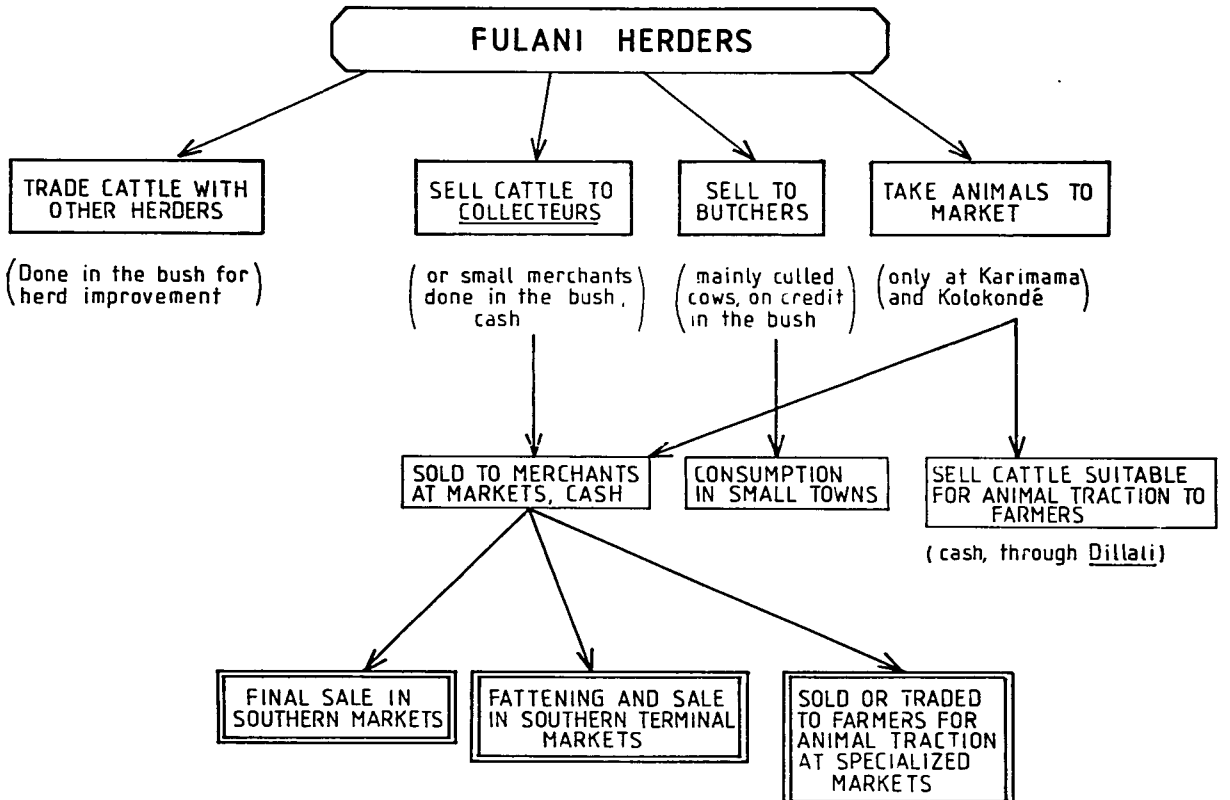
4.1.1 In the Provinces

Livestock marketing in the provinces is still very traditional in character. The evidence presented so far on the domestic livestock subsector and the transportation network suggests that most cattle and smaller stock marketing takes place in the Borgou and Atacora provinces; this is borne out by the spatial distribution of livestock markets.

In Benin, as in neighboring Togo, most cattle are owned as a form of savings and are entrusted to Fulani herdsmen who are concentrated in the north of the country. In Benin, however, the proportion of animals that actually belongs to the herders is said to be higher; livestock agents report that herders own up to 50 percent of the cattle they manage. Traditional livestock marketing involves a complex set of economic activities and agents; however, most may be grouped into sets of options graphically represented in a flow chart such as Figure 4.1.

There are basically four options open to the Fulani herdsman wishing to alter the size or composition of the herd he manages. The decision itself may reflect pure herd management practices, the need to market for income, or a combination of both. Indeed, the first activity considered (on the left in Figure 4.1) is an exchange or trade of animals with another herder. This constitutes a non-monetary transaction intitated

FIGURE 4.1
TRADITIONAL LIVESTOCK MARKETING



by the herdsman himself and bearing on his own animals; the objective is increased productivity through selection and better herd structure. For example, a Fulani may obtain a particularly fine bull from another herder in exchange for two of his own female calves. The private exchange naturally takes place in the bush. This practice appears widespread and transcends national boundaries; herders in Benin commonly carry out such exchanges with their counterparts in Niger and, to a lesser extent, in Upper Volta and Togo.

The other three activities charted in Figure 4.1 involve sales; these may bear on the Fulani's own cattle as well as on animals entrusted to him. While the timing of the sale is fully the herder's decision, the price is only partially his, since owners usually set price guidelines. The first sales activity listed, "sales to collecteurs," represents by far the most common instance. Actually, purchases from herds in the bush are done by two types of economic agents, collecteurs and "small merchants." Collecteurs most frequently have a thorough knowledge of the area where they work and maintain good relations with herders. In fact, some of them are said to be Fulani themselves. The relationship typically includes sundry gifts, loans, procurement of salt licks and other favors.

The closeness of association between collecteurs and merchants varies; when it is strongest, the collecteur acts as a purchasing agent for a particular merchant. He is provided with funds to buy animals and is often given a bicycle to reach suppliers better. When the link is less strong, a collecteur acts more as a free agent and does not have to supply any particular merchant; he then works out contractual arrangements for each lot of cattle bought. Regardless of what the relationship between merchants and collecteurs may be, the process is believed to be competitive and economically efficient since the commission received by the collecteur is directly and positively related to the merchant's perception of the profit to be made from the sale of the cattle collected. In all cases merchants reserve the right to return an animal if either price or condition is judged unacceptable.

Purchases from herders are also done by private operators often called "small merchants"[1]. Their relationship to the Fulani is very similar to that cultivated by collecteurs, but they use their own capital to buy cattle for cash and gather the animals at local markets for sale to established cattle traders. They operate on a small scale, usually dealing in less than a dozen head at a time. They differ from collecteurs in that they use their own capital and from "big" merchants in that they have neither the capital nor know-how required for more important, long distance commerce. The claim is sometimes made that these operators make excess profits. When one considers that they compete at the producer level with collecteurs, and to a lesser extent with local butchers, and at the market level against collecteurs and other small merchants, the notion of excess profits becomes quite dubious. Furthermore, the small-scale operation and thus the limited capital requirements of their trade constitute a weak barrier to entry. Finally, in terms of the efficiency of the collecting system, in periods of unusually high prices inter-regional merchants stand ready to purchase animals directly from herders.

Herders may also sell cattle directly to butchers, but this is not frequent. In some instances, buyers are local butchers who buy cattle on credit, slaughter the animal in neighboring towns, and repay the herder with the proceeds of the meat sale. Occasionally, however, better established butchers from larger towns such as Malanville and Parakou buy animals on a cash basis from herds and have them trekked or trucked back to their town. This kind of trade reportedly takes place on a limited scale; butchers have difficulty obtaining cattle from herders, even though sales may be settled in cash. Herders' preference for dealing with collecteurs and small merchants is also indicated by the type of animals involved; butchers typically get culled cows, whereas younger animals find their way to the market.

In every livestock market of the Borgou and Atacora provinces, where over 80 percent of domestic cattle trade takes place, the animals offered for sale are brought from the herds by collecteurs and small merchants. There are only two notable exceptions, markets where most

of the cattle presented are sold by herders themselves. These are Karimama, along the Niger river in the very north of Benin, and Kolokonde, a market located at the intersection of the Banikoara-Kerou-Pehonko axis and the Gouande-Tanguieta-Natitingou-Boukombe-Djougou axis (areas 2 and 3 of Map 3.2). The ways in which a market like Karimama differs from others are discussed at the end of this subsection. In all other instances, collecteurs, small merchants, dealers (courtiers),[2] (dillali),[3] and buyers gather at the area of the regular, usually weekly, market set aside for the livestock trade. Buyers at these markets are of three kinds: the largest group by far is made up of well-established merchants who frequent the market regularly and ship animals south. They take delivery of cattle gathered by collecteurs according to a previous agreement, purchase some other animals from small merchants, and may also buy some from dealers. These dealers constitute the second group; they specialize in short-term speculation by buying cattle from small merchants or herders and reselling them to other traders. They may hold animals for one day or one to two weeks. The last group of buyers is comprised of farmers who go to market to acquire cattle suitable for animal traction purposes.

All transactions take place in the presence of the dillali and payment is in cash for the full value. The dillali plays the traditional role of host to merchants and guarantor of the animals' condition and origin. The dillali further acts as an intermediary between sellers and farmers seeking oxen, and generally handles the liaison between the various market operators and the district Livestock Service office.

The majority of cattle brought to market are uncastrated males, four to six years old. Younger males are occasionally sold, but never before age two; other marketed animals consist of culled cows and a few older bulls. This sales pattern was observed at collection and redistribution markets -- Karimama and Malanville -- as well as at the terminal market of Cotonou, and is thought to reflect general practices.

Merchants who purchase cattle on the various northern markets may dispose of the animals in three different ways; in most cases, cattle are shipped south for sale on large urban terminal markets (Cotonou,

Porto-Novo, etc.). The mode of transportation chosen is a function of truck and train availability and of prices prevailing at the time on terminal markets. Often, however, merchants send animals south to be held and fattened on natural pasture or oil-palm plantations in the Atlantique region until prices on the main urban markets are more attractive. Because of the difference in climate between north and south, fattening of Borgou cattle involves some risk to the animals, but since this practice is used mostly during the dry season, fattening and holding in the south may be done for a few weeks without undue risk.

The third option open to merchants introduces the notion of specialized markets. Merchants occasionally buy from or sell to farmers (or trade) cattle suitable for animal traction on markets known for this kind of transaction. For example, merchants may purchase two-and-one-half to seven-year-old oxen. Because of the remarkable recent growth in the use of cattle for animal traction in the Borgou, especially around Nikki and from Kandi to Malanville, this kind of trade is be coming increasingly important and organized. The implications of animal traction for livestock marketing and meat consumption basically amount to selling some young males for team use about two years sooner than for slaughter and having most of these traction animals re-enter the market at age six-and-one-half or seven. Although it postpones the consumption of some male animals for two-and-one-half to three years, the net effect on total meat supply is beneficial, since the slight increase in mortality (during these years of "extra" life) is more than offset by weight gain. If demand for traction teams is strong enough, however, there may be a short-run upward pressure on the price of males available for slaughter, but the purchasing power of farmers is not such that it would effectively compete for long with that of meat consumers. Although local supply may tighten, major price hikes due solely to the wider use of animal traction are quite unlikely.

Public intervention in livestock marketing takes two main forms, regulation of market operations and purchases from herders. The first activity consists mostly of having local Livestock Service agents ensure orderly proceedings at cattle markets. Generally this includes close

cooperation with the local dillali; however, the transactions themselves remain very private. SODERA has been trying since mid-1978 to introduce scales on livestock markets, attempting to entice merchants to use them by providing water troughs and even feed; this operation has so far been unsuccessful.

Other market control operations include occasional collection of statistics on the number of animals brought to market and control of cattle flows along the most frequented trails and roads. The second type of activity, purchases from herders, is carried out by two SODERA buying teams stationed in Parakou. They are responsible for collecting animals to be used as breeding stock (for meat or animal traction qualities) or fattening in the Okpara, Kpinou, Mbetecoucou and Samiondji ranches. At the time of the 1978 survey, the buying teams were still having difficulty getting cattle from herders; indeed, the author met some team members in Parakou as they were returning with animals purchased in Upper Volta. They complained that in Benin they met with "too much competition from merchants".

The village of Karimama is located in the extreme north of Benin, within the narrow strip of open pasture land bordering on the Niger river and extending south and westward to the "W" national park and the Goungoun forest. The Karimama livestock market takes place every Friday and attracts more buyers and sellers than any other market in northern Benin. The most interesting feature, however, is that herders themselves bring their cattle for sale. The Karimama market attracts herders, collecteurs and merchants from Cotonou, Parakou, and Porto-Novo, as well as farmers. The volume of trade is usually about 200 head, far superior to the number of cattle brought to much larger city markets such as Malanville. There are usually thirty to forty buyers present. It is believed that Karimama's particular geographic position in a low population density area near the Niger river and close to the Upper Volta and Niger borders determines its special role. The number of cattle per square kilometer in this area is truly amazing. During the author's survey at the beginning of the dry season, many herds,

some consisting of several hundred head of cattle, could be observed almost all day being herded from pasture to the river and back.

This is an area where livestock raising is so pervasive that some farmers are said to buy cattle from Fulani herders operating in Benin and even Niger and to sell them in turn to other herders after a period of time. This brings to light a few as yet isolated cases of traditional fatttening by farmers (embouche paysanne). It is felt that the high cattle density in such a small area makes it possible for about seventy-five herders to bring their own animals to Karimama every Friday.

One final note on the Karimama market: the dillali there not only acts as intermediary between herders and merchants and as liaison with the Livestock Service; he also acts as intermediary for farmers interested in animal traction teams. For each completed transaction, the dillali receives 100 CFA F from the seller.

The discussion has so far concentrated on cattle; naturally, small ruminants, swine and poultry are marketed as well. Sheep, goats, poultry and, in some regions, swine are always taken to collection markets by their owners, these invariably being local farmers. Sale at the market is done by the owner or, more often, by local revendeurs who purchase the animals from farmers and resell them to small merchants. Small merchants are local traders who buy small stock from farmers or at collection markets and take them for sale to redistribution markets, for example from Karimama to Malanville or from Gouande to Tanguieta. Occasionally, butchers from neighboring towns play the same marketing role, especially when they have failed to gather enough cattle; it is a way to make some advantage of their trip. Small ruminants are generally walked from the collection to the redistribution market and then loaded into trucks for transport to terminal markets.

A number of arguments support the author's conclusion that the traditional livestock marketing system functions efficiently. This opinion is based on observation of the workings of livestock markets, admittedly limited both in time and space, on private conversations with livestock agents and merchants, and on open discussions with groups composed of livestock agents, merchants and butchers. The arguments supporting the notion of economic efficiency may be summarized as follows.

1) In most significant livestock raising areas there are many collecteurs and small merchants competing for cattle from local herds against each other as well as against occasional butchers or SODERA buying teams. This is the most plausible way of accounting for the good relationship collecteurs are careful to cultivate with a few particular herders.

2) At the market level, collecteurs and small merchants compete, again among themselves and between groups, in order to sell animals to big cattle traders handling large-scale and long-disance shipments. It will be recalled that such merchants have no obligation toward collecteurs. They may return the animals or decide to do their own prospecting.

3) There are, on the other hand, enough merchants on livestock markets to avoid having a collection or redistribution market turn into a "buyers' market". Also, farmers, butchers, and especially dealers may compete for cattle against merchants.

4) Sales of cattle by herders to butchers and official buying teams are definitely few and far between. This implies that the latter do not offer significantly higher prices than collecteurs, which in turn suggests that collecteurs' profits are not excessive.

5) Herders bring their own cattle to market in Karimama and Kolokonde. This practice would certainly spread to other collection markets if herders perceived collecteurs' profits as excessive. One should remember that price information flows well up and down the marketing line. The same people that herd cattle in the north also work as collecteurs, observe transactions at collection and redistribution markets, and accompany, in trucks or train cars, their animals all the way down to Cotonou. There again, they keep the animals at the SODERA stockyard and there can openly watch transactions made among merchants, butchers and dealers. Upon returning north, herders frequently bear messages about supply and price conditions for merchants holding cattle in a redistribution market. Considering the distances involved, the means of transportation and communication available, and the complexity of the trade, information circulates very rapidly and widely.

6) There are very few intermediaries between redistribution and terminal markets. In most cases, merchants maintain ownership all the way to the terminal markets. The only other marketing agents invoved are transporters and transport brokers, who find trucks or reserve railcars for a fee. Furthermore, almost every merchant interviewed on the Cotonou terminal market stated that he bought cattle at collection rather than redistribution markets as much as possible.

7) Finally, merchants hedge both against short-term price surges in the north and price slumps in the south by holding cattle for a few weeks in the Atlantique province; since the method is practiced by a number of merchants, this has a stabilizing effect on producer as well as on consumer prices.

4.1.2 Livestock Marketing in Cotonou

Cotonou is by far Benin's largest terminal livestock market. Trading takes place at three different levels: the SODERA-operated stockyard and slaughterhouse, the traditional Hausa "Zongo" market, and the major city markets. The Zongo, located in the center of town, is a specialized livestock market. Small ruminants are sold for consumption within the city, but since SODERA has the official monopoly of cattle slaughters in Cotonou, cattle are sold only to people taking these animals to surrounding areas for herd constitution or ceremonial slaughter. In fact, cattle sold at the Zongo are of the "Lagunaire" type, well adapted to the local climate. Small ruminants, on the other hand, all come from the north and are brought by truck from Malanville, Kandi, Tanguieta and Parakou. Naturally, trading activity at the Zongo has suffered markedly from the operation of the new Cotonou abattoir. Small ruminants, poultry, and a few swine are also found at the city's major traditional markets; they are usually brought in taxis by travelers coming from the northern provinces and sold to market women who specialize in small stock trading.

The new Cotonou stockyard/slaughterhouse complex is located about four kilometers from the center of town, near the railroad track linking Porto Novo to Cotonou. A side track leads to the stockyard itself, and the deep sand-filled unloading area is also accessible to large trucks. The unloading pen's chute leads to the main yard, which adjoins the main body of the slaughterhouse. Three smaller holding pens are also used, two by SODERA for fattening culled animals from their own projects, and the third one to hold cattle just previous to slaughter. Animals finished by SODERA get supplemental feed all year round, whereas privately owned cattle receive a cottonseed or wheat bran supplement only when they return from nearby pastures in the dry season. The stockyard has a capacity of about 1,000 head but most of the time it is less than half full.

Between ten and fifteen butchers come to the stockyard in the late afternoon every day but Sunday to meet the dozen or so cattle merchants who have animals in the yard. Sales are most often done on credit, the butcher promising to repay the cost of the animal within four to five days at most. There are two dillali in the Cotonou market who lodge and feed sellers and guarantee the condition and origin of the animals to the buyers. Merchants retain at least one of the drovers (convoyeurs)[4] to watch over the animals in the stockyard and take them to pasture daily. In Cotonou, each of the dillali receive 750 CFA F from the butcher for every concluded transaction, but any gifts from cattle merchants at the close of business seem to be discretionary. There are usually also two or three dealers at the stockyard who act as intermediaries between merchants and out-of-town professional and nonprofessional buyers. Each merchant bringing a herd into the SODERA stockyard must pay a 1,000 CFA F veterinary inspection fee.

Since cattle are kept, watched, and partly fed at the stockyard at SODERA's expense, merchants are expected to pay 400 CFA F/head if their cattle stay at the yard beyond four days. For the same reason, when cattle from the stockyard are sold to out-of-town butchers and merchants (e.g. from Porto Novo), the manager of the abattoir receives

for SODERA a 400-CFA F per head fee to cover expenses. These requirements mean that merchants actually have cattle brought into the stockyard only when they are reasonably sure of selling the animals within a few days. This appears to encourage merchants to keep herds on open land or oil palm and coconut plantations in the southern Atlantique province, and makes for steadier supply conditions at the capital's market as well as giving added weight and value to the animals. Within limits of seasonal constraints (i.e. climatic and land use patterns), this practice should certainly be encouraged.

4.2 Meat Marketing

4.2.1 In the Provinces

At the village level there is very little marketing of meat. Most people get meat from their own small ruminants and poultry; beef is only consumed when cattle are slaughtered for ceremonial purposes such as feasts, weddings, funerals, etc. In villages large enough to have a weekly or otherwise regular market, small quantities of fresh or grilled sheep/goat meat are available. Butchers buy small ruminants directly from farmers and kill these animals at market.

In larger provincial towns and cities, there are slaughter slabs at or near many markets; beef as well as sheep and goat meat are offered every day in the butcher stalls. In this case, butchers most often buy cattle from small merchants and occasionally directly from herdsmen in the bush. Most often they buy small ruminants from farmers. In all towns, including Porto Novo, meat is sometimes sold in piles (tas),[5] but this practice does not prevail in Cotonou.

4.2.2 Meat Marketing In Cotonou

Figure 4.2 gives a schematic representation of the main meat marketing channels in Cotonou and surrounding areas. As mentioned above, small ruminants are available both at the Zongo and at other traditional city markets; many are bought for home consumption. Most of the meat

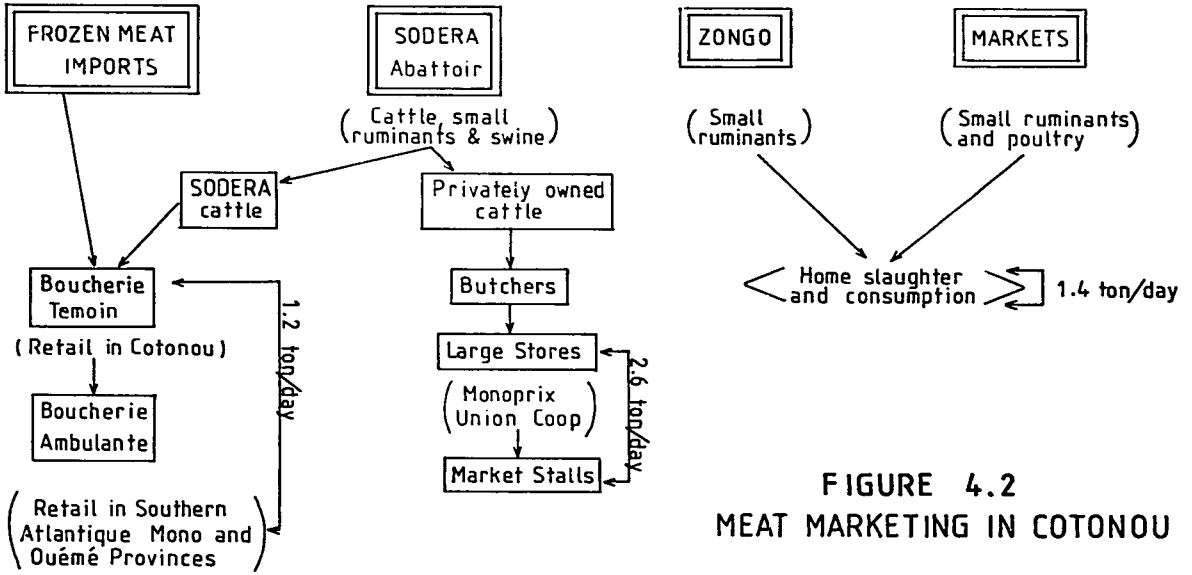


FIGURE 4.2
MEAT MARKETING IN COTONOU

TOTAL: 5.3 tons/day or
8.2 kg /capita/year

consumed in Cotonou, however, comes from the abattoir owned and operated by SODERA. Cattle bought by the city's butchers as well as SODERA's own animals are slaughtered by ten SODERA employees trained in Niger, whereas small ruminants and swine are killed and dressed within the slaughterhouse by private butchers. During the fall of 1978, an average thirty head of cattle, twenty small ruminants and twelve swine were processed daily. Although no age distribution data was available, it was found that 80 percent of the cattle brought to Cotonou's abattoir were males from Benin's northern provinces. Beside the 1,000 CFA F veterinary inspection fee collected on each herd entering the stockyard, and the 400 CFA F/head received by SODERA when cattle stay in the yard beyond four days, the abattoir derived revenue by collecting a 25-CFA F/kg carcassweight slaughter tax for cattle and 15-CFA F/kg carcassweight for small ruminants and pigs. The average carcassweight for cattle in the fall of 1978 was eighty-seven kg, so that the slaughter tax is usually about 2,000 to 2,500 CFA F/head, a reasonable amount compared to the fees and taxes charged in other west African coastal capitals.

As noted above, cattle slaughter and dressing at the abattoir is carried out by SODERA employees rather than by the butchers; the latter send their senior apprentices to watch over the operation, which occurs between 3 and 6 a.m. The fifth quarter is prepared by apprentices and sold to specialized retailers (revendeurs). Since apprentices get neither salary nor the traditional fifth quarter share, they make money by taking and later selling meat scraps from the various animals slaughtered. This may add up to ten or fifteen kg by early morning. Butchers are apparently reluctant to let apprentices keep the fifth quarter because they would then forego 6,000 to 8,000 CFA F in income on each animal from the sale of fifth quarter alone. They estimate that the value of meat scraps kept and resold by the apprentice amounts to less, although no one is really sure it does. The slaughter and dressing of small ruminants and swine is done at the abattoir by private butchers themselves.

When butchers come to take delivery of meat from the abattoir, they may sell some or most of it to buyers from the city's two supermarkets (Monoprix and Union-Coop) or take it for retail sale at their market stalls; the two stores may absorb a maximum of one ton per day. The rest goes to the market. About 1.2 tons of meat is taken by SODERA from the abattoir daily; the meat is from the company's own slaughtered animals or from cattle sold to SODERA by merchants at the stockyard. SODERA sells meat in Cotonou as well as in surrounding areas. In Cotonou, the Boucherie Temoin handles 700 kg to one ton per day, a few hundred kilograms going to three other selling points located on the city's major markets.

Meat is sold by SODERA at the official price of 450 CFA F/kg, as opposed to the prevailing 650-700 CFA F market price. SODERA's share of the Cotonou market, however, is about one fourth; the rest of the meat is sold at the higher market price. SODERA also sends a few hundred kilograms of meat in pickup vans to small towns of the southern Atlantique, Mono and Oueme provinces; there, too, this meat is sold at the official price. Figure 4.2 shows the various channels of meat marketing for Cotonou. It is estimated that daily consumption approaches 5.3 tons/day: about 23 percent is handled by the public agency, 50 percent by private butchers, and the remaining 22 percent represents market purchase of small stock for home slaughter and consumption.

There are in Cotonou about twenty full-time beef butchers regularly operating from the SODERA stockyard/slaughterhouse complex. The butcher who most often sells meat to the two supermarkets may handle up to seven head a day, but all others operate at a much lower level, two or three head/day. All are from southern Benin; the once-strong Hausa grip over the profession was shaken when the previous Hausa head butcher went bankrupt in 1977. Perhaps because of this change in the industry, butchers have as yet no professional association or organization. Butcher cards are still being considered, and there is no formal trade representative to SODERA.

Butchers' professional costs include payment to the dillali, the slaughter tax, transportation to market and market tax, butcher' license

(patente) fees and the value of meat scraps kept by apprentices as compensation. These costs and the income from the sale of meat and fifth quarter are taken into account later in this chapter to derive an estimate of butchers' profits.

4.3 Retail Prices

There is no official collection of meat retail prices in Benin; instead, the government periodically issues decrees stipulating the new official price schedules. The last three such decrees were published in 1973, 1975 and 1977. Table 4.1 shows the evolution of official prices in the provinces from 1973 through 1977. The last column shows an estimation of actual market prices based on observed and reported retail prices during the 1978 field survey. Retail prices are naturally higher in the southern areas where demand is much stronger and supply weaker than in the Borgou and Atacora provinces. With no time series for free market retail meat prices, one can only use the variation in official prices as a proxy and compare it to the price indices of domestic and imported products; the underlying assumption is that official prices for each province constitute a lagged step function of market prices in the same province. Using this method, one may observe that retail meat prices grew at about 10.5 to 13.5 percent annually in southern regions and by nearly 20 percent per year in the Borgou and Atacora. This compares to an 18 percent yearly price increase in domestic cereals over the same period, 7 percent yearly for fruit and vegetables, and 5.4 percent for export crops. Average yearly price increases for selected imported products fell largely between 15 and 23 percent from 1973 through 1976 (see Tables H and J of the Statistical Appendix). The retail price of fish in Cotonou, on the other hand, rose by an average 10 percent yearly between 1971 and 1978. In sum, the price of meat seems to have increased only slightly faster than most domestically produced staple foods and export goods. A discussion of future price trends for meat is included in the demand and supply forecasts presented in Chapter Five.

TABLE 4.1

OFFICIAL RETAIL MEAT PRICES, 1973, 1975 AND 1977; MARKET MEAT PRICES, 1978 (CFAF/kg)

	1973		1975		1977		Actual Market Price 1978 (Without Bone)
	With Bone	Without Bone	With Bone	Without Bone	With Bone	Without Bone	
Atlantique	225	300	300	400	350	450	600
Mono	200	225	275	300	300	350	464
Ouémé	225	300	300	400	350	450	600
Zou North South	150	200	200	275	250	300	400
Atacora	125	150	200	275	250	300	400
Borgou Parakou	125	150	200	275	250	300	400
Others	110	120	175	225	200	250	332

SOURCES: Direction Nationale de l'Elevage, Annual Reports. 1978 Field Survey.

4.4 Profit Magins

No data are available on prices paid by cattle merchants to Fulani herdsmen or collecteurs and small merchants. Our analysis of their economic efficiency, therefore, rested on a rather theoretical approach whereby competitiveness was gauged on the basis of market organization. In the case of Cotonou butchers, however, a little more data is available, and we will attempt to include the size of estimated profit margins as a component of our judgment on marketing system efficiency.

The representative butcher selected for this purpose is taken to be a full-time professional handling two or three head of cattle daily (about 780/year), with one full-time apprentice for each head of cattle slaughtered daily. The butcher in question is assumed to sell all the meat he gets from the abattoir at one city market, the number of stalls being proportional to his trade volume. Fifth quarter, head, legs and hide are sold at the abattoir to specialized retailers. Like all other butchers, he pays a yearly 7,200 CFA F license fee, a 25 CFA F/kg carcass-weight slaughter tax, a 50 CFA F/stall market tax, a 750 CFA F fee to the dillali per head purchased and handles cattle weighing 87 kg carcass-weight on the average. Furthermore, the representative butcher's apprentice sets aside 2,500 CFA F worth of meat/head for himself. Transportation of meat to market is done in hired vehicles or in the butcher's own Mobylette mini-trailer combination valued at 110,000 CFA F and amortized over three years. Finally, about 10,000 CFA F of sundry equipment is purchased yearly.

We may estimate the profit margin realized by this typical butcher when faced with a normal transaction: during the fall of 1978, a young Borgou bull or steer yielding the average 87 kg carcassweight cost about 47,000 CFA F at the Cotonou stockyard. On the basis of reported prices for meat with bone at the market and receipts from the sale of fifth quarter to retailers, the profit made by the butcher is as follows.

TABLE 4.2

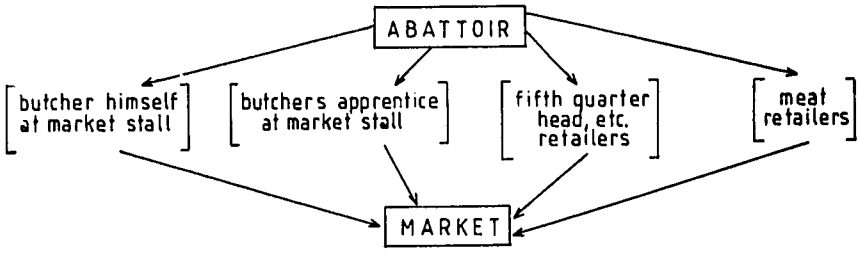
ESTIMATED PROFIT MARGIN, COTONOU BUTCHER, 1978

Expenditures	(CFA F/Head)	Income	(CFA F/Head)
Purchase cost	47,000	Meat with Bone: 87 X 550	47,850
License fee	10		
Slaughter Tax	2,175	Fifth quarter, Head, legs, tail and hide	8,000
Market Tax	50		
Dillali's fee	750		
Apprentice's share	2,500		
Transportation	100-200		
Equipment	13		
TOTAL	52,598-52,698		55,850
Profit = 3,252 to 3,152 CFA F			

There is certainly a good deal of variation in the profit made by butchers from one animal to the next, especially in the cost of the animal itself, but on the average, butchers' profits should be in the neighborhood of 6 percent of total outlay. It is conceivable that butchers dealing with more or larger animals may realize slightly higher profits since the license fee (7,200 CFA F regardless of volume of trade), and the dillali's fee represent fixed costs. Because of the lack of data, no allowance is made for loss through meat condemnation; it constitutes, however, another constraint to butchers' profits.

There are several other aspects to the question of competitiveness and efficiency in the traditional meat marketing system. One may point out, for example, that of the twenty or so butchers regularly frequenting the Cotonou stockyard, nearly ten attend the cattle market each day and compete against each other for particular animals. In addition, butchers not only compete against each other but also against professional

and non-professional "out-of-towners" (e.g. Porto Novo butchers, merchants and private buyers) and dealers, who specialize in speculative holding. Also, although cattle are not auctioned off, trading is done openly, so that price information circulates rapidly. Finally, the number of intermediaries involved in meat marketing between the abattoir and the market is kept very low:



Indeed, most meat is taken from the abattoir and sold directly by the butcher himself and his apprentice(s) at the market. The fifth quarter, head, legs, tail and hide are sold to specialists who process these parts in the abattoir backyard and retail the end product at various markets. Some of the meat is occasionally sold to retailers who buy in bulk from the butcher at the slaughterhouse and resell the meat on markets.

Traditional meat marketing in Cotonou is reasonably competitive and efficient; however, it might be improved in at least three ways. The first two would require some collaboration from SODERA, whereas the third would be brought about mostly through butchers' initiative. Butchers should first be given the option to use abattoir cold storage space, as available, over a few days instead of only overnight. A suitable vehicle for the transport of large quantities of meat from the slaughterhouse to the markets should be made available at a low cost to users. Finally, butchers should be encouraged to practice holding and fattening of animals before slaughter, thereby competing in this activity against dealers and merchants.

NOTES TO CHAPTER FOUR

[1]They are sometimes also referred to as revendeurs.

[2]Courtiers (dealers) are local market traders specializing in short-term speculative holding; they may also act as intermediaries between sellers and non-professional buyers (e.g. farmers seeking oxen for animal traction).

[3]Dillali is the Hausa word for the person who, in collection markets, acts as a go-between for merchants and other buyers and herders, small merchants and other sellers. In redistribution markets he may also arrange for cattle transport, whereas in terminal markets he is the intermediary between merchants and butchers. There is only one dillali in each market, although he may have helpers, and he receives a commission on every head of cattle sold. He always acts as liaison between all market operators and local Livestock Service agents; most dillali are active or retired well-established cattle merchants. In Benin the term logeur is sometimes used.

[4]Convoyeurs (drovers) are hired by merchants to take herds south, accompanying the animals in trucks and railcars. Upon arrival at the terminal market, most return north right away, but a few remain to watch over the animals until all are sold. Most drovers are Fulani tribesmen.

[5]Little unweighted piles of mixture of meat, gristle, fat and bone sold for 25, 50 or 100 CFA F, according to size.

CHAPTER FIVE

SUPPLY, CONSUMPTION, AND IMPORTS

Chapter Snythesis

This chapter first provides a summary discussion of total and per capita consumption of both meat and fish for the 1966-1976 period. Meat supply projections are derived up to the 1990 horizon. They indicate that if current restrictions on livestock and meat trade are maintained, consumption will increase very slowly, even with public intervention in the livestock sector. The implications of alternative policies for Benin are examined and recommendations made for increases in productivity and domestic consumption. Finally, the implications of various Beninese strategies are analyzed from the point of view of Sahelian livestock exporters.

5.1 Supply and Consumption of Animal Protein

5.1.1 Meat

Table I of the Abstract is repeated as Table 5.1 to illustrate the evolution of domestic supply, imports and total consumption of meat in the People's Republic of Benin; there are several points of interest. During the 1966-1976 period per capita meat consumption increased very slowly from 8.1 to 8.4 kg per person per year, and in fact decreased slightly thereafter because of the sharp drop in meat and livestock imports. This decrease in imports is also reflected in the fact that between 1970 and 1976 total domestic meat supply grew at a slightly faster rate than total meat consumption including imports. At the level of 8.4 kg per person per year, Benin was virtually self-sufficient in meat by 1976. If the current policy of restricted imports and exports of livestock and meat continues, self-sufficiency implies that future levels of consumption will be entirely determined by the increase in domestic livestock resources. Estimating growth on the basis of the evolution of Benin's livestock in recent years, one calculates that the traditional part of the livestock sector could supply the local market as shown in Table 5.2.

TABLE 5.1

SUMMARY OF TOTAL AND PER CAPITA CONSUMPTION OF ALL MEATS, 1966-1976

	DOMESTIC MEAT SUPPLY (tons)						IMPORTS (tons)		TOTAL			
Year	Beef	Sheep/ Goat Meat	Pork	Poultry	Total	Per Capita Kg/year	Live Animals	Meat	Total Meat Imports	Total Meat Consumption	Domestic Production as % of Supply	Per Capita Consumption of all meats (kg/year)
1966	7,600.5	3,246.3	5,171.6	2,437	18,455.3	7.5	1,268.5	54.3	1,322.8	19,778.1	93.3	8.1
1967	7,915.6	3,472.3	5,977.1	2,573	19,938	7.9	-	27	-	-	-	-
1968	7,868.3	3,303.7	5,289.4	2,700	19,161.7	7.4	-	18.2	-	-	-	-
1969	8,485.1	3,559.7	5,623	2,870	20,537.7	7.7	-	21.3	-	-	-	-
1970	8,496	3,650.5	6,135	3,000	21,281.5	7.8	867.7	11.2	878.9	22,160.4	96	8.1
1971	8,817	3,707.1	6,194.5	3,200	21,918.5	7.8	717.8	5.7	723.5	22,642	96.8	8.1
1972	9,693	3,927.2	5,997.8	3,400	23,018	8	595.95	10.6	606.5	23,624.5	97.4	8.2
1973	10,256.4	4,912.1	6,081	3,600	24,849.4	8.4	2,915.5	9.1	2,924.6	27,774	89.5	9.4
1974	10,255.5	4,696.3	6,037.5	3,800	24,789.3	8.2	821	3.4	824.4	25,613.7	96.8	8.45
1975	10,825.7	4,913.1	6,078.9	4,000	25,817.7	8.3	251.9	3.1	255	26,072.7	99	8.4
1976	10,670.3	5,212.7	6,640.3	4,200	26,723.2	8.35	10.9	3	13.9	26,737.1	99.9	8.4
	39.9%	19.5%	24.9%	15.7%	100%							

WEIGHTED RATE OF INCREASE AND TOTAL MEAT SUPPLY,
1976, 1980, 1985, 1990. (metric tons)

Year	Beef	Sheep/ Goatmeat	Pork	Poultry	Total
1976	10,670.3	5,212.7	6,640.3	4,200	26,723.2 tons
%	(39.9)	(19.5)	(24.9)	(15.7)	(100)
	combined weighted growth rate = 3.8 percent p.a.				
1980	11,419.25	5,730.6	6,980.5	4,682.7	28,813.05 tons
%	(39.6)	(19.9)	(24.2)	(16.2)	(100)
	combined weighted growth rate = 3.84 percent p.a.				
1985	13,529.8	7,261.8	7,909.4	6,146.2	34,847.2 tons
%	(38.8)	(20.8)	(22.7)	(17.6)	(100)
	combined weighted growth rate = 3.9 percent p.a.				
1990	16,030.3	9,202.	8,961.9	8,067.2	42,261.4
%	(37.9)	(21.8)	(21.2)	(19.1)	(100)
	combined weighted growth rate = 4 percent p.a.				

SOURCE: Adapted from Table I.

NOTE: for 1976, obtained by:

$$1.0345^{.4} \times 1.0485^{.195} \times 1.025^{.25} \times 1.056^{.157} = 1.0382.$$

The same formula, with proper new weights, applies to the following years.

Under these assumptions, the yearly per capita consumption of meat could evolve as follows:

1976	8.35 kg
1980	8.06 kg
1985	8.45 kg
1990	8.85 kg

The modern livestock subsector (Okpara, Kpinou, Mbetecoucou and Samiondji) will add to the aggregate supply of meat, but not for another five years in the case of fattening operations and another ten or eleven in the case of breeding stock. Besides, since cattle for fattening and breeding projects are purchased from the traditional subsector, the net meat gain to the economy will be the difference in weight gain and fertility rates between the two. For example, the net gain from the planned stabilized operations of the Kpinou, Mbetecoucou and Samiondji ranches (see Tables K through N of the Statistical Appendix) would be in the neighborhood of only 200 tons/year. Even if another 200 tons per year were derived from other ranching operations (such as the Okpara) and from improvement of small ruminant production in the traditional subsector, the total effect of these interventions would be to add only about 100 grams to the previously forecast 1985 per capita meat intake: 8.45 kg + 100 g = 8.55 kg.

5.1.2 Fish

Just as for livestock, there are two public agencies in charge of fisheries. SONAPECHE (Societe Nationale d'Armement et de Peche), a state company founded in 1975, is responsible for production, marketing, price and external trade policies. For example, SONAPECHE is in charge of procuring and operating the new publicly owned deep-sea fishing fleet. The firm also retails fresh and frozen fish in Cotonou and southern Benin through daily coverage of selling points in the capital by four insulated trucks. SONAPECHE attempts to enforce the fish prices set by the Ministry of Commerce, and exercises monopoly control over both fish imports (frozen fish from Russian ships and other suppliers) and exports (mostly cooked and frozen shrimp to France and

Nigeria).

The second public agency is the Direction des Peches. Its role is to provide technical advice to the Ministry of Rural Development and Cooperative Action, organize training for fisheries agents, control the execution of most fisheries development projects and collect statistics.

Table 5.3 illustrates the evolution of fish production, imports, and consumption during the 1971-1976 period. The sharp decrease in industrial deep-sea fishing was caused by the departure of foreign private trawlers from the port of Cotonou and Beninese waters. Inland fishing declined as a result of low rainfall and damage to the ecological balance of the lagoon areas of southern Benin, brought about by port development. All this contributed to a slight decrease in fish consumption between 1971 and 1976 despite sharply increasing imports. The free market price of fish at the retail level has increased by an average of 10 percent yearly between 1971 and 1978, from 95 CFA F/kg to 185 CFA F/kg. Fresh fish is slightly more expensive in Cotonou than frozen fish.

Both public agencies are working on projects designed to increase domestic production. In the fall of 1978, SONAPECHE was preparing to put two new 23-25 meter trawlers and six large motorized fishing launches to sea. The company's plans are to reconstitute the national deep-sea fishing fleet by purchasing another five trawlers and issuing licenses for eight privately owned trawlers. Later purchase of two thirty-meter trawlers was also being considered. The Direction des Peches, on the other hand, puts its emphasis on the improvement of traditional maritime and inland fishing methods. By early 1979 it was to have completed the motorization of 100 traditional small fishing boats. With these investments the maritime fish catch may increase by as much as 1,500 to 2,000 tons/year, but even so Benin will have to continue importing large quantities of fish for another five to ten years at the very least. Although the Government of Benin advocates self-sufficiency in fish, SONAPECHE has so far imported enough frozen fish to maintain yearly per capita consumption near the ten kg level. If this policy prevails until domestic fishing is back to the levels of late

TABLE 5.3

FISH PRODUCTION AND CONSUMPTION, 1971-76
(metric tons)

	1971	1972	1973	1974	1975	1976
Deep-sea fishing (industrial)	5,816	6,590	5,073	3,822	2,050	1,215
Deep-sea fishing (traditional)	4,100	3,800	3,600	3,680	3,645	2,800
Inland fishing	21,650	20,550	19,075	18,750	18,780	17,400
Total catch	31,566	30,940	27,748	26,252	24,475	21,415
Imports (frozen fish)	3,900	3,735	4,771	7,141	8,875	12,492
Exports	3,414	3,207	5,037	5,021	3,334	2,705
Total consumption	32,052	31,470	27,482	28,372	30,016	31,202

SOURCE: Direction des Pêches, Ministère du Développement Rural et de l'Action Coopérative.

1960s, extra pressure on domestic livestock resources resulting from substitution of meat for fish need not be expected.

5.2 Livestock and Meat Imports

Table 5.4 illustrates the evolution of meat imports between 1966 and 1976; several trends are clear. First, Benin did not import significant amounts (relative to total meat consumption) during the period considered, and quantities imported have continuously and sharply decreased over time from 54.3 tons in 1966 to about 3 tons in 1976. The effect of the Sahel drought on Benin's West African meat suppliers, culminating in their disappearance from its import meat market, is also observable. The percentages in the right hand column indicate the proportion of total meat imports coming from West African nations -- m[illegible] [illegible]ger. From 83 percent of the total or 45 tons in 1966, the West African share fell to 40 percent or only 4.5 tons in 1970 and subsequently disappeared altogether. Meat imports after 1970 came principally from South America.

Table 5.5 summarizes the overall livestock and meat import situation by including official cattle and small ruminant imports. Live animal numbers are translated into their estimated meat equivalence for comparative purposes. When one considers both livestock and meat, the decline in total imports from 1966 to 1976 is even more striking than it is for meat alone; during this period total imports officially decreased by a factor of 100. It is not known just how much of this decrease in imports is real and to what extent it is due to under-reporting (especially for livestock) to the authorities. It is the opinion of the author, however, that the decline of livestock imports is attributable not so much to the government policy of self-sufficiency as to more attractive cattle prices in northwestern Nigeria. In fact, the Government of Benin acknowledges the fact that the main difficulty lies not in restricting imports of livestock from Niger and Upper Volta into Benin, but rather in restraining the flight of cattle from Benin to Nigeria.

Livestock import statistics up to 1974 are probably more reliable

TABLE 5.4

MEAT IMPORTS, 1966-1976
(metric tons)

Year	Frozen Meat	Meat & Offals	Salt Pork	Salt Meat	Poultry Meat	TOTAL	
1966	19.3	31	1.3	.8	1.9	54.3	(83%)
1967	10	14.4	1.5	.2	.9	27	(71%)
1968	2.9	8.7	1.4	.1	.1	13.2	(48%)
1969	11.4	6.5	2.4	-	1	21.3	(52%)
1970	7.6	1.3	1.7	.2	.4	11.2	(40%)
1971						5.7	
1972						10.6	
1973						9.1	
1974						3.4	
1975						3.1	
1976						3.0	(estimated)

SOURCE: Service de l'Elevage, Annual Reports.

NOTE: Percentages of total (in parentheses) indicate the fraction of meat imports from African states.

TABLE 5.5

SUMMARY OF ALL OFFICIAL LIVESTOCK AND MEAT IMPORTS, 1966-1976

	(1) Cattle Imports No. Head	(2) Beef Equivalent (tons)	(3) Small Ruminants Imports (head)	(4) Sheep/ Goatmeat (tons)	(5) Meat Imports (tons)	(6) Total (tons)
1966	8,457	1,268.5	--	--	54.3	1,322.8
1967	--	--	--	--	27	--
1968	--	--	--	--	13.2	--
1969	5,333	800	--	--	21.3	6,154.3
1970	5,541	831.1	3,537	36.6	11.2	878.9
1971	5,789	686.3	3,046	31.5	5.7	723.5
1972	3,482	522.3	7,116	73.6	10.6	606.5
1973	17,548	2,632.2	27,373	283.3	9.1	2,924.6
1974	4,026	603.9	20,974	217.1	3.4	824.4
1975	1,578	236.7	1,468	15.2	3.1	255
1976	40	6	473	4.9	3	13.9

SOURCE: Direction Nationale de l'Elevage.
NOTES: (2) = (1) x 150 kg
(4) = (3) x 10.35 kg
(6) = (2) + (4) + (5)

than later data since fewer restrictions were placed on cattle movements across borders in earlier times. Here again the numbers reflect the effects of the Sahel drought; 1973 and 1974 are quite remarkable in the time series presented in Table 5.4. Cattle imports in 1973 and small ruminant imports in 1973 and 1974 stand out sharply among other data points: these peaks are very likely attributable to destocking of Sahelian herds. Finally, except for the 1976 estimates, meat imports have represented only a few percentage points of total livestock and meat imports.

For the 1966-1976 period, fish and meat import policies have imports at the minimum required to maintain existing levels of consumption; in the case of fish, the extremely sharp decrease in domestic production left no choice but a correspondingly higher level of imports. In the case of meat, however, imports were restricted at the expense of a foregone increase in per capita consumption. The government's position is that production in the domestic livestock sector is now high enough to substitute entirely for meat imports and that further increases in per capita meat consumption, as important an objective as it may be, will have to be gained by further progress in the domestic livestock subsector.

This clear national strategy leads to almost equally clear implications: the meat import substitution policy will be successful, measured by restricted imports, only if the people of Benin are willing to accept continued low levels of per capita meat consumption. Even with public investment and intervention in domestic livestock, national production will not supply much more than 8.45 kg per person by 1985 and 8.85 by 1990. Judging from recent experience, it is conceivable that the import substitution policy may be maintained over the next five to ten years. Meat consumption would therefore increase very slowly, even with more rapid GDP growth. The first conclusion, therefore, is that a continuation of current policies will eliminate Benin from the list of potential export markets for Sahelian livestock.

The most interesting aspect of this analysis, however, has been so far broached only in passing; the role of the Nigerian market for livestock must now be brought into the picture. Government policy on

international cattle trade bears on both imports into and exports from Benin. Restrictions on imports have not been enforced too rigidly; after all, cattle imports certainly did no harm to the government's consumer price policy.[1] Restrictions on livestock exports have been considered another matter entirely and much more vigorously enforced.

Cattle exports go counter to the consumer price policy and are held to be harmful to domestic production. Although the former opinion might be justified in the short run, the latter would be well founded only if exports were to bear on young or reproducing females.

The emergence of Nigeria as a West African economic power, combined with the neglect of its agricultural sector, have in the last years opened up a vast and lucrative market for Sahelian livestock. It is probable that the decrease in Benin's cattle and small ruminant imports from Niger and Upper Volta was due more to attractive prices in Nigeria than to Benin import restrictions. In fact, one recalls that many cattle from Upper Volta and Niger are taken to Nigeria by way of northern Benin; although it is possible to bring animals into Benin without much difficulty, there is little incentive to sell them there. The Nigerian market has naturally been quite attractive to Beninese livestock owners as well. The government's export restrictions aimed at protecting domestic consumer prices have limited the access of Voltaic as well as Benin animals to the Nigerian market. From the point of view of Upper Volta this constitutes an impediment -- however slight -- to trade and earnings from cattle transactions. Even for Benin this policy presents obstacles (although less obviously) in the way of foreign exchange earnings and livestock subsector productivity.

It is indeed quite likely that liberal livestock and meat import and export policies, although politically less attractive on the surface, would serve Benin's interests better than the present attitude. Livestock exports from northern Benin to Nigeria would provide greater production incentives than are currently offered domestically, and gains in income and productivity would ensue. The slack in supply to Benin's southern provinces could promptly and profitably be taken up by imports of low-priced frozen meat from the world market. This pattern could be maintained up to the point where the differential between live cattle

prices in southern Benin and Nigerian border prices were reduced to transportation costs. Such a liberal policy would eventually be more likely than the present one to satisfy both northern producers and southern consumers and to increase overall welfare.

What are the implications for the Sahelian states? If they conside only exports to Benin, it makes no difference whether that nation pursue a protectionist or an open policy; in the first case, Benin by definitio would import no Sahelian livestock, and in the second, Benin would impor only frozen meat at world market prices. When one considers the potential for Sahelian exports to Nigeria, however, Benin's external trade posture does make a difference. If Benin goes on with the current livestock and meat trade restrictions, most of Niger's and some of Upper Volta's exports will continue to go to Nigeria. If, on the other hand, both import and export restrictions are lifted on livestock and meat, Benin may compete with Upper Volta and Niger in the Nigerian market. However, when one considers both the size of that market, and the extent of Benin's own livestock herds, it is hard to believe that such competition would significantly displace Voltaic and Nigerian livestock trade with Nigeria.

Note to Chapter Five

[1]In fact, statistics from Argentina reveal that meat imports by Benin are now at higher levels than they were in the mid-seventies; 138 tons were delivered in Cotonou during the first six months of 1978.

STATISTICAL APPENDIX

Table	
A	National Cattle Herd, Benin, 1966-1977
B	National Small Ruminants Herd, Benin, 1965-1977
C	National Swine Herd, Benin, 1965-1977
D	Officially Recorded Slaughters of Cattle, By Region, 1966-1976
E	Proportion of Total Estimated Slaughters Officially Recorded, 1973, 1975, 1976
F	Officially Recorded Cattle Imports, 1966-1976
G	Small Ruminant Imports, 1970-1976
H	Agricultural Price Index, 1974-1976
J	Average Yearly Rates of Increase for Controlled Retail Prices of Selected Consumer Products, Cotonou, 1973-76
K	Mbetecoucou Ranch, Planned Timetable
L	Samiondji Ranch, Planned Production from Feeding Operations
M	Samiondji Ranch, Planned Sales from Reproducing Stock
N	Kpinou Ranch, Planned Production from Feeding Operations

TABLE A

NATIONAL CATTLE HERD, BENIN, 1966-1977
(Number of Head)

	BORGOU	ATACORA	ZOU	MONO	ATLANTIQUE	OUEME	TOTAL
1966	329,000	97,500	47,400	7,000	11,900	13,900	506,700
1967	333,882	109,166	48,500	7,700	12,500	15,956	527,704
1968	328,796	109,166	50,560	7,561	12,425	15,956	524,554
1969	369,350	105.080	50,560	11,300	12,280	17,100	565,670
1970	363,800	108,700	52,500	12,800	10,300	18,300	566,400
1971	381,900	110,200	52,900	13,600	11,100	18,100	587,800
1972	418,100	130,700	52,900	13,900	11,200	19,400	646,200
1973	454,800	130,700	52,900	13,900	11,360	20,100	683,760
1974							683,700
1975	454,200	168,442	52,900	13,880	12,190	20,100	721,712
1976	473,174	135,980	55,037	14,428	11,819	20,912	711,350

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

TABLE B

NATIONAL SMALL RUMINANTS HERD, BENIN, 1965-1977
(Number of Head)

	Borgou	Atacora	Zou	Mono	Atlantique	Ouémé	Total
1966	216,000	311,000	318,500	75,500	62,000	59,500	1,045,500
1967	233,500	326,500	331,500	93,000	66,500	67,300	1,118,300
1968	187,521	331,764	353,164	83,927	32,256	75,438	1,064,070
1969	221,430	330,500	353,170	109,880	48,450	83,010	1,146,440
1970	212,700	349,800	351,500	130,700	34,800	96,200	1,175,700
1971	228,900	304,500	356,700	152,700	38,600	112,500	1,193,900
1972	284,400	333,000	356,700	132,800	41,900	116,000	1,264,800
1973	596,300	333,000	356,700	132,800	41,850	121,840	1,581,990
1974							1,512,490
1975	596,300	332,290	356,700	132,680	41,870	122,480	1,582,320
1976	632,615	353,280	378,423	140,841	44,399	129,259	1,678,817

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

TABLE C

NATIONAL SWINE HERD, BENIN, 1965-1977
(Number of Head)

Year	Borgou	Atacora	Zou	Mono	Atlantique	Ouémé	Total
1966	1,000	27,300	148,500	32,000	58,500	32,500	299,800
1967	2,000	28,900	155,600	53,000	64,500	42,500	346,500
1968	1,738	24,684	164,724	47,003	25,400	63,084	306,633
1969	1,840	24,720	164,730	47,260	40,250	47,170	325,970
1970	1,950	25,000	186,000	56,300	32,000	54,400	355,650
1971	1,900	32,000	161,500	71,600	33,200	58,900	359,100
1972	1,800	25,400	161,500	65,000	35,000	59,000	347,700
1973	4,000	25,400	161,500	65,000	35,020	61,600	352,520
1975	4,000	25,325	161,420	65,025	35,030	61,600	352,400
1976	4,368	27,737	176,362	70,965	38,242	67,269	384,943

SOURCE: Direction Nationale de l'Elevage. Annual Reports.

TABLE D

OFFICIALLY RECORDED SLAUGHTERS OF CATTLE, BY REGION 1966-1976
(Number of Head)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Porto Novo										2,315	2,603	
Cotonou										3,109	3,529	
Ouémé								4,443	4,162	429	1,214	
Atlantique								6,338	4,571	608	709	
Mono	(10,445)*	(10,228)*	(10,815)*	(10,517)*	(10,923)*	(12,372)*	(10,927)*	960	1,123	740	719	
Zou	3,551	3,945	3,177	2,953	3,472	3,675	3,735	3,529	3,667	3,280	2,446	
Borgou	9,470	9,036	10,622	9,089	8,989	9,665	10,920	10,119	16,274	9,591	8,699	
Atacora	2,887	2,891	3,443	3,344	3,371	4.156	4,416	3,599	4,157	2,491	3,631	2,608
TOTAL	26,353	26,160	28,055	25,903	26,755	29,868	29,998	28,988	33,955	22,56[illegible]	23,750	

SOURCE: Direction Nationale de l'Elevage Annual Reports.

*Total for Ouémé, Atlantique and Mono.

TABLE E

PROPORTION OF TOTAL ESTIMATED SLAUGHTERS OFFICIALLY RECORDED
1973, 1975, 1976

Cattle	Small Ruminants	Swine
1976		
National Herd 711,350	National Herd 1,678,817	National Herd 384,943
Official Slaughters 23,750	Official Slaughters 17,084	Official Slaughters 13,909
Percent Slaughter Recorded 27.8	Percent Slaughter Recorded 4.1	Percent Slaughter Recorded 1
1975		
National Herd 721,712	National Herd 1,582,320	National Herd 352,400
Official Slaughters 22,563	Official Slaughters 11,792	Official Slaughters 10,857
Percent Slaughter Recorded 26	Percent Slaughter Recorded 3	Percent Slaughter Recorded 5
1973		
National Herd 683,760	National Herd 1,581,990	National Herd 352,520
Official Slaughters 29,998	Official Slaughters 18,473	Official Slaughters 10,135
Percent Slaughters Recorded 36.6	Percent Slaughters Recorded 4.7	Percent Slaughters Recorde 4.8

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

NOTE: Estimated total slaughters are based on the following assumed offtake rates:
Cattle 12%
Small Ruminants 25%
Swine 60%

TABLE F

OFFICIALLY RECORDED CATTLE IMPORTS, 1966-1976
(Number of Head)

	IMPORTS	EXPORTS	NET IMPORTS
1966	8,457	---	8,457
1967	---	---	---
1968	---	---	---
1969	5,896	563	5,333
1970	5,585	44	5,541
1971	5,822	33	5,789
1972	3,727	245	3,482
1973	17,602	54	17,548
1974	4,346	320	4,026
1975	1,694	116	1,578
1976	40	---	40

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

TABLE G
SMALL RUMINANTS IMPORTS, 1970-1976
(Number of Head)

	IMPORTS	EXPORTS	NET IMPORTS
1970	4,421	884	3,537
1971	4,150	1,104	3,046
1972	8,463	1,347	7,116
1973	27,532	159	27,373
1974	21,118	144	20,974
1975	1,882	414	1,468
1976	473	--	473

SOURCE: Direction Nationale de l'Elevage, Annual Reports.

TABLE H

AGRICULTURAL PRICE INDEX, 1974-1976
(1974 = 100)

	1974	1975	1976
Cereals[a]	100	123.2	138.8
Fruit & vegetables	100	104.3	114.6
Export Crops[b]	100	119.9	111.4

SOURCE: INSAE, Comptes de la Nation, 1975.

[a]Millet, sorghum, maize, rice, manioc, yams, beans.

[b]Palm kernels, cotton kapok, groundnuts, cocoa, coffee, tabacco, coconut.

TABLE J

AVERAGE YEARLY RATES OF INCREASE FOR CONTROLLED RETAIL PRICES OF SELECTED CONSUMER PRODUCTS, COTONOU, 1973-1976 and 1973-1978

	1973-76	1973-78
Kitchen Salt	15%	18%
Sardines	13%	--
Ordinary Rice	17%	14%
Polished Rice	0	0
Pasteurized Milk	23%	--
Granulated Sugar	14%	--
Sugar Lumps	27%	--
Peanut Oil	23%	--
Galvanized Sheet Iron	5%	--
Iron Rods (concrete)	18%	21%
Cloth, Khaki Drill	0	--
Locally Assembled Motorbicycles	8.25%	--
Concentrated Milk	20.3%	--
Pasta	17.3%	--

SOURCE: Service du Controle des Prix, Ministère du Commerce et du Tourisme.

TABLE K

MBETECOUCOU RANCH, PLANNED TIMETABLE
(Borgou Breed)

Year	Cows	Bulls	1 YEAR-OLD Males	1 YEAR-OLD Females	2 YEAR-OLD Males	2 YEAR-OLD Females	PURCHASES Cows	PURCHASES Bulls	PURCHASES Steers	SALES Bulls	SALES Culled Cows	SALES Heifers	END OF YEAR
0	100	5	—	—	—	—	—	—	—	—	3	—	105
1	594	30	35	25	—	—	500	25	—	1	18	—	694
2	1,058	53	208	208	34	34	500	25	—	1	32	—	1,595
3	1,277	61	370	370	202	202	200	—	19	2	37	—	2,432
4	1,594	77	430	430	359	359	200	—	179	3	400	—	3,204
5	1,804	90	542	542	417	417	—	—	330	3	54	—	3,812
6	2,000	100	631	631	526	526	—	—	389	3	60	100	4,414
7	2,000	100	700	700	612	612	—	—	504	3	60	390	4,724
8	2,000	100	700	700	679	679	—	—	587	3	60	473	4,858
9	2,000	100	700	700	679	679	—	—	652	3	60	538	4,858
10													

S T A B I L I Z E D

SOURCE: African Development Fund, 1978.

TABLE L

SAMIONDJI RANCH, PLANNED PRODUCTION
FROM FEEDING OPERATIONS

YEAR	No. of Steers Purchased	End of Year	$\bar{X}$ wt. at Purchase (kg)	$\bar{X}$ wt. End of Program (kg)	Estimated Total Gain (tons)
1	500	485	230	300	33.9
2	500	485	230	300	33.9
3	1,000	970	230	300	67.9
4	1,000	970	230	300	67.9
5 and following years	1,000	970	230	300	67.9

SOURCE: African Development Fund, 1978.

TABLE M

SAMIONDJI RANCH, PLANNED SALES FROM REPRODUCING STOCK

Year	Steers	Bulls	Culled Cows	Heifers	Total
1	--	--	3	--	3
2	--	--	9	--	9
3	--	1	14	--	15
4	26	1	17	--	44
5	93	1	19	--	113
6	149	1	22	--	172
7	183	2	28	--	213
8	203	2	30	64	299
9	243	2	30	191	466
10	296	2	30	239	567
11 and beyond	327	2	30	270	629

SOURCE: African Development Fund, 1978.

TABLE N

KPINOU RANCH, PLANNED PRODUCTION
FROM FEEDING OPERATIONS

YEAR	No of. Steers Purchased	End of Year	$\bar{X}$ wt. at Purchase (Kg)	$\bar{X}$ wt. End of Program (Kg)	Estimated Total Gain (tons)
1	500	485	230	300	33.9
2	500	485	230	300	33.9
3	1,000	970	230	300	67.9
4	1,000	970	230	300	67.9
5 and following years	1,000	970	230	300	67.9

SOURCE: African Development Fund, 1978.

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GHANA

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INSTITUTIONAL DIRECTORY

Animal Research Institute, University of Legon	Research Institute near the campus of Legon University responsible for research on animal production. Dr. Antwi is Director of the Institute.
Bank of Ghana	Government's financial institution for clearing foreign exchange for importation of food commodities. Main office is on High Street in Accra.
Cattle Dealers and Butchers Association	This organization lobbies for its members in Ghana. Alhaji S. Maikankan is the Director; office located in the Trade Union Center.
Central Bureau of Statistics (CBS)	The agency responsible for collection of statistics on external trade and population growth. Office is in the Ministry of Finance building in Accra.
Ghana Industrial Holding Corporation (GIHOC)	GIHOC is a state-owned corporation with its main office in Accra. The Meat Products Division is located at the Tema slaughter house and is responsible for imports of meat. Mr. Acquah is the general manager.
Ghana Livestock Company	This company receives funding from the World Bank to develop two cattle projects in Ghana. Mr. A.K. Aryee is director of the project.
Ghana National Trading Corporation (GNTC)	This corporation is state owned and responsible for distribution and retail of merchandise. GNTC is the major importer of canned fish.
Ghana National Procurement Agency (GNPA)	This agency is responsible for procuring all requests for imports by the Government. GNPA handles arrangements for imports of meat; the main office is near the ministries in Accra.

Meat Marketing Board (MMB), previously the Cattle Development Board	MMB is a Government agency primarily responsible for importation of livestock and meat. The head office is in Bolgatanga; Mr. J.A. Salaam is the chief executive officer. The sub-head office is located in Accra, and the marketing officer is Mr. Timpo.
Ministry of Agriculture: Animal Husbandry Division	Mr. Sunkwa-Mills is the director; the division is responsible for livestock development. The office is located in the ministries near the American Embassy.
Ministry of Agriculture: Economic Planning Division	This division has its office in the same building as the Animal Husbandry Division. Dr. Ata-Konadu is the director; Ms. Comfort Offei is an agricultural economist who has information on prices of meat.
Ministry of Agriculture: Veterinary Investigation Center (VIC)	This center has a lab located in Kumasi. The supervisor is Dr. Max Bonniwelm, who has information on small ruminant production in Ashanti Region.
Ministry of Agriculture: Veterinary Services	Director of the agency is Dr. S.B.K. Quartey; the Deputy Director is Dr. K.O. Gyening. The division collects information on imports, movements, and slaughter of livestock.
Ministry of Trade and Tourism	This Government ministry is responsible for determining allocation of import licenses. It authorizes the level of imports of the Meat Marketing Board.
Prices and Income Board (PIB)	This Government agency sets the control prices for imported food items into Ghana. The office is located in the State House. The scheduling officer responsible for reviewing GIHOC and MMB is Mr. Ado-Sakoode.
University of Cape Coast: Department of Agriculture	Dr. Lionel de Silva is a faculty member at the University of Cape Coast conducting research on animal production in Ghana.
University of Legon: Department of Agricultural Economics	J.A. Dodson, Professor, has information on livestock marketing in Ghana.

University of Legon: Institute of Statistical Social and Economic Research (ISSER)	This institute is funded by the United Nations and is located on the campus of Legon. Dr. K. Ewusi, head of economics research, has done studies on Ghana's macroeconomic policies. Information on household budget surveys is available in their library.
University of Science and Technology (UST), Kumasi	The head of the Department of Animal Production is Dr. Bando. Poultry and dairy production are the main areas of research conducted by the department at the research farm.
Upper Region Agricultural Development Project (URADEP)	This project is financed by the World Bank in an effort to decentralize the Ministry of Agriculture. The head office is in Bolgatanga and its Director is Dr. Akudu.

ABSTRACT

Livestock and meat marketing in Ghana has undergone structural changes over the past ten years. These changes are attributed to domestic economic policies as well as to factors outside the control of the country. A major policy directive is that import and distribution of livestock and meat products will be controlled by the Government, the major responsibility for imports being delegated to the Meat Marketing Board (MMB). Since 1975, the MMB has imported large quantities of meat from non-West African countries because these countries have been able to offer meat at lower prices.

Demand projections for red meat for 1985 indicate that consumption will be 49,000 metric tons (mt). This estimate is based primarily on the effects of population growth and rate of urbanization. If Ghana embarks on a policy of restricted trade in imported red meat, however, and allows the retail price for red meat to rise, effective demand would fall below the 1985 estimate. The highest demand for red meat is in urban areas. In Kumasi, for example, annual per capita consumption averaged 13.6 kg from 1970 through 1977. Shortfalls in domestic supplies created pressure on the Government to import large quantities of bone-in beef from 1975 to 1977 to insure political stability in the large urban areas of southern Ghana.

An increase in domestic livestock production will not reduce significantly the estimated 1985 gap between the total demand for and the production of red meat in Ghana. Analysis shows that in the short run domestic supplies cannot keep pace with increasing demand for animal protein. Shortages are expected to be at least 12,000 mt and could be as much as 34,000 mt in 1985.

Four factors are identified as limiting short-run increases in supply of red meat from domestic production:

-- Lack of a national policy and a central organization responsible for coordinating and implementing livestock development programs.

- -- Shortage of available breeding stock to build an improved traditional and commercial production system.
- -- Productivity of livestock herds in northern Ghana is declining because of high commercial offtake, especially breeding stock, compounded by high mortality rates in traditional herds.
- -- Inadequate infrastructure for transferring improved livestock management practices to the traditional production system.

Together, these factors have kept national cattle herd growth to an annual growth rate of less than 3 percent, with a high level of commercial offtake.

The cost of imported meat began to rise in 1978 and will continue to rise for three to four years. The Ghanaian Government imposed an import duty of 35 percent in 1978 on all imports of livestock and meat, which has increased retail prices. In 1978, the Ghanaian cedi was devalued by 58 percent, rendering all imported commodities more expensive. The rising world price of beef will place an added drain on scarce foreign exchange. In the early 1980s it is unlikely that Ghana will be in an economic position to expend large quantities of foreign exchange on red meat imports. If the Government allows the retail price of red meat to rise, demand will be dampened, but political considerations make it uncertain how high the Government will allow prices to rise.

Recent trade overtures between Ghana and its Sahelian neighbors give evidence of the possibility of future resumption of livestock trade. Even so, the trade is unlikely to attain the magnitude of the late 1960s and early 1970s. The type of livestock traded will likely be different. In the future, trade in livestock between Ghana and its Sahel partners will largely be under contract between Government agencies; fewer private traders will be able to trek livestock to the quarantine stations in Ghana without prior contracts and clearances.

In the short run, the poultry industry will play an important role in the supply of animal protein, especially for urban consumers. Fish will be a likely protein substitute, especially in the diets of households in southern Ghana.

CHAPTER ONE

OVERVIEW

I. - Ghana and its Economy

Since 1974 Ghana's general economy has been characterized by high inflation and shortages of inputs for production. Inflation has been attributed mainly to excessive Government expenditures (IBRD, 1976). Even though world prices for Ghana's export products have been favorable since 1973, foreign exchange for capital investment has been limited. Long-term debts from previous administrations continue to require payment. In December 1971, the civilian government of Dr. Busia devalued the cedi by 44 percent at the request of the International Monetary Fund (IMF). In January 1972, a coup d'etat by the military dissolved the Government. The following month the cedi was revalued, reducing the extent of the devaluation to 20 percent vis-à-vis the U.S. dollar. From 1972 until July 1978, the exchange rate was fixed at ¢1.15 = $1.00. With a change in military rulers in July 1978, the cedi was devalued by 51 percent. The previous military government's decision not to devalue the cedi and to fuel the economy with high government expenditures left the general economy in serious difficulty. The medium-term prospects for alleviating the economic turmoil are not encouraging without stringent import and export controls, reduction in smuggling, and increased domestic productivity.

A. - Agricultural Sector

1) - Exports

The agricultural and forest products sector is the most important source of foreign exchange for Ghana. From Table 1.1, it can be seen that these products accounted for 69 to 80 percent of the value of exports during the years 1966 to 1973, with cocoa and cocoa products

TABLE 1.1

AGRICULTURAL AND FORESTRY PRODUCT EXPORTS IN GHANA, 1967 TO 1973
(Millions of U.S. Dollars)

	1966[a]	1967[b]	1968[b]	1969[b]	1970[b]	1971[b]	1972[c]	1973[c]
Food and Live Animals	119.6	138.3	190.7	164.6	293.5	198.6	290.7	351.6
a) Cocoa and Cocoa Products	116.4	135.9	187.2	161.5	288.4	193.8	285.4	345.5
b) Coffee and Coffee Products	2.2	1.0	2.3	1.4	2.8	2.2	3.0	2.5
Crude Agricultural Matter	22.3	20.7	25.7	35.5	32.8	29.6	56.7	115.7
a) Wood/Lumber Products	17.8	19.6	25.0	34.3	32.5	28.6	55.4	113.0
Animal & Vegetable Oils & Fats	0.1	0.3	0.0	0.1	0.3	0.1	0.2	0.1
Total of Above	142.0	159.3	216.4	200.2	326.6	228.3	347.6	467.4
Total of Exports	191.4	213.1	294.6	289.8	406.4	310.9	490.8	635.1
Agri/Forestry Exports % of Total Exports	74.2	74.8	73.5	69.1	80.4	73.4	70.8	73.6
Cocoa and Cocoa Products % of Total Exports	60.8	63.8	63.5	55.7	71.0	62.3	58.1	54.4

SOURCE: External Trade Statistics.

[a]Exchange rate in US $ 1.00 = ¢1.17.

[b]Exchange rate is US $ 1.00 = ¢1.02.

[c]Exchange rate in US $ 1.00 = ¢1.15.

accounting for approximately 50 percent of the total value of exports. Total cocoa production has been declining since 1970 because producers have not been given incentives. Other important foreign exchange earners have been wood and lumber products; the value of exports of these products increased over 600 percent from 1966 to 1973.

2) - Imports

The value of imports of food and live animals increased 32 percent from 1971 to 1973 (Table 1.2). In 1972, the value of merchandise imports declined by 35 percent with the military government of General Acheampong's strict control of imported items; but in 1973 the value of these items returned to the level of 1971. The increased value of imports in 1973 was attributed to imports of food and live animals, cereals, sugar, and animal feedstuffs. Since 1973, the value of these imported commodities has increased. Livestock products in 1977 comprised 21 percent of agricultural imports.

Several important factors have contributed to the increase in expenditures on food and live animals since 1972. Agricultural production increased in 1973 and 1974 as a result of the Government's "Operation Feed Yourself." This was a temporary increase, however, since low rainfall in 1975 and 1976 caused a reduction in total output (see Table 1.3). Increased inflation in the country accompanied the fall in agricultural production. In Table 1.4, cost of living indices for 1972 to 1976 indicate that prices increased substantially; food prices were increasing, especially in 1975 and 1976, because of the reduced value of the cedi and an increased money supply. The increase in the cost of living was higher in rural areas; the greatest impact was on cash crop producers in the south, who paid higher prices for basic foodstuffs (USAID, 1975). Those urban dwellers whose incomes are fixed or tied to civil service wages have felt the impact of rising food prices the most. The effect of inflation on food prices is illustrated in Table 1.4. The rate of increase in food prices since 1976 has made Ghana's inflation rate second only to Argentina's in 1978.

TABLE 1.2

TOTAL GHANAIAN IMPORTS, 1971 TO 1973

	1971	1972	1973	1972 as a % of 1971	1973 as a % of 1971
	(millions of US$)[a]				
Total Merchandise Imports	434.28	283.74	438.25	65.3	100.9
Food and Live Animals	61.34	45.09	80.96	73.5	132.0
Live Animals	6.01	3.70	4.69	61.6	78.0
Meat and Meat Preparations	3.63	1.99	2.06	54.8	56.7
Dairy Products	10.97	5.68	6.83	51.8	62.3
Fish and Fish Preparations	13.13	11.67	33.77	88.9	257.2
Fruits and Vegetables	1.68	.66	1.28	39.3	76.2
Sugar, Sugar Preparations, and Honey	10.32	10.55	18.13	102.2	175.7
Spices and Manufactured Goods	.98	.36	.91	36.7	92.9
Feedstuffs for Animals	.77	.82	2.06	106.5	267.5
Miscellaneous Food Preparations	2.39	.87	1.01	36.4	42.3

SOURCE: External Trade Statistics.

[a]Exchange rate is US $ 1.00 = ¢1.15.

TABLE 1.3

INDICES OF AGRICULTURAL PRODUCTION IN GHANA, TOTAL AND PER CAPITA, 1972 TO 1976

	Total[a] (1961 to 1965 = 100)	Per Capita[a] (1961 to 1965 = 100)	Value of Livestock Production[b] ($1,000,000)
1972	109	76	30.1
1973	118	91	29.2
1974	121	91	29.2
1975	114	83	30.1
1976	117	83	30.5

SOURCE: [a]Africa and West Asia Agricultural Station, USDA, 1977.

[b]Indices of Agricultural Production in Africa and the Near East 1967-76, USDA, 1977.

TABLE 1.4

INCREASE IN COST OF LIVING
(March 1963=100)

	Total	Local Food	Imported Food	Rent
		National		
1967	156.0	169.5	132.3	102.0
1968	169.7	184.3	148.3	102.6
1969	181.8	200.1	151.7	102.9
1970	188.5	210.0	150.1	103.0
1971	206.0	236.1	146.5	103.1
1972	226.7	259.4	184.4	104.2
1973	266.4	313.3	214.2	104.5
1974	315.3	362.7	271.9	104.5
1975	408.9			
1976	721.9[a]			
		Urban		
1967	148.1	156.0	140.5	108.6
1968	159.5	168.5	158.6	111.1
1969	171.5	186.2	161.5	112.3
1970	176.2	189.9	161.6	112.8
1971	194.4	217.5	164.3	113.6
1972	216.8	247.6	215.4	117.5
1973	259.6	312.1	262.0	119.0
1974	313.1	375.3	311.5	119.0
		Rural		
1967	159.8	173.7	129.7	100.0
1968	172.9	189.2	145.1	100.0
1969	185.0	204.4	148.7	100.0
1970	192.4	216.3	146.5	100.0
1971	209.6	241.9	141.0	100.0
1972	228.9	263.0	174.8	100.0
1973	268.6	313.8	199.3	100.0
1974	316.1	358.7	259.4	100.0

SOURCE: Central Bureau of Statistics.

[a]September.

II. - Factors Influencing Demand for Animal Protein in Ghana

The important factors affecting the general trend in per capita consumption of animal protein in Ghana are population growth, rural-urban migration, and change in personal income.

A. - Population

The latest census was conducted by the Bureau of Census in 1970; national and regional populations from this census are given in Table 1.5. Growth rates have been estimated for different categories of the population up to 1985. The projected national population for 1985 is approximately 13.4 million people, a 33 percent increase over 1977. The national growth rate computed by the Bureau of Census is 2.7 percent from 1973 to 1980, increasing to 3.0 percent from 1980 to 1990.

It is estimated that the non-agricultural population will grow at a rate of 3.9 percent up to 1980 and then by 4.1 percent to 1990. The distribution of the population into more service-oriented work and away from the agricultural sector will place increased pressure on available animal protein.

B. - Rural-Urban Migration

Urbanization in Ghana has become a problem for the Government. The rate of growth of urban areas, especially the capital of Accra, has been estimated to be three times that of rural areas (Table 1.5). Government services have been unable to keep pace with the expanding urban communities. The supply of animal protein to urban centers has not been adequate to satisfy urban requirements; long queues for available meat have been observed in the urban areas since 1976.

The actual population of urban areas could be higher than the estimates of the Bureau of Census shown in Table 1.6. With the decline in the economy since 1975, more families may be moving to the large urban centers, expecting that better job opportunities would be available. This will put added pressure on the Government to supply animal protein in order to maintain political stability.

TABLE 1.5

POPULATION PROJECTIONS FOR GHANA 1970, 1978, 1985, AND AVERAGE ANNUAL GROWTH RATES

Regions	Projected Population (Thousands) 1970	1977	1985	Estimated Population Growth Rates 1973-1980	1981-1990
Western	770	906	1,202	2.3%	2.3%
Central	890	1,047	1,389	1.9%	1.9%
Eastern	1,261	1,480	1,963	1.6%	1.6%
Volta	947	1,118	1,482	2.2%	2.2%
Ashanti	1,481	1,742	2,310	3.1%	3.1%
Brong-Ahafa	766	906	1,202	2.8%	2.8%
Northern	727	856	1,135	3.3%	3.3%
Upper	862	1,017	1,349	1.5%	1.5%
Greater Accra	851	997	1,332	5.8%	5.8%
NATIONAL	8,555	10,069	13,364	2.7%	2.7%
Urban Population	2,475	3,483	5,170	5.0%	5.1%
Rural Population	6,083	6,818	7,741	1.6%	1.6%
Agricultural Pop.	4,873	5.521	6,399	1.8%	1.9%
Non-Agricultural Pop.	3,685	4,817	6,605	3.9%	4.1%

SOURCE: Bureau of Census.

C. - Income

Gross Domestic Product (GDP) from 1971 to 1974 increased slightly despite a sharp decline in 1972, but it is believed that from 1974 to the present the rate of growth has fallen (see Table 1.7). Per capita GDP increased from 1972 to 1974. With the rise in cost of living, real income declined over this period and beyond. From 1971 to 1975, per capita income was estimated to have declined by 2 percent per annum, caused by a decline in industrial production and investment resulting from foreign exchange shortages (IBRD, 1976).

The effect of income on consumption of red meat is not easily discernable because of the current state of the economy. Market operations have been distorted by Government control of retail prices and through shortages of consumer goods. The decline in consumers' real income from 1971 to 1978, especially in urban areas, could be expected to reduce the percentage of household expenditures on animal protein; red meat has become more of a luxury.

III. - The Shift in Consumption toward Poultry, Pork, and Fish

The Government established controlled prices in an effort to limit inflation in the cost of food. The result was an increase in black market sales of food commodities. Since 1976, the number of import licenses for animal products has been reduced by 50 percent. Domestic supplies of live animals have increased, but not enough to satisfy demand for animal protein. Traders in the marketing channels have increased their price margins because of the scarcity of meat.

Consumption of beef has shifted in favor of poultry and pork; the subsector producing these products has responded favorably in the last five years because of the shortage of beef. The Government has tried to encourage the poultry subsector by allowing large imports of feed grains and parent stock for hatcheries. As seen in Table 1.2, the value of imported feedstuffs increased by 267 percent from 1971 to 1973.

TABLE 1.6

ESTIMATED POPULATION FOR SELECTED REGIONAL CAPITALS IN GHANA FOR 1970, 1977, AND 1985

Regional Capitals	1970	1977	1985
Accra	564,200	739,700	1,310,100
Kumasi	260,300	321,700	489,600
Cape Coast	51,700	58,400	78,500
Takoradi/Sekondi	91,900	101,900	132,300
Tamale	83,700	135,200	279,900
Bolgatanga	18,900	30,600	56,533

SOURCE: Bureau of Census, Population Census 1970.

TABLE 1.7

INCOME GROWTH IN GHANA FROM 1968 TO 1974

	GDP[a] (¢ million)	National[b] Population (million)	Per Capita GDP (cedis)	Rate of Growth of GDP (percent)
1968	1,700.19	8.115	209.5	--
1969	1,799.89	8.337	215.9	3.1
1970	1,921.68	8.559	224.5	4.0
1971	2,029.30	8.757	231.7	3.2
1972	1,978.44	8.955	220.9	-4.7
1973	2,088.09	9.153	228.1	3.3
1974	2,195.60	9.351	234.8	2.9

[a]SOURCE: Five Year Development Plan.

[b]SOURCE: Central Bureau of Statistics.

In 1978, approximately 1.5 million day-old chicks were imported for commercial poultry operations. Production in the poultry subsector has leveled off recently, however, constrained by the plant capacity of domestic hatcheries as well as by available supplies of feedgrains.

In southern Ghana, fish has always been an important item in household expenditures. As seen in Table 1.2, the value of imports of fish and fish preparations was greater than that of imports of live animals, meat, and meat preparations. With the price of animal protein rising, there should be larger household expenditures on fish and fish preparations.

CHAPTER TWO

CURRENT PATTERN OF ANIMAL PROTEIN CONSUMPTION IN GHANA

The pattern of consumption of red meat in Ghana changed significantly between 1967 and 1977. Since 1975 traditional supplies of live animals from the Sahel have been replaced to a large extent with imports of frozen meat from non-West African nations, primarily from South America. At the same time the government instituted regulation of retail prices. Supplies of fresh meat were replaced by less expensive frozen meat purchased by the Meat Marketing Board (MMB), a Government-controlled organization responsible for importation of livestock and meat. These supplies were not sufficient to satisfy demand at the Government's controlled price, resulting in meat shortages.

I. - Red Meat Consumption, 1967 To 1977

Meat consumption for the nation has been estimated for the period 1967 to 1977 from available information (Table 2.1). Per capita consumption of meat was based on recorded meat purchases and slaughters. Home slaughter, especially in the rural areas, is not included in the estimates. Game animals, particularly grasscutters, are important sources of meat in the forest areas of southern Ghana but are not included in the estimates because of a lack of statistical data. Previous estimates for the categories of meat items found in Table 2.1 (e.g. Ministry of Agriculture, 1972) correspond closely to the figures in the table.

For the period of 1967 to 1971, per capita consumption averaged approximately 2 kg annually. This period was one when the borders were open for trade, enabling expatriate cattle traders to transport livestock directly to southern Ghana. Estimates indicate that per capita consumption of red meat declined thereafter, partially because of the disruption of traditional trade caused by a Government decision to have all foreign cattle traders sell to Ghanaian cattle traders at the border

TABLE 2.1

SALES DISAPPEARANCE OF MEAT[a] IN GHANA, 1967 TO 1977

Year	Cattle (mt)	Sheep (mt)	Goat (mt)	Beef/ Veal (mt)	Mutton & Sheep (mt)	Corn Beef (mt)	Salted Beef (mt)	Offals (mt)	Total Meat[a] (mt)	Human Population (mt)	Per Capita Consumption of Meat (kg)	Est. Per Capita Consumption by Min. of Ag. (kg)
1967	9,618	599	1,676	188	1,206	1,700	490	63.40	15,540	7,901.7	2.00	1.99
1968	10.006	749	1,845	25.8	1,409	483	481	193.00	15,192	8,115.0	1.87	1.79
1969	10,702	763	1,689	169	1,701	1,359	475	131.00	16,989	8,337.0	2.03	1.92
1970	11,476	726	1,739	181	2,395	1,927	400	108.00	18,952	8,559.0	2.21	2.24
1971	12,103	729	1,632	93.4	1,544	1,235	538	94.00	17,968	8,575.0	2.10	2.15
1972	12,215	798	1,700	58.7	514	736	80	.09	16,102	8,955.0	1.80	
1973	12,062	856	2,075	9.1	369	167	228	17.90	15,784	9,153.0	1.72	
1974	14,205	831	2,168			(2,995)[c]			20,199	9,351.0	2.16	
1975	12,122	960	2,158	196	1,137	258	166	9.30	17,006	9,551.0	1.79	
1976	10,265	1,006	2,357			(19,911)[c]			33,539	9,809.3	3.42	
1977	10,899	1,105	2,436			(10,173)[c]			24,613	10,069.0	2.44	

[a]Considers only official slaughters of livestock.

[b]Includes offals. Edible portion of animals are: 275.0# for cattle, 22.8# for sheep, and 32.5# for goats.

[c]Estimates for meat imports are derived from MMB and GIHOC meat imports for these years. All other years use External Trade Statistics.

quarantine stations. This policy had the effect of diverting some of the trade to other West African nations. Per capita consumption increased to 2.2 kg in 1974, after declines in 1972 and 1973. The increase resulted from a heavier volume of cattle imports as the Sahelian drought continued as well as from higher imports of meat products. Imports of live cattle declined once again in 1975 because the MMB price per kg liveweight was below the price offered in other West African coastal countries. Per capita consumption of meat increased in 1976 and 1977, this time entirely as a result of the Government's efforts to import frozen meat.

The magnitude of this turn from live animals to frozen meat is readily apparent. In 1975, 3292 metric tons (mt) of meat were imported, or only 19 percent of the total consumption of the types of meat listed in Table 2.1. In 1976, there was a dramatic change as imported meat increased to 59 percent of official meat supplies. It fell to 41 percent in 1977 however, because a limited number of import licenses were issued for purchases of frozen meat.

Important to note is that estimates of national consumption of local bushmeat have been as high as 37,000 mt annually, a figure which represents 58 percent of all animal protein consumed in 1966 and 1967 (St. John Clottey, 1969). From personal interviews with livestock officials, the author determined that the supply of bushmeat is declining because of overharvesting of wild game. This implies that the gap between domestic production and consumption of meat will continue to widen, necessitating increased dependence on external supply sources for animal protein for some period of time.

II. - Urban Meat Consumption

To estimate urban consumption of meat during the period 1967 to 1977, six regional capitals were selected for examination of quarterly and annual consumption patterns. The two largest urban centers, Accra and Kumasi, were selected to give an estimate for cities with high population growth rates and high per capita income (see Figure 3.1 for their

locations). Two coastal urban areas were also selected, Cape Coast and Takoradi/Sekondi, since they receive imported livestock from the Kumasi central livestock market. Finally, the centers of the livestock surplus in northern Ghana, Tamale and Bolgatanga, were picked. Quarterly data on sales disappearance of slaughter livestock for the 1967 to 1977 period are presented in Tables 2.2, 2.3, and 2.4. Statistics on the slaughter pigs were available since Veterinary Services inspects and records all slaughters at urban abattoirs and were included for comparison.

The tables show that fresh meat was more plentiful in Kumasi than in the other urban centers for all red meat categories. Kumasi, even though it has a smaller population than Accra, is the central market for live cattle transported from northern Ghana. Kumasi's relatively high standard of living and level of per capita income cause a higher demand for animal products. After conversion of liveweight to meat equivalents including offals (footnote b, Table 2.1), the trend in available fresh meat is graphed in Figure 2.1. Supply of fresh meat was fairly stable in Accra until the fourth quarter of 1970, when slaughters began to fall. The decline, which continued until the end of 1971, can be attributed to the Government policy barring expatriates from importing cattle. All marketing functions inside the country had to be handled by Ghanaians, and supply channels were disrupted as a result. The same phenomenon also affected Kumasi's cattle trade. In the third quarter of 1970, Kumasi's slaughter level was for once less than Accra's.

Fresh meat availability in Accra recovered from the fourth quarter of 1971 and remained at levels higher than before through the end of 1974. The Meat Marketing Board's switch to frozen meat then made itself felt as fresh meat supplies declined continuously in every quarter but two through 1977. In Table 2.6, per capita consumption of fresh meat in Accra was 3.05 kg per capita in 1970. By 1977, it had fallen to 2.63 kg. When the supply of imported frozen meat is included (Table 2.5), however, total per capita consumption increased 51 percent to 4.62 kg. The Government's policy was to control prices for frozen meat below the market price for fresh meat. Much larger amounts of pork were slaughtered in Accra compared to the other five regional capitals (see Table 2.2). Increased demand has encouraged swine production in the Greater Accra region.

TABLE 2.2

QUARTERLY LIVESTOCK SLAUGHTER OF CATTLE, SHEEP, GOATS, AND PIGS FOR THE CITIES OF KUMASI AND ACCRA, 1967 TO 1977
(Head)

		Kumasi				Accra			
Year	Qtr.	Cattle	Sheep	Goats	Pigs	Cattle	Sheep	Goats	Pigs
1967	1	.	.	.	.	2266	2266	1521	2487
	2	.	.	.	.	2249	2249	1567	1938
	3	.	.	.	.	2680	2680	2145	2600
	4	.	.	.	.	2624	2624	1526	2559
1968	1	.	.	.	.	2498	1674	1558	2850
	2	.	.	.	.	2394	1737	1836	3723
	3	.	.	.	.	2497	2008	2234	2452
	4	.	.	.	.	2496	1978	2203	3019
1969	1	.	.	.	.	2462	851	2270	2804
	2	.	.	.	.	2224	716	1648	1785
	3	.	.	.	.	2617	807	1657	2457
	4	.	.	.	.	2373	708	1458	2471
1970	1	4270	1668	2361	265	2487	794	1420	2878
	2	5226	2222	3226	293	2831	846	1586	2853
	3	1962	768	1006	52	2777	726	1604	1891
	4	2866	2270	2919	274	2162	696	1442	1850
1971	1	6159	2021	2508	187	1512	594	811	233
	2	6724	2685	3482	174	1309	403	706	227
	3	6810	2462	3126	145	1147	462	773	196
	4	7377	2029	2772	155	1226	589	871	334
1972	1	5728	2116	2760	182	2494	680	1138	1781
	2	6646	2375	2691	194	2777	767	1231	1804
	3	7476	6346	3188	186	2842	865	1476	2055
	4	7906	2157	3012	240	5030	1587	2814	3530
1973	1	6447	1979	1944	286	5103	2033	3171	3446
	2	6773	2575	3642	282	4674	2879	4713	3477
	3	7638	2180	3715	332	4131	2542	4238	1669
	4	7287	1610	187	187	3950	2657	4884	2243
1974	1	6612	2033	4286	131	4700	1772	2539	1986
	2	7675	2323	4741	203	4773	2173	3381	1606
	3	8335	3362	2730	232	6166	2069	3211	1640
	4	8586	1336	2788	219	5663	2147	2587	2271
1975	1	8028	1787	3129	293	7200	2226	2375	2916
	2	7654	2309	3532	269	4599	2770	2892	3096
	3	7070	1829	2752	181	3549	2644	2657	2481
	4	8697	2385	1709	94	2952	2793	3022	2860
1976	1	6563	2084	3200	269	3283	3036	3092	3429
	2	7354	3189	4775	298	4106	3627	3660	3173
	3	9263	3680	4150	253	3192	2621	2445	2286
	4	7335	2055	3261	144	2984	1905	1195	1918
1977	1	7774	3492	4602	190	3123	1553	1648	1644
	2	8472	4134	4198	287	2796	1447	1535	1427
	3	8046	3516	4868	183	2323	1273	1295	871
	4	8610	2138	3098	165	2227	1619	1458	1162

SOURCE: Annual district reports consulted in Regional capitals during personal visits.

TABLE 2.3

QUARTERLY LIVESTOCK SLAUGHTER OF CATTLE, SHEEP, GOATS, AND PIGS FOR THE CITIES OF CAPE COAST AND TAKORADI/SEKONDI, 1967 TO 1977
(Head)

		Cape Coast				Takoradi/Sekondi			
Year	Qtr.	Cattle	Sheep	Goats	Pigs	Cattle	Sheep	Goats	Pigs
1967	1	.	.	.	.	988	307	496	304
	2	.	.	.	.	911	345	526	359
	3	.	.	.	.	940	417	551	370
	4	.	.	.	.	917	542	457	365
1968	1	.	.	.	.	800	408	491	400
	2	.	.	.	.	887	585	721	522
	3	.	.	.	.	822	488	660	450
	4	.	.	.	.	839	264	431	449
1969	1	.	.	.	.	778	298	491	368
	2	.	.	.	.	812	318	498	345
	3	.	.	.	.	756	276	395	308
	4	.	.	.	.	804	295	316	302
1970	1	.	.	.	.	790	293	340	291
	2	.	.	.	.	846	363	435	277
	3	.	.	.	.	861	324	363	266
	4	.	.	.	.	870	265	407	377
1971	1	.	.	.	.	765	308	392	271
	2	.	.	.	.	943	343	415	231
	3	.	.	.	.	901	399	637	205
	4	.	.	.	.	814	387	452	208
1972	1	.	.	.	.	810	411	592	394
	2	.	.	.	.	632	644	886	375
	3	.	.	.	.	686	822	1232	298
	4	.	.	.	.	703	884	1189	510
1973	1	.	.	.	.	607	757	1638	567
	2	.	.	.	.	720	743	2668	377
	3	.	.	.	.	923	968	2536	609
	4	.	.	.	.	1253	643	1631	585
1974	1	306	740	1046	168	1340	788	2112	509
	2	208	821	1505	196	1755	688	2552	594
	3	209	677	721	146	1245	1160	2298	340
	4	385	514	432	162	1325	1020	1158	313
1975	1	317	568	564	196	1513	964	752	336
	2	100	740	823	151	869	839	1184	304
	3	55	870	933	146	793	650	1184	352
	4	47	840	653	140	1052	1531	1022	333
1976	1	21	754	666	172	549	444	459	277
	2	53	1363	742	82	455	907	455	377
	3	95	1196	920	82	522	846	1036	226
	4	81	1238	752	81	618	1198	1174	227
1977	1	61	773	597	141	551	1356	1236	204
	2	44	952	721	161	558	1939	1951	264
	3	46	1227	880	148	521	1122	1499	240
	4	35	990	962	94	771	1040	1159	191

SOURCE: Annual district reports consulted in Regional capitals during personal visits.

TABLE 2.4

QUARTERLY LIVESTOCK SLAUGHTER OF CATTLE, SHEEP, GOATS, AND PIGS FOR THE CITIES OF BOLGATANGA AND TAMALE, 1967 TO 1977
(Head)

		Bolgatanga				Tamale			
Year	Qtr.	Cattle	Sheep	Goats	Pigs	Cattle	Sheep	Goats	Pigs
1967	1	.	.	.	.	.	.	.	.
	2	.	.	.	.	.	.	.	
	3	.	.	.	.	.	.	.	.
	4	.	.	.	.	.	.	.	.
1968	1	.	.	.	.	.	.	.	.
	2	406	162	1205	77	.	.	.	.
	3	545	273	1181	20	.	.	.	.
	4	564	126	1297	27	.	.	.	.
1969	1	607	78	1313	28	.	.	.	.
	2	595	121	1667	39	.	.	.	.
	3	564	228	1239	5	.	.	.	.
	4	590	98	1126	.	.	.	.	.
1970	1	618	49	1640	.	831	503	1001	.
	2	660	74	2099	.	1041	856	1123	13
	3	624	143	1503	.	1073	923	1281	11
	4	713	79	1556	.	1214	822	1177	13
1971	1	458	73	1422	.	1013	750	1216	6
	2	623	103	1632	.	1173	1091	1594	3
	3	498	158	1503	.	1072	635	1285	5
	4	555	123	1431	.	1267	610	1067	7
1972	1	1090	131	2026	.	1094	712	1114	8
	2	545	166	1425	.	1172	1568	1908	.
	3	508	108	1525	.	1049	982	1948	7
	4	445	74	1041	.	1057	624	1327	12
1973	1	584	57	790	.	750	561	1576	26
	2	491	124	1387	29	755	1097	1945	22
	3	344	434	1466	20	767	1075	2213	16
	4	460	101	1514	28	1136	735	1847	5
1974	1	532	98	1535	15	916	838	1650	1
	2	728	248	2350	51	937	1697	2841	5
	3	538	344	3138	23	1044	1507	2698	2
	4	1413	555	2907	152	1158	1072	1951	.
1975	1	1333	239	1789	384	1007	733	1750	3
	2	913	323	2150	206	778	2233	2755	14
	3	514	307	2173	86	748	1794	2770	3
	4	802	242	2283	76	963	1134	2364	5
1976	1	568	207	1789	185	692	900	2000	1
	2	777	937	2501	209	783	1493	2725	1
	3	619	283	3483	145	998	1228	2449	.
	4	740	546	2752	57	1048	874	1857	19
1977	1	693	185	2451	83	820	710	2243	8
	2	895	486	3348	155	856	1453	2856	8
	3	573	394	3531	88	1088	1564	3433	17
	4	666	321	2175	57	977	757	1592	21

SOURCE: Annual district reports consulted in Regional capitals during personal visits.

FIGURE 2.1

QUARTERLY SUPPLY OF FRESH MEAT FOR ACCRA AND KUMASI, 1967 TO 1977

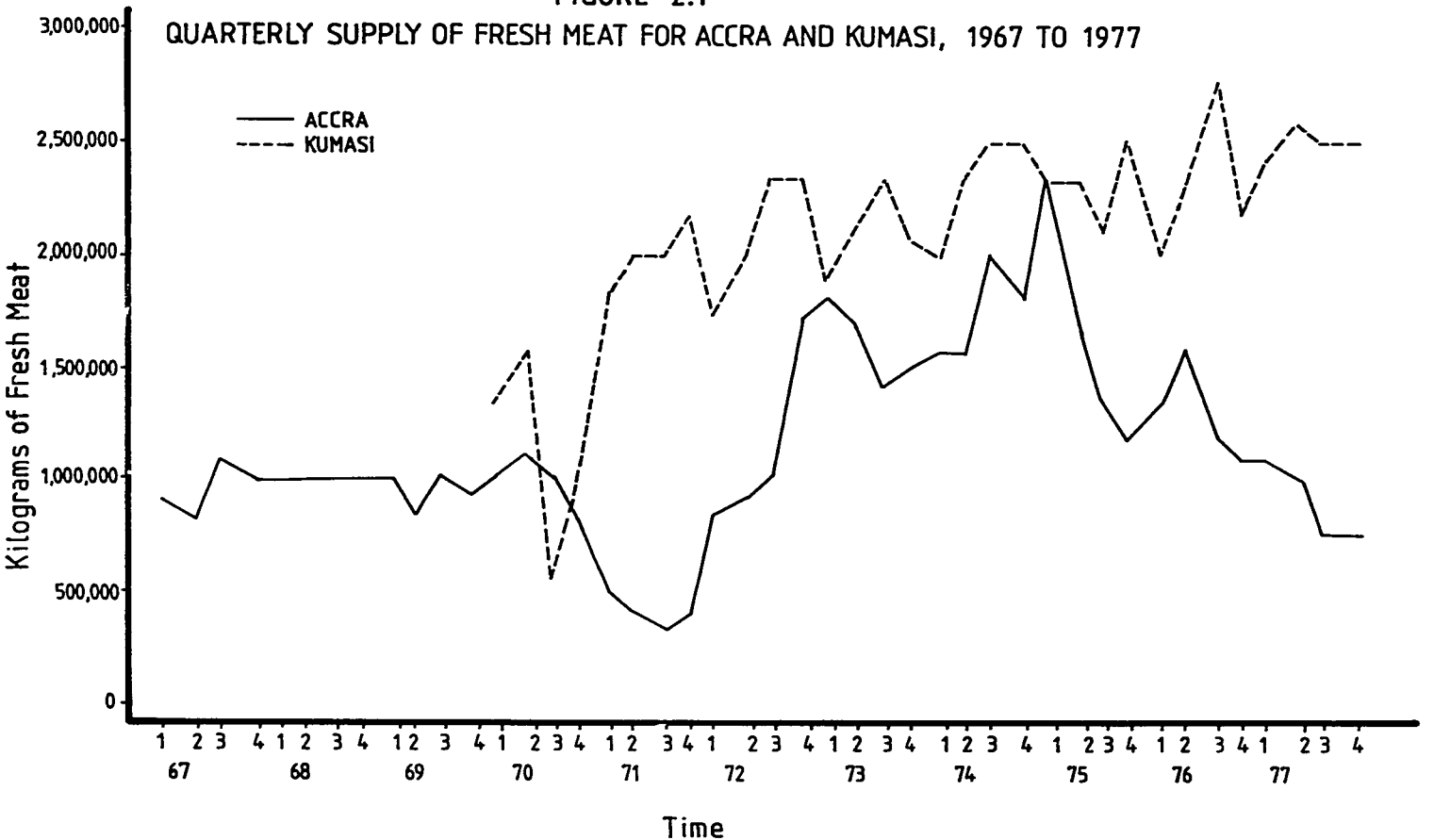


TABLE 2.5

QUANTITY OF IMPORTED FROZEN MEAT DISTRIBUTED TO SELECTED REGIONAL CAPITALS BY THE MMB FROM JULY 1976 TO JUNE 1977

Regional Capital	Quantity (kg)	Percent of Total
Bolgatanga	85,334	2
Tamale	90,683	2
Kumasi	347,394	8
Accra	3,263,233	74
Cape Coast	370,925	8
Takoradi/Sekondi	284,521	6
TOTAL	4,442,080	100

SOURCE: Files of MMB, Accra Office.

TABLE 2.6

ANNUAL PER CAPITA CONSUMPTION OF MEAT IN SELECTED REGIONAL CAPITALS OF GHANA

Regional Capital	Fresh Meat 1970 (kg/cap)	Fresh Meat 1976 and 1977 (kg/cap)	Total Red Meat[a] 1976 and 1977 (kg/cap)
Bolgatanga	10.16	18.82[b]	21.64[b]
Tamale	7.39	4.82	5.09
Kumasi	7.80	13.97	14.46
Accra	3.05	2.63	4.62
Cape Coast	4.40[c]	2.35	5.26
Takoradi/Sekondi	5.39	4.40	5.67

[a]Total meat includes fresh meat plus frozen meat supplied by MMB.

[b]Per capita consumption is probably overestimated as a result of a low estimate of Bolgatanga's population in 1977.

[c]1974.

In Kumasi, the supply of fresh meat averaged 1,020 mt quarterly since 1971. Noticeable fluctuations from 1970 to 1977 can be attributed to seasonal variations in commercial offtake from traditional herds in northern Ghana (Figure 2.1). Because of Kumasi's higher income level, per capita consumption of fresh meat was 7.80 kg in 1970, or three times the national average (Table 2.6). Imported frozen meat has had a small impact on per capita consumption in this city. Kumasi has received less than 10 percent of the imported frozen meat shipped by MMB to select regional capitals (Table 2.5); based on population projections from the 1970 census, 1977 per capita consumption of frozen meat was estimated to be approximately 1.33 kg.

The two smaller southern urban centers selected were Cape Coast and Takoradi/Sekondi. Fresh meat supply in Takoradi was fairly stable until 1973, when supplies of fresh meat began to increase rapidly from 136 mt to 272 mt in the second quarter of 1974, corresponding to the period of drought in the Sahel (Table 2.3 and Figure 2.2). By the end of 1975, however, supplies of fresh meat in Takoradi decreased to 91 mt. Furthermore, per capita consumption of fresh meat declined in 1977 from the 1970 level in both cities (Table 2.6).

The final two regional capitals selected were Bolgatanga and Tamale; both cities are from the livestock-surplus regions of northern Ghana. Since 1976, the supply of fresh meat for both towns averaged approximately 136 mt per quarter. Because of the predominance of Islam, pork consumption is lower in Bolgatanga and significantly lower in Tamale than in the other regional capitals studied (see Figure 2.3). In addition, the supply of fresh meat in Tamale and Bolgatanga is not particularly susceptible to seasonal swings. Because of the need for cash by farmers and meat for local festivals, slaughter figures for the other cities do show seasonal patterns.

Per capita consumption for 1970 was 10.16 kg for Bolgatanga and 7.39 kg for Tamale (Table 2.6). Based on projected population figures, Bolgatanga's per capita red meat consumption doubled between 1970 and 1977. Because of the meat processing plant operated by GIHOC (Ghana Industrial Holding Corporation), slaughter figures are higher in Bolgatanga than in Tamale. GIHOC also operates a retail outlet in Bol-

FIGURE 2.2
QUARTERLY SUPPLY OF FRESH MEAT FOR CAPE COAST AND TAKORADI, 1967 TO 1977

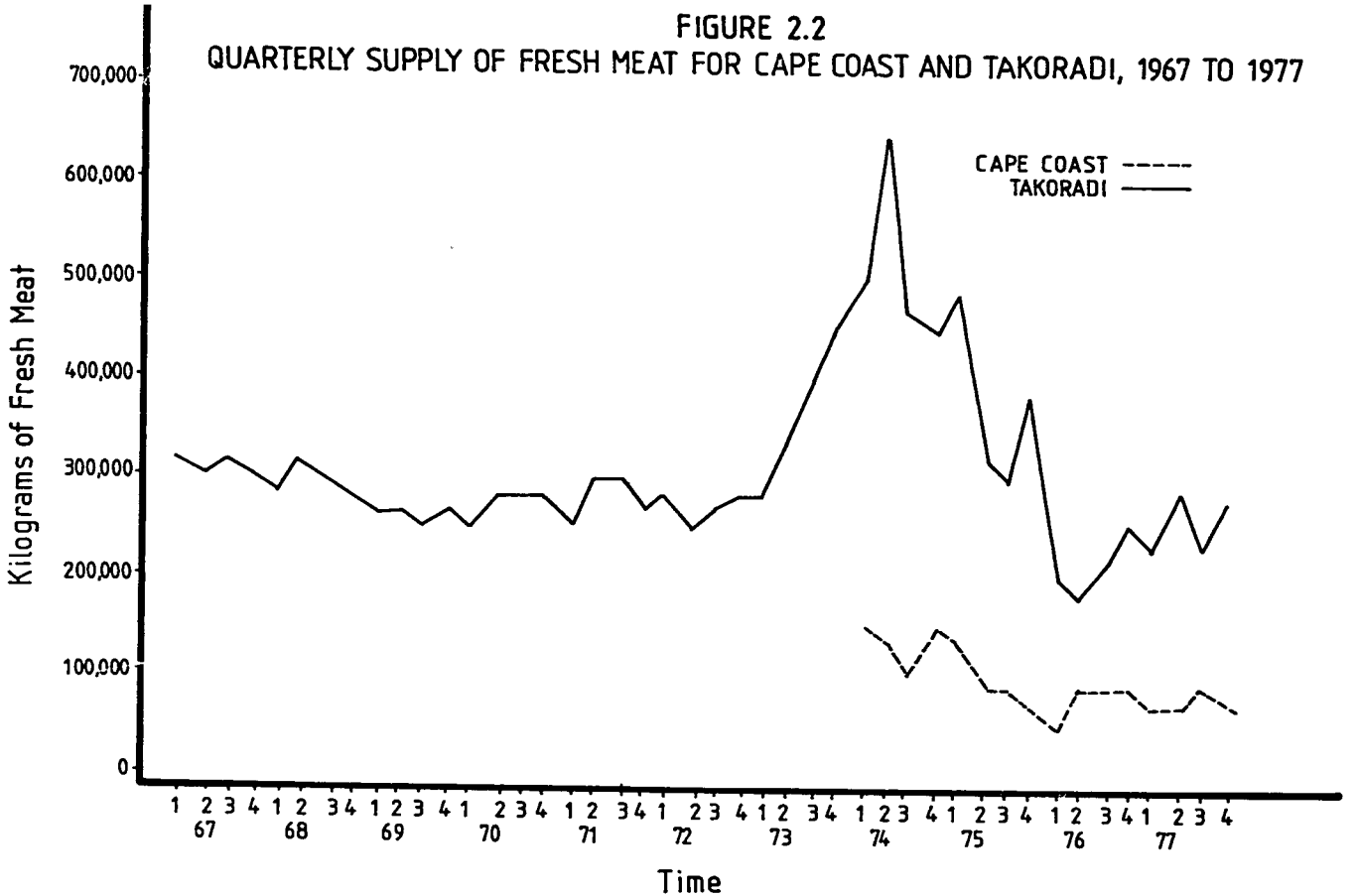
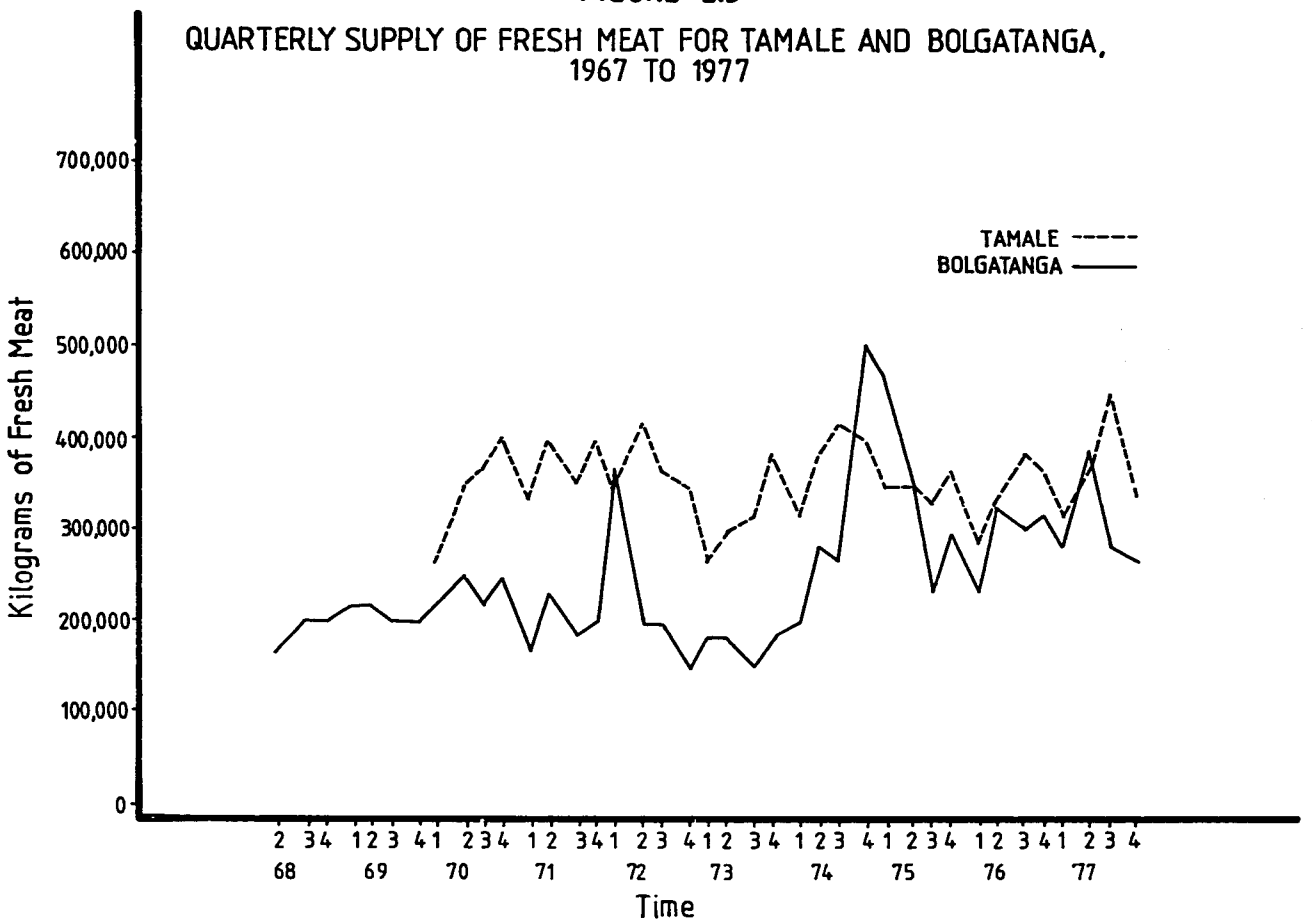


FIGURE 2.3

QUARTERLY SUPPLY OF FRESH MEAT FOR TAMALE AND BOLGATANGA, 1967 TO 1977



gatanga to sell meat directly from the plant. In Tamale, per capita consumption of fresh meat declined 35 percent from the 1970 level to 4.82 kg in 1977. The impact of imported frozen meat has been negligible (Table 2.5), so that overall consumption of red meat per capita was 5.09 kg. Because of their distance from the coast, these regional capitals received only two percent of the imported frozen meat distributed to the six regional capitals.

CHAPTER THREE

SUPPLY OF LIVESTOCK: BEEF, MUTTON, AND GOAT MEAT

I. - Livestock Production

In Ghana, production of beef, mutton, and goat meat has lagged behind other industries in the agricultural sector. The value of livestock production has been less than ten percent of Ghana's total agriculture output. Ghana has traditionally been an importer of livestock and meat, and the value of imports of livestock products has been increasing.

A. - Livestock Populations

In 1977, Ghana had an estimated 823,661 cattle, 1,129,850 sheep, and 874,200 goats (see Table 3.1). However, through personal interviews with veterinary officers, it was determined that the reported statistics on small ruminants are less reliable than those on cattle because the census stressed ownership of cattle. The distribution of livestock by region in Ghana is described in Table 3.2.

B. - Livestock Production Zones

Ghana can be divided into three livestock production zones for evaluating commercial offtake (see Figure 3.1). The zones are delimited according to variances in vegetation, rainfall, and livestock distribution.

1) - Guinea Savannah Zone

The most significant livestock production area of Ghana is the Guinea Savannah Zone (Zone I), which is comprised of the Northern and Upper Regions, and part of the Brong Ahafo Region (see Figure 3.1).

TABLE 3.1

COMPOSITION OF LIVESTOCK HERD IN GHANA, 1967 TO 1977

Year	Bulls (hd)	Young Bulls (hd)	Steers (hd)	Cows (hd)	Heifers (hd)	Calves (hd)	Total Cattle (hd)	Sheep (hd)	Goats (hd)	Swine (hd)	Poultry (hd)
1969	29,154	65,406	38,686	252,862	114,077	105,918	606,103	681,209	592,669	143,415	3,407,979
1970	26,333	63,745	34,573	251,688	114,083	109,022	599,444	676,075	605,073	128,116	3,139,214
1971	27,044	65,154	37,173	254,128	119,571	110,979	614,049	715,181	602,940	137,086	3,943,102
1972	24,441	59,776	35,396	288,588	112,723	111,606	632,530	804,469	667,992	141,417	3,980,596
1973	28,687	58,680	40,354	234,313	102,350	104,272	568,656	873,044	742,212	140,151	3,647,434
1974	26,439	60,220	41,816	247,723	115,447	103,110	594,755	902,036	744,114	124,494	4,225,249
1975	37,372	77,542	56,699	321,799	139,737	143,479	776,628	905,767	779,048	155,634	3,785,225
1976	40,979	76,181	48,326	333,281	143,551	146,580	788,898	900,472	790,428	139,717	3,797,330
1977	43,649	78,737	52,277	351,373	149,478	148,144	823,658	1,129,850	874,200	151,007	4,580,089

SOURCE: Veterinary Services.

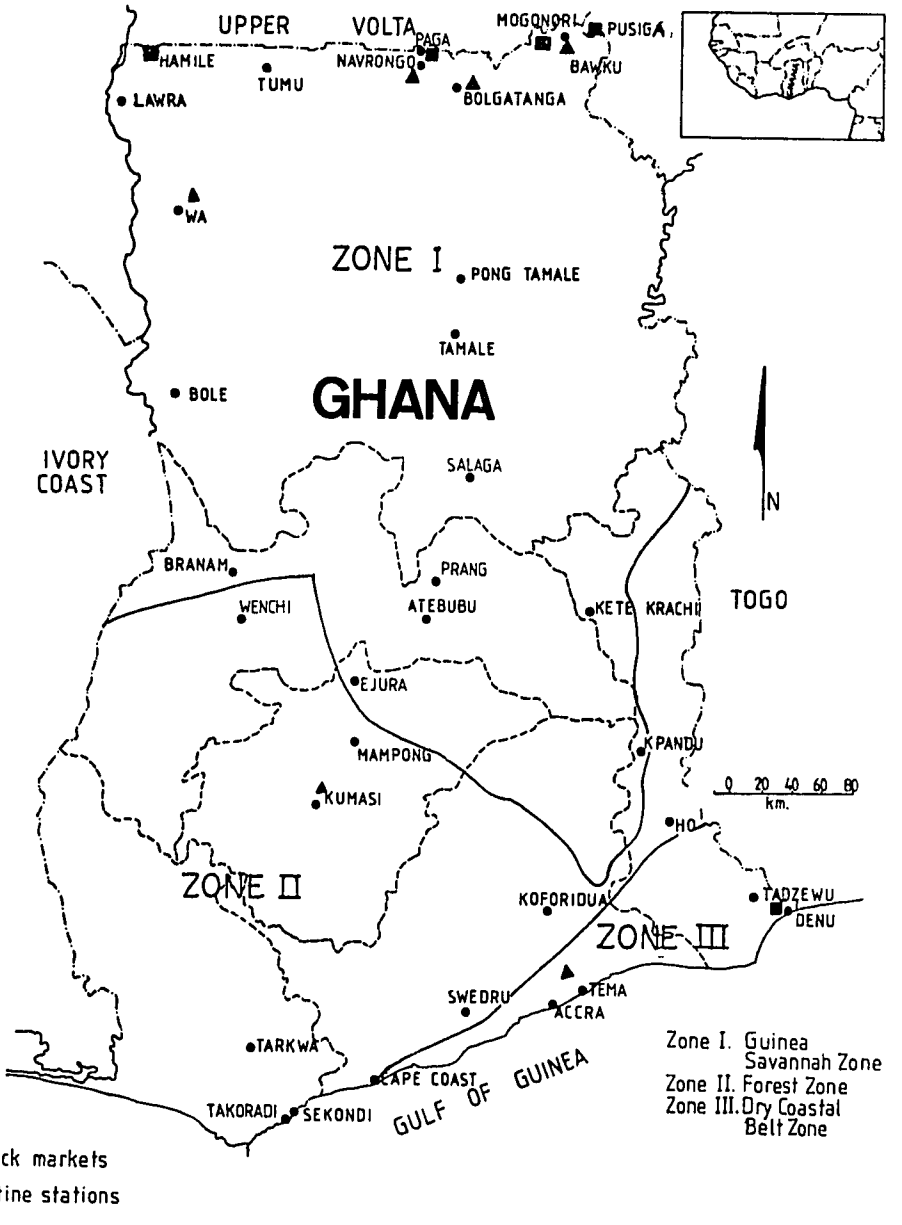
TABLE 3.2

DISTRIBUTION OF LIVESTOCK BY POLITICAL REGION, 1977

Zone	Region	Cattle (hd)	% of Total	Sheep (hd)	% of Total	Goats (hd)	% of Total	Swine (hd)	% of Total	Poultry (hd)	% of Total
2	Ashanti	5,453	1	166,299	15	71,399	8	11,383	8	1,082,016	24
1,2	Brong Ahafo	26,324	3	88,535	8	72,341	8	12,217	8	293,486	6
2,3	Central	4,607	1	39,751	4	34,000	4	9,882	7	542,079	12
2	Eastern	8,226	1	74,142	7	77,594	9	4,489	3	399,014	9
3	Greater Accra	66,029	8	27,214	1	26,416	2	11,998	8	512,503	11
1	Northern	307,954	37	312,192	28	223,367	26	45,625	30	775,412	17
1	Upper	313,846	38	233,748	21	228,367	26	28,139	19	544,765	12
2,3	Volta	88,333	11	93,064	8	92,482	11	24,529	16	194,705	4
2	Western	2,889	--	94,905	8	48,148	6	2,745	1	236,109	5
	Total	823,661	100	1,129,850	100	874,200	100	151,007	100	4,580,089	100

SOURCE: Veterinary Services.

FIGURE 3.1
LIVESTOCK PRODUCTION ZONES IN GHANA



Zone I comprises 52 percent of Ghana's land area, approximately 75 percent of the cattle, 56 percent of the sheep, 63 percent of the goats, and 54 percent of the pigs (see Tables 3.2 and 3.3). However, the Guinea Savannah Zone has only a few of Ghana's large-scale livestock operations (Table 3.4). The rainy season occurs during the months of May through November, with an average annual rainfall of forty to fifty inches per year. Because of the distribution and amount of annual rainfall, the incidence of livestock diseases, especially trypanosomiasis, is fairly low.

2) - Forest Belt Zone

The next largest production zone, the Forest Belt Zone (Zone II) encompasses 34 percent of the total land area of Ghana. Zone II includes the Western and Central Region, two-thirds of the Ashanti and Eastern Regions, and part of Brong Ahafo and Volta regions. Because of higher degrees of trypanosomiasis and scarce grazing areas (there is intensive cash cropping), livestock production is far lower here than in the other two zones. The Forest Belt Zone has about 5 percent of Ghana's cattle population, 32 percent of the sheep population, and 25 percent of the goat population. Because maize production areas are nearby, many large scale poultry farms are located here. Rainfall is higher in this zone -- between forty and eighty inches each year -- and tropical diseases occur more frequently, which in turn limits livestock production.

3) - Dry Coastal Belt Zone

The Dry Coastal Belt (Zone III) is an area extending from the Togo border to near Cape Coast. The western part receives thirty to thirty-five inches of rainfall per year, while the eastern part receives twenty-two to thirty-five inches. This zone has the potential for increasing its livestock production for several reasons. First, the drier climate and the distribution of rainfall reduce the problem of trypanosomiasis. Second, nearness to large urban centers has created incentives for introducing livestock projects -- at this time, the Dry Coastal Belt Zone

TABLE 3.3

LIVESTOCK POPULATION BY PRODUCTION ZONES IN GHANA, 1969 TO 1976
(Head)

Zone[a]	Year	Bulls	Young Bulls	Steers	Cows	Heifers	Calves	Total	Sheep	Goats
1	69	27019	55541	32008	201191	91422	84016	365597	452602	416234
1	70	24100	55505	28312	194625	90773	84562	475937	420006	397214
1	71	24554	53314	29237	198330	95595	86006	487042	414550	389273
1	72	22108	49065	26917	193401	89805	88572	529511	455821	405534
1	73	25942	45896	31520	173083	74470	75494	567043	477956	443207
1	74	23059	46159	32334	179177	84042	75053	589671	512706	453313
1	75	33549	62204	39017	247314	106097	108306	598547	545780	512099
1	76	37411	61928	39272	259435	111064	113097	622207	517339	503010
1	77	37798	62629	40478	257490	109520	108928	606843	450564	434044
2	69	407	2170	1484	9271	4335	4136	22303	164501	136270
2	70	530	2202	1561	14660	5000	4270	28381	177007	150146
2	71	523	1849	1297	3695	4333	4035	20732	206705	153440
2	72	242	650	450	2738	1274	1390	21300	229705	166175
2	73	609	2275	1827	11705	6132	6004	26673	204583	190323
2	74	900	3789	2333	14077	6977	5940	34682	297800	218421
2	75	702	2200	1124	8039	3791	3478	19334	253122	170734
2	76	752	2318	1321	9410	3749	3960	21510	267427	196899
3	69	1668	7695	5194	42400	17820	17166	91943	83606	38165
3	70	1637	7978	4680	42377	18244	20190	95106	77602	51711
3	71	1907	9991	6039	47097	19043	20938	106275	93666	55227
3	72	2011	10041	8019	52719	21644	21644	109378	118383	96263
3	73	2076	9507	7007	48764	21748	22774	111394	130505	108682
3	74	2414	10272	7149	53869	24428	22117	120229	91530	72380
3	75	3121	13078	16358	56426	27849	31095	153727	108665	96215
3	76	2816	11935	7733	64430	28738	29523	145181	95150	90519

SOURCE: Veterinary Services.

[a]Zone 1: Guinea Savannah Zone; Zone 2: Forest Belt Zone; Zone 3: Dry Coastal Belt Zone. There was incomplete data for Zones 2 and 3 for 1977.

TABLE 3.4

LARGE SCALE LIVESTOCK OPERATIONS BY PRODUCTION ZONE IN GHANA, 1975
(Head)

	Zone 1	Zone 2	Zone 3[a]
Cattle	4,290	2,560	39,050
Sheep	1,090	3,700	2,980
Goats	700	1,380	800
Pigs	340	1,950	3,030
Poultry	6,630	383,130	91,560

SOURCE: Economic Research and Planning Service.

[a]Statistics for Volta Region have been included with the Greater Accra Region.

has 20 percent of the cattle and 11 percent of the sheep and goats found in Ghana. Finally, most of Ghana's large scale commercial cattle operations are located here (see Table 3.4).

C. - Livestock Management

Approximately 95 percent of Ghana's livestock are raised under traditional management practices, characterized by uncontrolled communal grazing, no reserve forage for dry season feeding, and no controlled breeding program. This type of system produces high mortality, low herd productivity, and requires a longer time for cattle to reach mature weight. As illustrated in Table 3.4, very few of the total number of livestock are raised under large-scale operations.

The indigenous cattle are West African shorthorn. This breed has a small skeletal frame and some tolerance to trypanosomiasis, which makes it suitable for production conditions in Ghana. Potential weight for a mature cow is approximately 300 kg. The indigenous breed of sheep is the coastal dwarf, a hardy animal with a smaller frame than the Sahelian sheep.

II. - The Beef Supply

A. - Historical and Current Pattern of Beef Supply

1) - Brief Summary of Consumption

As recently as 1972, most beef was imported live from Sahelian countries; the domestic livestock subsector was neglected. After 1972, livestock offtake for commercial slaughter began to increase because of reduced imports from the Sahel due to dwindling supplies and new economic barriers. Fresh meat became more expensive after 1974, and because of increases in imported frozen meat, consumption patterns changed. There was some resistence to the taste of this imported meat, but the large price difference far outweighed taste as a factor.

2) - Domestic Production

Livestock exported from Zone I to the meat-deficit regions of southern Ghana had supplemented the traditional trade flow of livestock from the Sahel. In 1967, cattle exports to southern Ghana were the lowest for the period from 1967 to 1977 (Table 3.5). From 1968 to 1973, livestock exports from Zone I increased, reflecting changes in the traditional cattle trade. After 1975 these exports from Zone I have been even higher due to the curtailment in purchases of live animals from the Sahelian countries.

Livestock slaughters for the period 1967 to 1977 in Zone I are shown in Table 3.5. Officially inspected slaughters of cattle plus livestock exports give an estimate of commercial offtake. Commercial offtake for Zone I from 1967 to 1977 was as high as 17 percent and as low as 10.6 percent, based on the Veterinary Services census figures. Commercial offtake of cattle from Zones II and III is lower because of the fewer number of cattle; commercial offtake from those zones was based on official slaughter figures less imports. For the period of 1967 to 1974, the supply of beef from Zones II and III was low. Commercial offtake for this period could not be estimated. Average commercial offtake for Zones II and III during the period 1975 to 1977 was 4.1 percent.

3) - Cattle Imports

Quarterly data on Ghana's imports of cattle with associated prices are found in Table 3.6. From 1967 until the end of 1974, cattle were the primary type of livestock purchased. During the period from 1967 to 1969 when there was an open border policy, cattle imports varied over a range of 10,000 to 20,000 head per quarter, but were generally greater in the first and fourth quarters (Figure 3.2). Beginning in the first quarter of 1972, imports of all types of livestock fell until the third quarter of 1973, when imports began to rise because the Ghanaian Government raised the purchase price. The price at the quarantine station

TABLE 3.5

LIVESTOCK MOVEMENT, SLAUGHTERS, AND COMMERCIAL OFFTAKE FOR LIVESTOCK PRODUCTION ZONE 1, NORTHERN GHANA, 1967 TO 1977

		Livestock Exported [a] (Head)			Livestock Slaughtered (Head)			Commercial Offtake as % of Inventories		
Year	Zone	Cattle	Sheep	Goats	Cattle	Sheep	Goats	Cattle	Sheep	Goats
1967	I	25,867	49,782	65,012	25,370	17,351	51,699	15.8	15.8	30.4
1968	I	35,255	56,835	73,143	25,703	26,515	53,081	17.7	18.9	31.5
1969	I	31,969	56,221	68,463	27,125	22,790	53,483	16.0	18.8	30.5
1970	I	34,760	56,147	70,703	32,403	25,999	58,022	14.1	19.5	32.6
1971	I	31,528	59,750	73,938	32,955	27,486	54,645	13.2	20.5	33.0
1972	I	40,643	75,139	95,137	31,286	25,875	55,378	13.6	34.8	37.1
1973	I	41,017	79,862	94,822	27,492	23,936	55,552	12.0	9.7	25.0
1974	I	35,664	88,926	104,691	31,145	26,312	62,302	11.6	22.4	36.8
1975	I	55,346	86,938	111,095	25,467	30,931	62,673	13.5	20.7	33.4
1976	I	43,734	92,618	105,956	22,835	28,791	71,846	10.6	23.4	35.0
1977	I	54,691	92,222	106,617	25.973	32,098	76,338	13.2	27.5	42.0

SOURCE: Veterinary Services.

[a]Livestock which have obtained veterinary permit to exit Zone to Southern Ghana.

TABLE 3.6

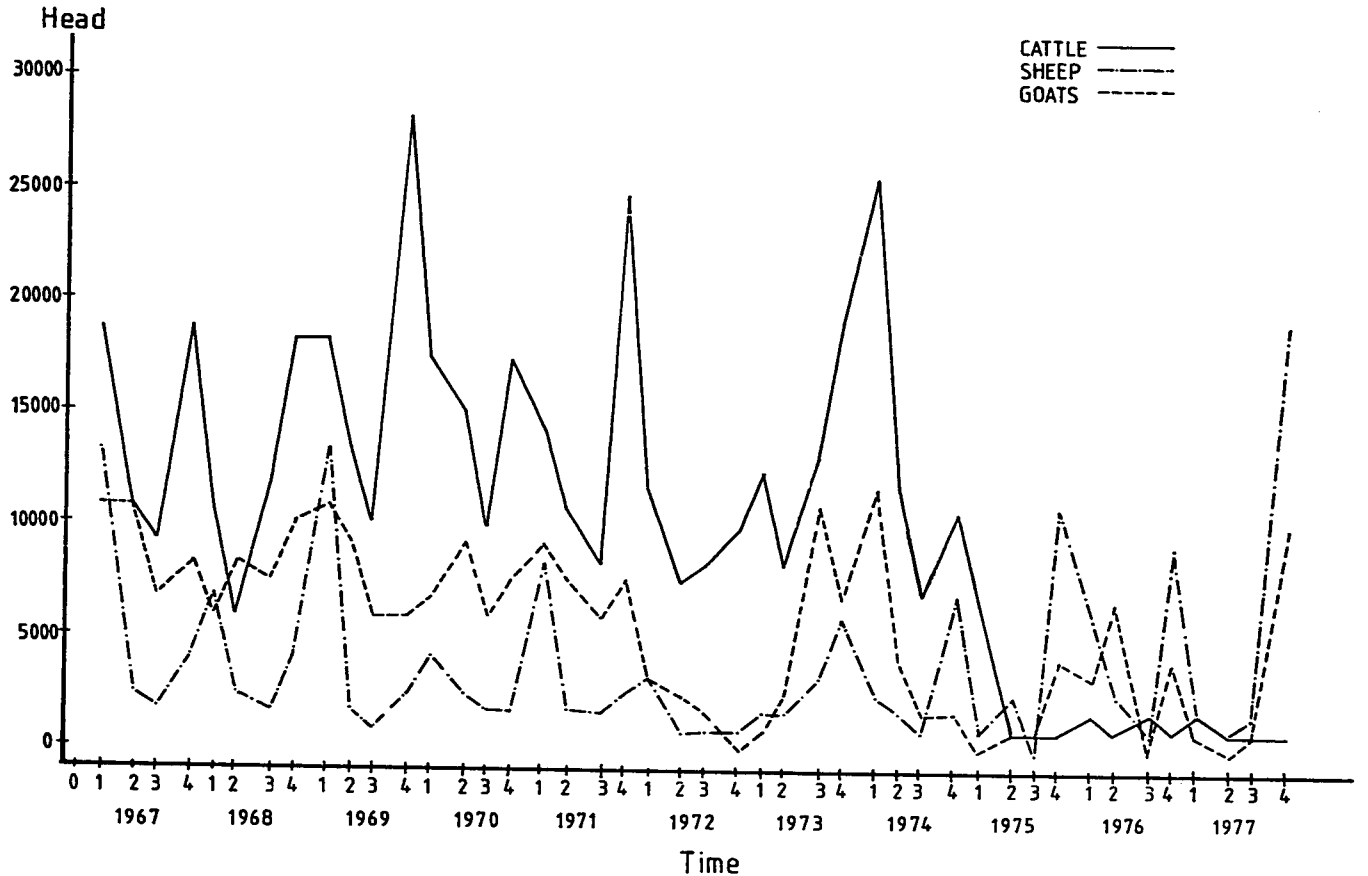
QUANTITY AND PRICES PAID FOR IMPORTED LIVESTOCK INTO GHANA 1967 TO 1977

Year	Qtr.	Cattle	Sheep	Goats	Price Paid[a] Cattle	Price Paid[a] Sheep/Goats
			(Head)		(¢/head)	
1967	1	18,918	13,597	10,322	------	-----
1967	2	10,605	2,693	10,600	------	-----
1967	3	9,277	1,598	7,004	74.60	9.97
1967	4	19,527	4,068	8,867	123.26	12.50
1968	1	11,225	7,033	5,515	114.40	14.25
1968	2	5,430	2,697	6,453	114.40	14.55
1968	3	12,069	1,779	7,352	------	-----
1968	4	17,534	3,884	10,363	------	-----
1969	1	16,072	13,325	10,736	------	-----
1969	2	18,733	1,889	9,042	------	-----
1969	3	10,154	1,221	5,827	------	-----
1969	4	28,559	2,415	5,847	------	-----
1970	1	17,365	4,375	6,233	114.96	14.30
1970	2	16,271	2,201	9,166	114.00	13.80
1970	3	10,311	1,889	6,556	115.00	14.31
1970	4	17,740	2,069	7,346	97.92	14.15
1971	1	14,376	3,595	9,311	98.00	14.25
1971	2	10,616	1,295	7,699	104.40	12.15
1971	3	8,816	1,455	5,977	101.00	11.60
1971	4	24,920	2,744	7,406	117.00	10.44
1972	1	11,325	3,623	5,836	------	-----
1972	2	7,631	688	2,406	128.60	14.40
1972	3	6,157	375	1,426	------	-----
1972	4	9,946	448	409	146.40	16.10
1973	1	12,171	1,575	1,167	141.82	14.65
1973	2	8,675	1,412	2,243	176.40	14.65
1973	3	12,045	3,572	10,455	176.41	11.50
1973	4	19,469	6,809	5,788	176.41	11.50
1974	1	25,528	2,316	11,955	176.50	11.52
1974	2	11,666	1,762	4,565	172.47	13.05
1974	3	8,318	1,199	1,538	185.21	21.43
1974	4	10,506	5,572	1,664	187.20	27.00
1975	1	6,896	633	696	207.67	27.32
1975	2	720	2,413	1,070	185.00	34.04
1975	3	306	312	707		26.87
1975	4	734	10,700	7,207	167.00	43.44
1976	1	1,491	3,158	3,223	263.00	40.23
1976	2	544	2,499	5,364	277.00	32.90
1976	3	1,531	1,060	21	278.00	41.05
1976	4	640	2,314	1,213	311.00	40.42
1977	1	1,652	735	1,184	291.00	43.70
1977	2	616	518	306	299.00	52.70
1977	3	587	1,907	666	313.00	40.30
1977	4	1,090	19,182	10,404	------	47.02

SOURCE: Veterinary Statistics for number imported.

[a]Prices paid for livestock are taken from External Trade Statistics and Meat Marketing Board.

FIGURE 3.2
QUARTERLY IMPORTS OF LIVESTOCK, 1967 TO 1977



went from 20p (US $0.17) to 30p (US $0.26) per pound liveweight. After the first quarter of 1974, a buildup occurred at the quarantine stations because of foot and mouth disease; livestock imports fell dramatically in 1975 to an unprecedented level. Since then, few cattle have been imported because of the Government's shift to the importation of frozen meat.

(a). - Source of Cattle Imports. The points of origin of cattle imported into Ghana from 1967 to 1976 are listed in Table 3.7. Traditionally, Mali has been the major supplier of cattle to Ghana; for the period of 1967 to 1977, Mali supplied approximately 193,570 head of cattle or 46 percent of the total. The next largest supplier has been Upper Volta, supplying 35 percent. Discrepancies exist in the figures reported by the Veterinary Services and the Bureau of Census (External Trade Statistics). Veterinary Service records are more complete on cattle entering the quarantine stations. The External Trade Statistics provide better information on points of origin for imported cattle.

In 1973, cattle imported from Mali declined by approximately 50 percent because of drought conditions. In 1973 and 1974 imports of cattle from Upper Volta and Niger increased above their respective 1972 levels. Closer to the quarantine stations of Paga, Pusiga, and Mogonori in northeastern Ghana, suppliers from these two countries had easier access for sales. Because of a border dispute between Upper Volta and Mali in 1974 and 1975, Malian supply was curtailed and Upper Volta became the main supplier of livestock to Ghana.

(b). - Importing Agencies for Cattle. In October 1972, the National Redemption Council created the Meat Marketing Board (MMB), originally the Cattle Development Board, to be the major importer of livestock. (A detailed description of the organization is found in the marketing section of this chapter, Section B).

Imports of cattle began to drop significantly in the second quarter of 1975, and the much smaller number of head imported in 1976 and 1977 were for stocking the MMB livestock ranches (Table 3.8). The two primary

TABLE 3.7

ANNUAL SUMMARY OF POINT OF ORIGIN FOR IMPORTED CATTLE INTO GHANA, 1967 TO 1976
(Head)

Year	Togo	Nigeria	Mali	Niger	Upper Volta	Other	Total
1967	46	2,309	16,826	6,178	23,268	6	48,633
1968	245	2,109	23,944	5,882	15,474	11	47,665
1969	150	1,109	37,620	9,684	18,328	-	66,891
1970	378	511	33,912	8,057	19,160	390	62,408
1971	634	29	33,034	6,470	14,340	200	54,707
1972	391	-	25,285	3,285	8,073	-	37,034
1973	382	-	12,786	8,171	12,382	-	33,721
1974	2,831	-	9,647	13,450	21,291	107	47,326
1975	1,622	-	516	5,425	11,316	73	18,952
1976	19	-	-	-	1,176	100	1,295
Total	6,698	6,067	193,570	66,602	144,808	887	418,632

SOURCE: External Trade Statistics, 1967 to 1976.

TABLE 3.8

IMPORTS OF LIVESTOCK AND MEAT BY THE MEAT MARKETING BOARD FROM 1973 TO 1977

Year	Qtr.	No. of Cattle (head)	Gross Value (cedis)	Meat (m.t.)	Gross Value (cedis)	No. of Sheep and Goats (head)	Gross Value (cedis)
1973	2	7,725	1,362,210	68.39	88,847	2,058	24,492
	3	10,604	1,870,650	789.88	926,205	10,961	126,160
	4	15,796	2,786,575	556.12	722,503	10,998	126,585
1974	1	12,476	2,202,056	815.39	1,059,350	10,277	118,406
	2	10,583	1,825,293	1,275.32	1,542,632	7,515	98,039
	3	10,093	1,869,405	459.48	772,338	1,322	21,486
	4	15,430	2,888,536	446,77	545,272	6,999	188,953
1975	1	8,277	1,718,912	93.34	112,900	515	14,072
	2	773	143,045	316.84	755,025	3,296	112,181
	3	--	--	989.05	2,684,194	822	22,088
	4	168	26,341	77.81	2,056,235	14,316	621,894
1976	1	57[a]	14,979	716.96	2,019,400	2,342	94,223
	2	117[a]	32,502	297.12	839,220	9,081	299,147
	3	21[a]	5,839	904.15	2,075,958	1,332	54,675
	4	247[a]	76,965	957.01	2,282,091	12,907	521,642
1977	1	268[a]	78,100	187.06	475,613	--	--
	2	666[a]	199,350	1,089.34	2,660,644	2,785	146,655
	3	159[a]	49,850	1,515.05	1,665,906	1,772	71,342
	4	--	--	1,454.87	3,682,621	11,886	428,127

SOURCE: Files of Meat Marketing Board.

[a]These cattle were purchased as breeding stock for MMB's ranching projects.

reasons for shifts by the MMB away from live cattle imports to meat products were relative price differentials and the easier handling and standardized quality of imported meat. (See Section C of this chapter on Prices and Cost of Meat Products).

The other agency which has been an important importer of cattle since 1972 has been the Ghana Industrial Holding Corporation (GIHOC), a state-owned company with several divisions. GIHOC received a license for supplying cattle and meat to its canned meat factory in Bolgatanga and to its retail meat shops; imports for the period 1973 to 1977 are listed in Table 3.9. In 1973 and 1974 GIHOC purchased its imported cattle from the MMB at the quarantine stations; by 1975, GIHOC had begun to rely heavily on imported meat received at the port of Tema to supply its canning factory.

4) - Imports of Chilled and Frozen Beef

The major source of statistics on imports of chilled and frozen beef is the External Trade Statistics published by the Bureau of Census. Until 1972, privately owned food distribution companies received licenses to import frozen meat; after 1972, the MMB was the major importer of frozen meat.

Annual import figures for beef/veal as well as for other meats and meat products in the period 1967 to 1972 were erratic, casting doubt on the accuracy of the data, although price per metric ton was within reason, averaging about US $1,200/mt (Table 3.10). With the decline in imports of live cattle after 1972, imports of frozen meat increased significantly in 1973. Because of an acute meat shortage caused by the Sahelian drought, the Ghanaian Government had an emergency meat import action program. Frozen beef imports declined in 1974 with the resumption of trade in live cattle from the Sahel.

(a). - Imported Bone-In Beef. In 1975, the Government imported large quantities of bone-in and boneless beef, which continued through 1977 (see Table 3.11). From the records of the MMB, the major supplier of bone-in beef was Uruguay, with 2425 mt imported in 1975 at a value

TABLE 3.9

IMPORTS OF LIVESTOCK BY GHANA INDUSTRIAL HOLDING CORPORATION (GIHOC)
JUNE 1973 TO DECEMBER 1977

Year	Qtr.	Type	Head	Live Weight (m.t.)	Purchase ($/hd.)	Customs[a] ($)
1973	3	cattle	842	222	168	16,259
	4	cattle	967	246	201	20,017
1974	1	cattle	1,238	273	192	23,770
	2	cattle	855	190	167	16,416
	3	cattle	118	34	186	2,525
	4	cattle	1,033	310	175	20,763
1975	1	cattle	391	72	180	8,133
	2	cattle	642	60	164	10,529
	3	cattle	33	7	153	580
	4	cattle	242	53	185	5,150
1976	1	cattle	100	27	234	2,690
	2	cattle	653	158	224	11,823
	3	cattle	80	23	--	2,294
	4	cattle	148	31	186	3,169
1977	4	cattle	198	68	342	27,261[b]
		sheep	597	--	47	6,589

SOURCE: GIHOC business files.

[a]Customs duty is 10% of the purchase value in 1973 to 1976.

[b]Customs duty is 35% in 1977.

TABLE 3.10

ANNUAL SUMMARY OF QUANTITIES AND PRICES PAID FOR MEAT IMPORTS FROM 1967 TO 1977

Year	Beef/Veal		Mutton/Lamb/Goat		Offals		Smoked, Dried or Salted Beef		Corned Meat in Airtight Containers	
	Qty. (mt)	Price ($/mt)	Qty. (mt)	Price ($/mt)	Qty. (mt)	Price ($/mt)	Qty. (mt)	Price ($/mt)	Qty. (mt)	Price ($/mt)
1967	188	1,089	1,206	354	63	924	490	679	1,700	896
1968	25	1,163	1,409	329	193	593	481	609	483	976
1969	170	947	1,701	385	131	621	475	595	1,586	714
1970	181	1,327	2,395	410	108	659	401	641	1,927	944
1971	92	1,157	1,569	449	232	579	547	807	1,167	758
1972	58	1,443	514	697	-	-	80	1,318	736	1,786
1973	2,502[a]	1,039[a]	369	933	17	1,535	228	1,679	177	1,923
1974	535[a]	873[a]	721	1,214	18	2,034	574	1,459	927	2,290
1975	4,339[a]	1,036[a]	1,137[a]	1,072[a]	9	1,958	166	1,621	261	3,098
1976	5,648[a]	1,242[a]	721[a]	529[a]	1	5,642	6	715	-	-
1977	7,617[a]	917[a]	639[a]	700[a]	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

SOURCE: External Trade Statistics.

[a]Files of Meat Marketing Board and GIHOC.

TABLE 3.11

SELECTED IMPORTS OF BEEF BY MEAT MARKETING BOARD, 1975 TO 1977

	Bone-In Beef					Boneless Beef				
Year	Source	Qty. (Head)	F.O.B. (mt)	Freight ($/mt)	Total (¢/mt)	Source	Qty. (Head)	F.O.B. (mt)	Freight ($/mt)	Total ($/mt)
1975	Uruguay	2,425	809	205	1,014	United Kingdom	456	869	205	1,074
	New Zealand	1,138	1,000	218	1,218	Australia	100	765	181	946
	Holland	124	728	199	927					
1976	Uruguay	3,518	813	250	1,063	Argentina	559	-	-	1,043
	Argentina	927	-	-	877					
	New Zealand	605	855	239	1,094					
1977	Uruguay	7,076	920	178	1,098	Denmark	217	-	-	1,174
						New Zealand	207	1,144	266	1,410

SOURCE: Files of Meat Marketing Board.

of US $1014/mt (CIF). Imports from New Zealand were 1138 mt valued at US $1218/mt (CIF) (Table 3.11). Uruguay was again the major supplier in 1976 with 3518 mt; the price per mt did not change from 1975 prices. In 1977 Uruguay was the sole supplier of bone-in beef quarters, with 7076 mt sold at US $1098/mt. The beef quarters were purchased from INFOODCO, and all the meat purchased was graded Good Commercial. Supplementary information giving details on suppliers, grades, and breakdown in cost is provided in Appendix Table 2.

The Meat Products Division of GIHOC imported bone-in beef from 1976 to 1978 (Table 3.12). GIHOC bought only 20 percent of the total quantity imported by MMB in 1976; the only supplier was West Germany. Bone-in beef was purchased at US $1434/mt (CIF) and was First Grade meat. In 1977, GIHOC purchased 743 mt of First Grade beef quarters from Argentina at an average price of US $1800/mt (CIF) and 625 mt from West Germany, valued at an average price of US $1437/mt for First Grade meat. Interestingly, GIHOC used most of this First Grade meat for manufacturing corned beef at its Bolgatanga canning plant.

(b). - Imported Boneless Beef. Boneless beef has made only a small contribution to total imports of beef. As seen in Table 3.11, the MMB imported a total of 1539 mt of boneless beef from 1975 through 1977; bone-in beef is preferred because Ghanaians like to cook with the bones. MMB has hired meat cutters to break down the carcass meat, giving preference to imported bone-in beef. Cost per kilogram of boneless beef is cheaper than bone-in beef. Nevertheless, GIHOC did not import boneless beef for the 1976 to 1977 period.

(c). - Corned Beef. Corned beef was an important import commodity from 1967 through 1974, though there were several years when imports were small. In Table 3.10, the annual summary indicates that corned beef imports have been as high as 1,927 mt in 1970. However, as price per metric ton rapidly increased, imports of corned beef declined, falling to only 177 mt in 1973 and 266 mt in 1975. The canned meat factory in Bolgatanga received supplies of beef in 1971 and 1972, so imports of corned beef were reduced in 1973, but increased dramatically in 1974,

probably as a delayed reaction to the actual meat shortage which occurred in 1973. In 1975, imports were again reduced because of a price per metric ton of over $3,000. In 1976 no imports of corned beef were reported.

B. The Structure of Cattle and Beef Marketing

The livestock and meat trade in Ghana was an established trading system before 1971 with linkages to the major West African trade routes. A north-south trade was developed exchanging livestock for forest products and other crops not available in the drier Savannah areas. Since 1971 the traditional customs and trade routes have been altered for nationalist reasons. Government policies changed the structure of the marketing system for livestock and meat to allow control of domestic trade by Ghanaians.

1) - Evolution of a Marketing System

The cattle and beef marketing system evolved over many years. There are discrete periods in its history which give a better understanding of the current situation.

(a). - Period Before the Alien Compliance Act. The traditional livestock trade before 1969 was based on cultural acceptance and mutual trust. The northern borders were open to cattle traders from the livestock-surplus regions of the Sahel. Livestock were trekked into Ghana by two routes; the important trade route was on the eastern side, with livestock entering Ghana at the quarantine stations of Paga, Pusiga, and Mogonori. During the 1930s and 1940s imported livestock were trekked to Salaga, the major market south of Tamale. Tetemu was the livestock market in the Eastern Region, where animals bought in Salaga were resold. In the 1950s the market moved from Salaga to Prang to Atebubu, and then to Ejura; Prang, Atebubu, and Ejura are in the Ashanti Region. The market moved farther south mainly because of tribal disputes. By 1965, Kumasi was the main market as a result of the growth

of the urban area, and animals were being trucked from the border directly to Kumasi (see Figure 3.3).

On the western side of Ghana, before the 1960s, a less important trade route origin was at the Luo quarantine station near Tumu, and went south through Wa to a central market at Wenchi. In the 1960s, Veterinary Services opened a quarantine station at Hamile in the northwest corner, which became an entry point. The majority of animals were trucked from the border to the south. By the 1960s Kumasi had replaced Wenchi as the central livestock market.

During this period of development of cattle marketing in Ghana, trade was based on intricate relationships among cattle traders -- those who owned the cattle and trekked them to the marketplace; the landlords, who assisted the cattle traders when selling in the towns; the cattle dealers, speculators or middlemen who operated in the marketplace; and the butchers, who slaughtered and retailed the meat.

A cattle trader was called a "stranger" in the Hausa language; and upon arrival in Kumasi with his livestock, the "stranger" stayed with one of the landlords in the city. The landlord was responsible for providing meals and lodging for the trader and more importantly acted as a broker for his cattle in the market. The landlord, like the "stranger," was usually a foreigner, and he negotiated the price to be received by the cattle trader. After a sale, the landlord held the money in security until the cattle trader wished to return home. The cattle trader would pay ¢1.00 per head to the landlord for cattle sold in the market. A personal gift was given by the trader to his landlord upon departure.

The cattle dealer serves an important function in the marketplace; acting as a contractor to supply livestock to urban markets farther south as well as to butchers in Kumasi, he helps to regulate the supply of cattle. When an excess supply of cattle occurs in the market, he becomes a speculator and dealer, and purchases and holds cattle until supplies decrease; as prices increase, he sells livestock from his inventories. This function of the cattle dealer allows the cattle trader to return to his country to exchange commodities purchased in Ghana for more livestock, and then to return to Ghana and continue the cycle.

TABLE 3.12

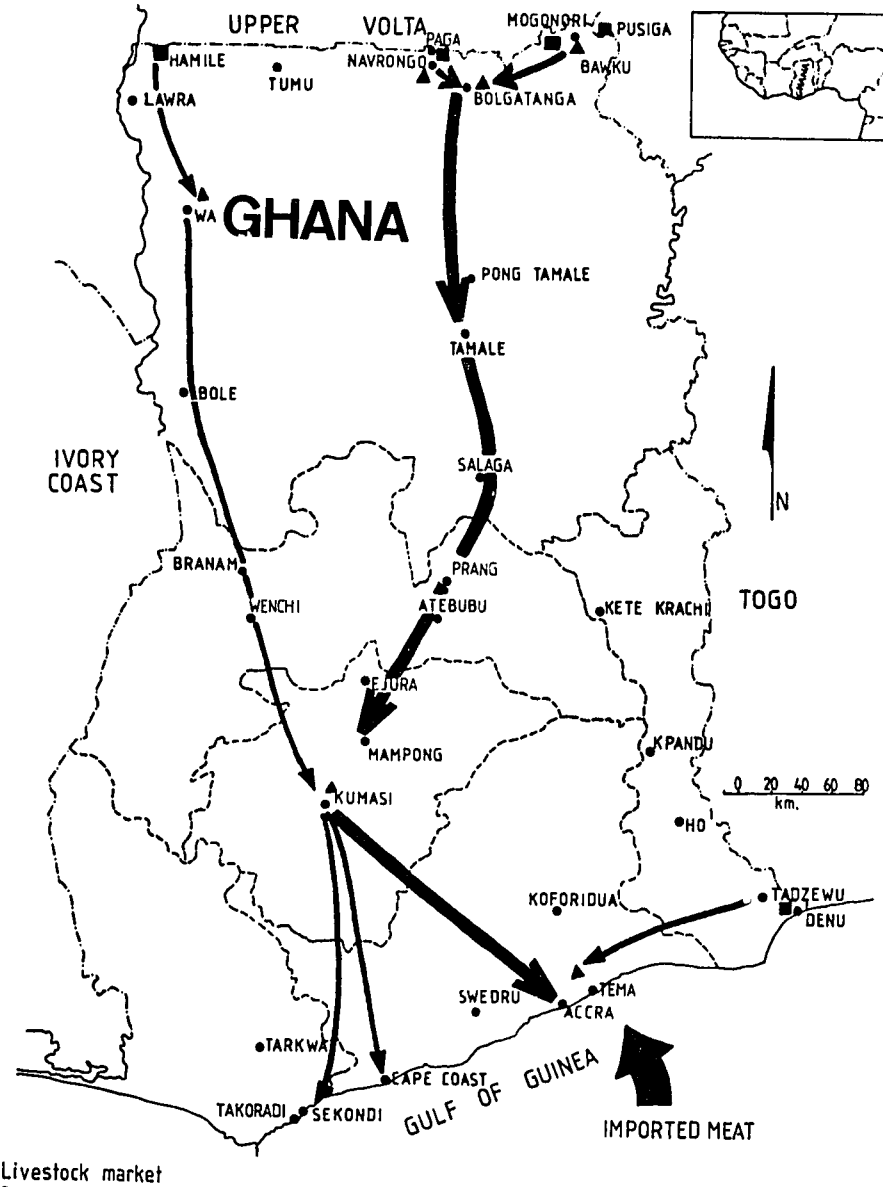
IMPORTS OF RED MEAT BY GHANA INDUSTRIAL HOLDING CORPORATION (GIHOC) FOR 1976 AND 1977 AND FIRST QUARTER OF 1978

Year	Qrt.	Origin	Type	Grade	Qty. (mt)	CIF Value[a] ($/mt)
1976	1	West Germany	Bone-in Beef	1st	324.00	1,614
	2	--	--	--	--	--
	3	West Germany	Bone-in Beef	1st	216.00	1,253
	4	West Germany	Bone-in Beef	1st	203.00	N.A.
1977	1	Argentina	Bone-in Beef	1st	101.00	1,806
		Holland	Salted Beef	--	3.40	2,295
		Holland	Pig's Feet	--	48.50	918
	2	West Germany	Bone-in Beef	1st	365.00	N.A.
		Argentina	Bone-in Beef	1st	365.00	N.A.
		--	Salted Beef	--	18.00	N.A.
		--	Pig's Feet	--	63.00	N.A.
	3	West Germany	Bone-in Beef	1st	136.00	1,437
		Holland	Salted Beef	--	26.00	N.A.
		Holland	Pig's Feet	--	43.00	
	4	West Germany	Bone-in Beef	--	151.00	N.A.
		Argentina	Bone-in Beef	--	277.00	N.A.
		--	Pig's Feet	--	5.50	N.A.
		West Germany	Pork Sides	--	49.60	N.A.
1978	1	Argentina	Bone-in Beef	1st	357.00	1,508
		West Germany	Bone-in Beef	1st	312.00	1,734

SOURCE: Accountant's files at GIHOC's meat plant in Tema.

[a]Value includes duty at port of entry. Price information was unavailable for most of 1977 imports.

FIGURE 3.3
LIVESTOCK MARKETING SYSTEM IN GHANA



The butcher, as the final purchaser of livestock, is tied financially to the cattle dealer. Butchers receive livestock on credit from the dealer. After slaughtering and selling the meat, the butcher pays the cattle dealer before receiving another consignment of cattle. The granting of credit to butchers is never allowed to extend for a long period, since there is an explicit policy of payment before the delivery of more livestock. This credit relationship was overlooked by the planners when the Government assumed control of distribution of livestock in 1972.

(b). - Period After the Alien Compliance Act. In 1968, the Alien Compliance Act was passed. This changed the livestock-meat trade in Ghana. The Act was directed at removing foreigners from commercial activities within Ghana and affected all sectors of the economy. Expatriate cattle traders who had brought livestock to Kumasi for sale were now required to sell their livestock to Ghanaian cattle dealers at the quarantine stations. In May 1971 Ghanaians assumed positions in the livestock trade which formerly had been performed by expatriates. Furthermore, imports of frozen meat were carried on by private individual food wholesalers and retailers.

After the Alien Complicance Act, cattle traders from other countries who sold their cattle at the quarantine stations had to receive an invoice of sale from the Veterinary Service. The Ghanaian cattle dealer and the foreign cattle trader had to present the receipt together at the Bank of Ghana in Bawku or Bolgatanga. During this period, the civilian government established a maximum amount of ¢120 ($104) per animal which could be paid in foreign exchange. If the value of the animal sold exceeded this price, the balance was to be paid in local currency. The bank then paid the cattle trader the foreign exchange after deducting income taxes and an import duty of 10 percent.

Two more factors occurred which changed the structure of the cattle trade. Friction between Ghanaian cattle dealers who purchased cattle at the quarantine station and the butchers in Kumasi developed. Cattle purchased at the quarantine stations ranged in price between ¢40-¢100

per mature animal. However, they were being resold to butchers in Kumasi at inflated prices of ¢180-¢200 per head. The regional administrators were asked by the butchers to intervene and control prices for cattle. The regional administration intervened in 1971, setting prices for live imported cattle in Kumasi at ¢160 ($139) per head for Grade 1 (larger animals) and ¢120 ($104) per head for Grade 2. The price of domestic cattle was set at ¢65 ($57) per head. Butchers in Kumasi were dissatisfied with these prices. They protested by periodically refusing to slaughter animals in Kumasi and petitioned federal authorities to investigate the meat situation.

Concurrent with the problem in the Kumasi market was an investigation by the Government into unscrupulous practices of the Ghanaian cattle dealers. Several Ghanaian cattle dealers were indicted for embezzlement of large sums of money (in foreign exchange) by falsifying purchase invoices issued by the Veterinary Services. Ghanaian cattle dealers and foreign cattle traders were found to have conspired to inflate live cattle prices.

Because of these developments, the Government believed that effective control of the import trade was in the hands of a few dealers. This caused higher prices in a politically important urban area already noted for recurrent meat shortages. In the period between 1968 and 1972, the livestock marketing system had become corrupt and inefficient, with exorbitant prices and shortages of meat occurring in southern markets. By October 1972, the Government entered the marketing system to correct what it saw as excessive abuses by middlemen.

(c). - Creation of Meat Marketing Board and Imports of Livestock. Creation of the Cattle Development Board (now Meat Marketing Board) was authorized in March 1972 and it began operation in October of that year. The functions of the MMB as set out by National Redemption Council (NRC) Decree No. 42 were:

-- To purchase, handle, and transport all cattle imported for consumption in Ghana;

-- to arrange satisfactory distribution of cattle to any Butchers' Association recognized by the Government;

-- to make financial arrangements with respect to transfer of proceeds of the sales of cattle; and

-- to perform any other functions which in the opinion of the Board are incidental or conducive to all or any of the foregoing objectives.

After the Decree, private Ghanaian cattle dealers were restricted to purchasing domestic livestock from northern Ghana.

The early years were chaotic for the MMB. In late 1972 and early 1973, the livestock supply was reduced as a result of drought in the Sahel. The Prices and Income Board (PIB), the Government agency which controls all prices in Ghana, kept the MMB's purchase price for imported cattle at ¢.20 ($0.17)/lb liveweight; this shifted livestock trade to other coastal meat-deficit countries. From April to September 1973, the MMB operated a buying center at Ouagadougou, purchasing 5,435 cattle and 11,467 sheep and goats. MMB lost nearly one-half million cedis because in Ouagadougou it had to pay more than ¢.30/lb liveweight for cattle -- which was the Government-controlled resale price to butchers. To encourage more imports, PIB increased the purchase price of imported cattle from ¢.20/lb to ¢.30/lb liveweight and the selling price to butchers by the MMB from ¢.30/lb to ¢.40/lb liveweight after the Ouagadougou operation.

During the second quarter of 1973, the MMB air freighted bone-in beef from West African suppliers to help alleviate the meat shortage in the southern urban areas; most of the supply came from Senegal and Mali (see Table 3.13). This practice continued through the second quarter of 1974. The MMB lost ¢.13/lb on air-freighted meat or approximately ¢52,900 ($46,000).

With the increase of the MMB purchase price in September 1973, the flow of cattle increased. However, in December an outbreak of hoof-and-mouth disease closed the quarantine stations on the northern border, and the stations did not reopen until February 1974. During this period, cattle were amassing on the Upper Volta side, awaiting entry. By March 1974, 11,000 head of cattle were at the stations, but in the meantime

TABLE 3.13

IMPORTS OF BONE-IN BEEF BY AIR TO GHANA BY MEAT MARKETING BOARD, 1973 TO 1974

Year	Quarter	Quantity of Carcasses (pc)	Net Weight (mt)	F.O.B. ($/mt)	Freight ($/mt)	Insurance[a] ($/mt)	Custom[b] ($/mt)	Bank Charges ($/mt)	Internal Transport ($/mt)
1973	2	953	40.9	882	--	13.0	N.C.	13	87
	3	3,271	133.9	1,111	420	13.0	N.C.	13	87
	4	13,628	529.7	789	420	13.0	N.C.	13	87
1974	1	20,913	836.3	789	400	13.0	55.0	13	87
	2	10,468	681.4	800	392	13.0	55.0	13	130

SOURCE: Meat Marketing Board.

[a]Insurance is approximately 1% of F.O.B. and freight.

[b]Customs duty paid is approximately 5% of the CIF value.

meat imports had lessened the seriousness of the meat shortage in the country. With such a large number of cattle at the quarantine stations, market channels were saturated; in the ensuing dry season many animals remained unsold and became emaciated or died. By September 1974, there were no livestock being purchased.

The MMB lists several reasons why the trade in live cattle was reduced:

- -- Because the MMB was unable to purchase large quantities of cattle at the border, foreign cattle traders suffered heavy losses. Also, the MMB was relying on private transporters to move cattle from the northern borders, and there was a delay in getting private transport because of an increase in petroleum prices. Furthermore, the MMB's transport rates were too low.
- -- The MMB was slow paying checks to Voltaic cattle dealers in Ouagadougou. There was also a shortage of CFA francs in northern Ghana, preventing expeditious payment to Niger cattle traders. (Niger cattle traders were paid in cash because Ghana did not have banking arrangements in Niamey.)
- -- The cumulative effect of the Sahel drought reduced the number of cattle trekked to Ghana.
- -- The border dispute between Upper Volta and Mali reduced supplies of livestock from Mali, formerly the major source of cattle for Ghanaian markets (Table 3.7).
- -- Import licenses were not granted for the third and fourth quarters of 1975, even though livestock supplies were available.

In 1973 and 1974, the MMB incurred large debts because of business procedures used with butchers to whom it sold imported livestock. Under the former marketing system operated by cattle dealers and butchers the dealers kept a close account with butchers, selling on credit only after the previous loan had been paid. The MMB overlooked this system of operation and began selling livestock to butchers on credit for extended periods. Butchers defaulted on large debts in almost every major regional capital. Only by 1978 was the MMB able to recoup some of those earlier losses through civil proceedings. Furthermore, difficulties in timing and coordination of deliveries to regional centers in the south resulted in some financial losses.

By the end of 1973, GIHOC was purchasing live cattle from the MMB to supply the meat canning factory in Bolgatanga; cattle were purchased at the quarantine stations in the Upper Region. GIHOC became indebted to the MMB for ¢800,000 and the debt was not repayed until 1976. GIHOC was given its own import allocation for meat in 1975; points of origin, types, quantities, and prices of meat imported by GIHOC from 1976 through the first quarter of 1978 are given in Table 3.12.

In 1974 the MMB instituted a passbook system for the retail sale of meat, partly to protect the MMB from future losses. Because large amounts of frozen meat (accumulating in cold storage) were not being retailed,passbooks were issued to cold storage operators and private individuals in addition to the traditional retailers, the butchers. Butchers had been reluctant to sell frozen meat, in part, because they were suspicious of how the meat was slaughtered, were uncertain of consumer acceptance and were losing the revenue of fifth quarter sales. However, the passbook system was finally withdrawn in October 1977 because of complaints from butchers that frozen meat was being resold several times before reaching the final consumer, and at prices far above the MMB-set retail price.

2) - Current Market Structure

The current market structure is in disarray because of the economic and political environment. The Government, in an attempt to control the situation, has tried to assume more marketing functions in the livestock/meat industry. Price differences between fresh meat from domestic cattle and imported meat sold in Government shops illustrate the difficulty the Government has in supervising marketing channels to control prices. A directive by the Government to the MMB in 1978 instructed the agency to begin opening retail shops to eliminate what were felt to be excessive profits by middlemen. This directive increased conflict between the private sector (cattle dealers and butchers) and the public sector (MMB). Conflicts also exist within the public sector between the MMB and GIHOC because of limited import licenses for meat. Furthermore, foreign exchange allocations for imports of meat have dwindled, and

both agencies are having to share smaller foreign exchange accounts while still maintaining the high fixed cost of overheads.

(a). - The Private Sector. In the private sector, cattle traders and butchers rely solely on domestic supplies of cattle. Cattle from the north are trucked to Kumasi for sale (Figure 3.3). Because of the shortage of red meat, Accra has been receiving large numbers of cattle being transported directly from the north. Some of these cattle will be sold in the Ashaiman market, which is located between Accra and Tema near the motorway and the terminal market for this area. A small private trade exists; cattle are purchased in the north on contract and are delivered directly to the slaughterhouse.

Transportation charges in May 1978 for cattle trucked from the quarantine stations on the northern border to Ashaiman market were approximately ¢40-¢50 (US $34-40) per head. In 1971 and 1972, transportation fees were ¢17-¢19 (US $15-17) per head (Ministry of Agriculture, 1972). Transport charges have increased because of the decline in the value of the cedi and because of difficulties in obtaining petrol and spare parts for vehicles. Transportation rates from Bolgatanga (near the quarantine stations) to Kumasi cattle market were estimated at between ¢20-¢25 (US $17-22) per head in May 1978. In 1971 and 1972, transportation rates for the same route were approximately ¢11-¢13 (US $10-11) per head.

Butchers do receive an allocation from the MMB for carcass beef; however, the percentage of the MMB's monthly allocation to regional centers that goes to butchers is low. In the Ashanti Region, which received 420 beef quarters per month in the first quarter of 1978, butchers received only 20 percent of that allocation. Butcher organizations from all regions have complained that they have been placed at a disadvantage because the MMB has circumvented their operation by supplying private institutions and individuals who have no prior experience in the trade.

Butchers and private individuals are gradually being removed from the beef trade by the public sector's increased participation in supply, distribution, wholesaling, and retailing of beef. With the private

sector wholly dependent on domestic cattle, supplies are likely to decline because of extended periods of high offtake. Prices for fresh beef have increased to a point where beef consumption is a luxury commodity available only to those enjoying a high income. (See the section below on Cattle and Beef Prices).

(b). - The Public Sector. The public sector of beef marketing has increased in importance, primarily because of the shift from imported cattle to imported meat. By restricting licenses for imported beef to the MMB and GIHOC, the Government has taken the responsibility for determining, in large part, the availability of stocks of beef for urban consumption in southern Ghana, the primary market.

The entry point for imported meat is in Tema, southeast Ghana (see Figure 3.3). The MMB, as the major importer of meat, takes delivery of meat from the Ghana Procurement Agency (GNPA) at the port. The MMB does not have cold storage facilities at the port and paid the State Fishing Corporation at the following rates in 1978:

First five days . . . . . ¢1.00/cwt.

Each following week . . . . . ¢ .80/cwt.

The MMB has been able to keep losses due to spoilage to a minimum. For the period of fifteen months ending June 1977, losses of meat were less than one percent of the value of meat imported. The MMB is planning the development of cold storage facilities with a capacity of 2,000 tons at the port of Tema, as well as a 600-ton capacity cold room in Accra.

Transportation rates in effect in 1976 and 1977 for distributing frozen meat are listed in Table 3.14, while transportation rates for livestock for the same period are listed in Appendix Table 5. Frozen meat is transported in refrigerated trucks; the MMB has three large cold vans and two articulated trucks. Regional distribution of frozen meat is coordinated from the MMB's sub-head office in Accra. Most imported meat has been for consumption in Accra (see Table 3.15). The MMB's policy is to supply the nation's capital with an alternative supply of beef at prices below the butcher's price for fresh meat. The majority of the meat imported is fore- and hind-quarter carcasses.

TABLE 3.14

INTERNAL TRANSPORTATION RATES FOR MEAT 1976 TO 1977

Location	Bone-in-Beef (¢/piece)	Lamb Breast Boneless (¢/carton)	Pig Feet (¢/barrel)	Boneless Beef (¢/bag)
Téma -- Bolgatanga	4.00	1.40	4.00	1.40
Téma -- Tamale	3.50	1.20	3.50	1.20
Téma -- Sunyani	3.50	1.20	3.50	1.20
Téma -- Kumasi	3.00	1.00	3.00	1.00
Téma -- Secondi	2.00	.70	2.00	0.70
Téma -- Ho	1.75	1.00	1.75	0.60
Téma -- Cape Coast	2.50	1.00	1.75	0.60
Téma -- Kofordua	1.75	1.00	1.75	0.60
Téma -- Accra	0.80	.40	0.80	0.40
Harbour -- Téma	0.50	.25	0.50	0.20

SOURCE: Meat Marketing Board.

TABLE 3.15

DISTRIBUTION OF FROZEN MEAT BY MEAT MARKETING BOARD FROM APRIL 1976 TO JUNE 1977

Region	Weight (kg)	Value (US $)	Meat Rec'd % of Total (%)
Koforidua	284,066	540,435	4
Kumasi	369,764	871,494	5
Accra	5,425,157	8,992,917	74
Cape Coast	270,642	764,076	4
Sunyani	221,031	683,327	3
Sekondi	354,528	723,694	5
Ho	201,775	438,097	3
Tamale	109,252	244,861	1
Bolgatanga	83,193	58,403	1
TOTAL	7,319,408	13,317,304	100

SOURCE: Files of MMB.

Wholesaling of meat at regional capitals is organized by a committee headed by the regional commissions. Percentages of the monthly allocations for bone-in beef are determined for Government institutions, butchers, private shops, and for direct sales in the MMB's kiosks. In Table 3.16, distribution quotas are given for Greater Accra and Ashanti Regions. The future trend will be for larger allocations of meat to be sent to the MMB's retail kiosks. Agents are currently allocated meat for resale in those remote areas where the MMB does not have a distribution center. The distribution of livestock purchased by the MMB from April 1974 to March 1976 is listed in Appendix Table 6.

GIHOC is the only other major organization which distributes and retails beef. Both GIHOC and the MMB are state-owned (but under separate ministries) and perform identical operations in the distribution, wholesaling, and retailing market channels. The canning factory has been the major focus of GIHOC's operation. The plant was completed in 1966 but did not reach full operating capacity until 1972; it operated near full capacity in 1972 and 1973 but afterwards has been unable to obtain the necessary supplies of live cattle.

Currently GIHOC operates the plant only periodically when it can obtain an import license for frozen meat. GIHOC has chosen not to import live cattle because of difficulties it has experienced with low carcass yields.

To augment the canning operation, GIHOC is involved in retailing meat through stores as well as through agents. GIHOC has eight retail shops; three in Accra, two in Tema, two in Bolgatanga, and one in Kumasi. The company had many more retail outlets when meat supplies were plentiful. On occasion, GIHOC sells fresh meat at its slaughterhouses in Tema and Bolgatanga.

GIHOC has had retail shops staffed and operating for many years. A conflict between GIHOC and the MMB stems from the reduced amount of foreign exchange available for importing frozen meat and an uncertainty about which agency should be responsible for retailing meat products in Ghana. Because the two organizations report to different ministries, coordination has been difficult. The recent Government directive putting

TABLE 3.16

DISTRIBUTION OF BONE-IN BEEF AT TWO REGIONAL CENTERS BY MMB

Outlet	Greater Accra Region	Ashanti Region
MMB Shops	45%	31%
Schools, Hospitals, Army	25%	19%
Butchers	15%	21%
Department Stores	2%	8%
District Councils	9%	10%
Cold Store Operators	2%	10%
Reserves	2%	2%

SOURCE: Personal interview with marketing officials of MMB in each region in May 1978.

the MMB into the retail stage of the marketing system has caused even greater concern by GIHOC over its role in the future.

3) Constraints to Expansion of Trade

Ghana has always been dependent on external trade in livestock and meat to fill its demand for red meat. The dependence on foreign suppliers for beef will remain high. The major constraint on expansion of trade in beef involves macroeconomic considerations; the current policy on importation of beef is a political question. Foreign exchange is a scarce item; imports of beef, either live or frozen, have a lower priority than other food commodities as well as to other types of imports. In 1978, import licenses for frozen beef were reduced and the level of imports is likely to continue to drop, at least in the near term. Since 1975, meat imports can be considered as largely a social program to provide animal protein to middle and high-income consumers in Accra.

Under the present distribution system a professional has easier access to imported beef at the controlled price than a factory worker -- who must take higher priced beef from the marketplace. This observation was expressed by a member of the Prices and Income Board (PIB), which sets the wholesale and retail prices for all merchandise sold in Ghana. The level of imports of beef will depend on what is politically tolerable in the southern meat-deficit urban areas. In the foreseeable future, it is unlikely that trade in livestock or frozen beef will regain the levels of previous years.

C. - Analysis of Cattle and Beef Prices from 1967 to Present

1) - Imported Cattle

Imports of live cattle were the major source of beef from 1967 until 1974 and had a considerable effect on wholesale and retail prices

of meat during this period. In Table 3.6, prices for imported cattle are listed. From 1967 to 1971, the price per head varied from ¢74 ($63) to ¢117 ($101) per head (Ministry of Agriculture, 1972).

The Prices and Income Board raised the purchase price for imported cattle from ¢.20 to ¢.30 per pound liveweight in the third quarter of 1974. Average prices in the third quarter rose to ¢167 per head, the highest level ever. After the first quarter of 1975, supplies of imported cattle declined for reasons discussed above. Average prices reported in Table 3.6 are primarily for breeding stock which were purchased for livestock projects by the Meat Marketing Board. In 1977 to 1978, the quoted price for cattle for slaughter was ¢1.45 ($1.23) per kilogram liveweight. The MMB decided not to pay this price; in fact the low purchase price set by the MMB has been the major reason for live cattle being diverted from Ghana to neighboring West African states.

Information on prices of imported cattle for the period of 1971 to 1977 was collected from GIHOC files and is listed in Table 3.17. The customs duty was raised from 10 percent ad valorem to 35 percent in 1977. The price paid for cattle in October 1977 was ¢1.46/kg liveweight. The foreign exporter was required to pay the Ghana income tax (¢7.35/hd), a quarantine fee (¢1.00/hd), and a commission (¢.50/hd) to the landlord who was the exporter's agent. These charges represented seven percent of the sale value. This was another reason why the trade in live cattle shifted to other West African coastal countries.

2) - Domestic Cattle

Estimating the change in prices over the period of 1967 to 1977 is more difficult for domestic cattle because imports were preferred. From 1967 to 1972, the price for domestic cattle was lower than for imported cattle. Butchers in the southern markets paid higher prices for imports, but with the disruption of market channels after 1974, prices for domestic cattle rose appreciably. In general, these prices have kept pace with increases in the cost of living and the decline in the value of the cedi. In May 1978, mature cows were selling in the range from ¢900 to ¢1,400 per head. The range of prices for mature

TABLE 3.17

BREAKDOWN IN COST OF IMPORTED CATTLE BY GIHOC FROM THE QUARANTINE STATIONS FOR 1971 TO 1977
(Cedis)

	1971[a]	1972[a]	1973[b]	1974[b]	1975[b]	1976[b]	1977[b]
Average Price/Per Head	89	128	229	200	168	214	325
Customs Duty/Per Head	4[c]	6[c]	23[d]	20[d]	17[d]	21[d]	114[e]
Local Council Fees/Per Head	.5	.5	1	1	1	1	1
Total Price/Per Head	93.50	134.5	253	221	186	236	440
Total Price/Per Kg Liveweight	.39	.59	1.00	.73	.87	1.09	1.46

SOURCE: Ministry of Agriculture and GIHOC files.

[a]For 1971 and 1972, prices represent cattle purchased in the month of March from the Ministry of Agriculture.

[b]For 1973 to 1977, prices represent cattle purchased in the month of October.

[c]Customs duty was 5% ad valorem per head.

[d]Customs duty was 10% ad valorem per head.

[e]Customs duty was 35% ad valorem per head.

bulls was estimated at between ¢1,000 ($860) and ¢1,800 ($1,548) per head; if the unofficial exchange rate is used, the price would be in the range of $200 to $360 per head. The domestic price has been inflated because of the decline in value of the cedi and restrictions on imports of live cattle.

3) - Imported Beef

Before 1973, private organizations and GIHOC imported most frozen beef. Information on the value of meat imported was available from the External Trade Statistics, but these data are not reliable (see Table 3.10). More accurate information on imported beef was obtained from the files of the MMB and GIHOC.

Prices for beef imported by air by the MMB in 1973 to 1974 are listed in Table 3.13. This was an expensive operation; the MMB paid approximately ¢.41/kg in freight costs for bone-in beef from Mali. However, this operation was undertaken only to provide beef during the critical meat shortage in Accra in 1973.

From 1975 to 1977, the MMB imported beef quarters from several countries (see Table 3.11 and Appendix Table 1). The main supplier was Uruguay, whose FOB price was $809/mt in 1975 and $920/mt in 1977. Freight costs varied from $178/mt to $250/mt during this period. New Zealand supplied bone-in beef in 1975 and 1976; the FOB price was higher than Uruguay's. Smaller quantities of boneless beef were imported by the MMB in the same time period (see Table 3.11 and Appendix Table 2).

Price quotations for meat imported by the MMB in 1977 are listed in Table 3.18. These CIF prices represent the lowest bid received by exporters for each type of commodity listed. Prices for bone-in beef were expected to increase in 1978 to 1979, reflecting a rise in world prices for beef.

GIHOC's prices for bone-in beef in 1976 and 1977 were higher than the MMB's prices (Table 3.12). Part of the price differencial is because GIHOC purchased Grade 1 beef quarters, while the MMB imported Commercial Grade beef. The differences in price from similar locations (Argentina versus Uruguay) are too large, approximately $790/mt, to be explained

TABLE 3.18

QUOTATION OF LANDED PRICE FOR IMPORTED MEAT BY MEAT MARKETING BOARD, 1977

Item	Foreign Currency	Local Currency
Bone-In Beef	U.S. $ 1043.47 per metric ton	¢1200.00 per metric ton
Boneless Beef	U.S. $ 1290.43 per metric ton	¢1484.00 per metric ton
Lamb Breast	New Zealand $ 683.19 per metric ton	¢772.00 per metric ton
Salted Beef	£ 21.49 per 50 lb. barrel	¢ 44.70 per 50 lb. barrel
Salted Beef	£ 45.00 per 100 lb. barrel	¢ 93.60 per 100 lb. barrel
Dehydrated Salted Beef	U.S. $ 2150.00 per metric ton	¢ 2472.50 per metric ton
Pigs Feet	DM 20.44 per 100 lb. barrel	¢ 41.58 per 100 lb. barrel

SOURCE: Meat Marketing Board.

by quality differences. It is possible that GIHOC purchased only more expensive hind-quarter pieces. This discrepancy in FOB value needs to be examined in closer detail.

4) - Cost Analysis Between Imported Cattle and Imported Beef

The costs of imported cattle as estimated by the MMB in September 1977 are noted in Table 3.19. The purchase price was ¢1.32/kg for live cattle received at the quarantine station. The MMB calculated an average price of ¢541 for a 272 kg animal sold to butchers in Accra; the butchers retail price for beef from imported cattle is ¢5.77/kg. A cost analysis for imported beef is presented in Table 3.20 for September 1977. The MMB estimated retail price for imported beef at ¢3.35/kg -- 42 percent less than the price for beef from imported cattle. This price differential prompted MMB to concentrate on importing frozen bone-in beef quarters rather than live cattle. The MMB finds it easier (not having to worry about mortality and shrinkage in live animals) to market frozen beef.

5) - Wholesale and Retail Prices for Beef

For the period of 1967 to 1977 price levels for beef were difficult to ascertain. Even though meat prices are officially set by the Government, this does not reflect the actual market price, especially with the impact that inflation has had on consumer prices. The Economic Planning Division of the Ministry of Agriculture has listed average market prices for beef from 1967 to 1977 (Table 3.21). For the period 1967 to 1974 beef prices were fairly stable; after that they increased substantially. In Table 3.22, prices for fresh beef are given for April and May 1978 in several urban regional centers in Ghana. Prices for fresh meat were much higher than those reported in 1977 by the Economic Planning Division, implying that the control prices were not being adhered to. Meat is a scarce commodity; consequently, it is a seller's market for beef. It is interesting to note that meat prices in the surplus livestock areas of northern Ghana are equivalent to prices in

TABLE 3.19

COST ANALYSIS FOR IMPORTED CATTLE BY MMB, SEPTEMBER 1977

Type	Value (cedi)
Live Animal	
Purchase Price for 272-kg Cow[a]	360.00
Loading and Handling	6.00
Kraal Fees	2.50
Transport Fees	30.00
Losses and Discount (5%)	18.00
TOTAL Direct Cost	416.50
Add 30% Gross Margin for Overhead	124.95
Selling Price per Cow	541.45
Slaughtered Animal	
Price of Cow to Butcher	541.45
Deduct Sales Value of Offals, etc.	300.00
	241.45
10% Margin for Butchers	24.15
Selling Price of Beef from Slaughter of Cow	265.60
Average Retail Price (¢/kg.)[b]	2.17

SOURCE: Meat Marketing Board Office files.

[a]Purchase price is calculated on ¢1.32/kg liveweight.

[b]Assumes a dressing percentage of 45%.

TABLE 3.20

COST ANALYSIS FOR IMPORTED BONE-IN BEEF
BY MEAT MARKETING BOARD, SEPTEMBER 1977

Item	Value (cedis/kg)
Cost and Freight Value	1.40
Insurance	.02
Customs Duty (35%)	.49
Handling Charges	.02
Transport Charges (harbor to Accra)	.02
Cold Storage Charges	.20
Overtime Charges	.04
Distribution Expenses	.02
Transport Charges to Regions	.06
Losses and Discount (2%)	.06
Bank Charges and Commission	.18
Procurement Agency Commission (2%)	.04
Selling Expenses (Packaging)	.03
	¢2.58
Add 30% Gross Margin for Overhead	.77
Retail Price per kilo	¢3.35

SOURCE: Meat Marketing Board files.

TABLE 3.21

AVERAGE RETAIL PRICES FOR BEEF AND MUTTON, 1967 TO 1977
(¢/kg)

Year	Qtr.	Price for Beef[a]	Price for Mutton	Year	Qtr.	Price for Beef[a]	Price for Mutton
1967	1	.65	.85	1968	1	.60	.84
	2	.67	.83		2	.67	.88
	3	.66	.82		3	.70	.90
	4	.70	.94		4	.72	1.00
1969	1	.63	.97	1970	1	.62	.97
	2	.65	1.03		2	.68	1.00
	3	.71	1.07		3	.72	1.05
	4	.73	1.07		4	.78	1.01
1971	1	.60	1.05	1972	1	.73	.99
	2	.73	1.10		2	.75	1.07
	3	.75	1.07		3	.82	1.10
	4	.83	1.15		4	.83	1.07
1973	1	.75	.98	1974	1	.75	.99
	2	.73	.98		2	.75	1.07
	3	.81	1.15		3	.85	1.07
	4	.86	1.15		4	.92	1.07
1975	1	.83	1.03	1976	1	1.70	1.97
	2	.95	1.11		2	1.79	2.17
	3	.98	1.30		3	2.11	2.40
	4	1.05	1.65		4	2.37	2.43
1977	1	2.53	3.88				
	2	2.68	3.90				
	3	3.05	4.45				
	4	3.05	5.05				

SOURCE: Economic Planning Division, Ministry of Agriculture.

[a]Both beef and mutton are bone-in meat. U.S. $1.00 = ¢1.15.

TABLE 3.22

PRICES FOR FRESH MEAT IN SELECTED URBAN CENTERS IN GHANA
APRIL TO MAY 1978

Location	Type	Price (¢/kg.)
Accra	Beef (bone-out)	12.00
	Liver	16.00
Takoradi/Sekondi	Beef (bone-out)	16.00
Kumasi	Beef (bone-out)	19.00
	Liver	12.00
	Mutton/Goat	25.00
Tamale	Beef (bone-out)	10.00
	Liver	12.00
	Mutton/Goat	14.00
Bolgatanga	Beef (bone-out)	12.50
	Liver	15.00
Wa	Beef (bone-out)	14.00
	Liver	12.00

SOURCE: Personal Survey, April to May 1978.

the south; the explanation is that alternative supplies of meat --- frozen beef imports (which are sold at control prices) -- are keeping prices of fresh meat from going higher in coastal urban areas.

An examination of wholesale prices for cattle in Accra indicated that the carcass price for cattle at the Accra abattoir in April 1978 was ¢9.70 - ¢11.90/kg. On the same day, boneless beef was selling at retail shops for ¢12/kg. The margin of profit was very low. Also, the fifth quarter of the animal was selling for approximately ¢300, with the following prices for specific items:

Head	¢100
Intestines	¢140-¢160
Hooves	¢10/hoof
Hide	¢40-50

The MMB sells its imported meat to authorized agents; their wholesale and retail beef prices are listed in Table 3.23 for the period from January 1975 to June 1978. The MMB does not differentiate prices according to regional locations in the country. Customers can purchase beef wholesale if they have proper refrigeration and a place to retail meat.

Besides selling at wholesale prices to meat retailers, the MMB has entered the retail segment of the market. In Accra, the MMB sells meat to the general public at its sub-office in Kotababi. Several other retail meat shops are spread throughout the city. Currently, butchers receive only a small allotment of bone-in beef from the MMB. Wholesale and retail distribution seems inadequate in every regional capital visited where MMB has offices. Presently, MMB does not have the manpower, facilities, or financial capability to expand into the retail trade; however, the Government has instructed the MMB to establish retail shops.

In the retail trade, GIHOC has also been a supplier to department stores and retail meat shops. The 1976 to 1978 prices charged by GIHOC are listed in Table 3.24; prices for beef listed are higher than those charged by MMB. Traditionally, GIHOC imports a higher grade of meat for the higher income population.

TABLE 3.23

PRICES FOR FROZEN MEAT IMPORTED BY THE MEAT MARKETING BOARD, JANUARY 1975 TO JUNE 1978
(¢/kg)

Category of Customer	January 1975 to October 1977		October 1977 to June 1978	
	Wholesale Price	Retail Price	Wholesale Price	Retail Price
Bone-in-Beef				
Department Stores	1.80	2.20	2.80	3.20
Districts	1.70	2.00	2.70	3.00
All Other Customers	1.80	2.00	2.80	3.00
Boneless Beef				
Department Stores	2.00	2.42	3.30	3.85
Districts	1.90	2.20	3.20	3.50
All Other Customers	2.00	2.20	3.30	3.50
Lamb Breast				
Department Stores	3.00	3.85	3.00	3.85
Districts	3.00	3.50	3.00	3.50
All Other Customers	3.00	3.50	3.00	3.50
Pigs Feet				
Department Stores	2.70	3.30	2.70	3.30
Districts	2.70	3.00	2.70	3.00
All Other Customers	2.70	3.00	2.70	3.00
Salted Beef, in Brine				
Department Stores	4.50	5.28	4.50	5.28
Districts	4.50	4.80	4.50	4.80
All Other Customers	4.50	4.80	4.50	4.80
Salted beef, Dehydrated				
Department Stores	5.80	6.60	5.80	6.60
Districts	5.80	6.00	5.80	6.00
All Other Customers	5.80	6.00	5.80	6.00

SOURCE: Meat Marketing Board files.

TABLE 3.24

RETAIL PRICES FOR IMPORTED MEAT BY GHANA INDUSTRIAL HOLDING CORPORATION (GIHOC), 1976 TO 1978
(¢/kg)

	1976 to 1977	1978
Bone-In Beef	3.09	3.75
Boneless Beef	4.41	5.29
Filet Beef	6.17	7.05
Filet with No Fat	6.61	9.26
Pigs' Feet	2.64	3.09
Salted Beef	6.39	7.05

SOURCE: GIHOC Files.

III. - The Supply of Small Ruminants

A. - Historical and Current Pattern of Supply of Small Ruminants, Mutton, and Goat Meat

1) - Brief Summary of Consumption

Per capita annual consumption of mutton and goat meat has been estimated at .5 kg for the period 1971 to 1973 (FAO, 1977). This is 25 percent of the estimated per capita consumption of beef and veal. Animal protein from small ruminants has the highest price in the market-place, which helps explain the lower level of per capita consumption.

2) - Domestic Production

The majority of sheep and goats are located in the drier Savannah areas of Zone I (Table 3.3). The accuracy of the livestock census figures for small ruminants is less reliable than for cattle. (This observation was made by several veterinary officers). Zone II has a large number of small ruminants. Zone I, being the predominant production area for small ruminants, provides an estimate of commercial offtake of small ruminants from domestic production. From Table 3.5, offtake is high for both sheep and goats when combining numbers slaughtered and animals exported to southern Ghana. The increase in small ruminants exported to southern Ghana from Zone I from 1974 to 1977 reflects an increase in demand for animal protein from domestic stock.

3) - Imports of Small Ruminants

Imports of small ruminants are listed on a quarterly basis for the period of 1967 to 1977 in Table 3.6. Imports of small ruminants had a smaller role in the supply of red meat in Ghana until 1975 (Figure 3.2). Sheep imports were the highest in the fourth quarters of 1975,

1976, and 1977, coinciding with religious holidays. After 1974, the number of sheep exceeded the number of cattle imported. This is also true for goats in 1976 and 1977.

(a). - Source of Small Ruminant Imports. The points of origin of small ruminants imported into Ghana from 1967 to 1976 are listed in Tables 3.25 and 3.26. Ghana's major supplier of small ruminants had been Upper Volta, mostly because of its proximity; Upper Volta supplied 66 percent of all sheep and 72 percent of all goats imported to Ghana. The next largest supplier was Niger.

A noticeable change in the import trade in goats occurred after 1973. The decline in trade can be attributed to the drought, with the greatest decrease attributable to Upper Volta. Before 1972, the number of goats imported exceeded those of sheep. Since the drought, goat imports have decreased while sheep imports have risen. Also, MMB planned to purchase small ruminants for religious feasts only.

(b). - Trade Patterns for Small Ruminants. As was the case for the cattle trade, before May 1971 small ruminant trade was open, with private alien traders trucking animals from the northern borders to Kumasi or Accra. Private Ghanaian citizens entered the import trade in 1971 and 1972 only to have the MMB take over as sole importer of livestock.

The MMB imports sheep and goats primarily for religious feasts, especially Ramadan, the Moslem holiday. MMB also purchases the Sudan "long-legged" sheep for stocking their livestock projects, while GIHOC purchases sheep and goats for slaughter at the Bolgatanga meat factory for retail in GIHOC meat shops in Bolgatanga or in southern markets.

4) - Imports of Mutton and Goat Meat

The External Trade Statistics provide the best information on imports of mutton and goat meat before the MMB became the major importer of meat. Imports of frozen mutton and goat meat were higher than frozen

TABLE 3.25

ANNUAL SUMMARY OF POINT OF ORIGIN FOR IMPORTED SHEEP INTO GHANA, 1967 TO 1976
(Head)

Year	Togo	Nigeria	Mali	Niger	Upper Volta	Other	Total
1967	523	160	142	5,039	16,040	8	21,912
1968	617	556	427	3,384	11,259	122	16,265
1969	388	155	2,047	5,276	11,361	98	19,325
1970	270	8	2,059	1,775	6,741	21	10,910
1971	375	90	2,638	1,492	10,979	8	15,582
1972	286	-	1,762	1,680	2,320	323	6,371
1973	577	10	1.197	1,419	4,805	110	8,118
1974	868	5	3	978	8,569	361	10,784
1975	185	36	3	5,880	11,949	228	18,281
1976	66	131	2	3,299	9,008	2	12,588
Total	4,155	1,151	10,280	30,222	93,111	1,281	140,136

SOURCE: External Trade Statistics.

TABLE 3.26

ANNUAL SUMMARY OF POINT OF ORIGIN FOR IMPORTED GOATS INTO GHANA, 1967 TO 1976
(Head)

Year	Togo	Nigeria	Mali	Niger	Upper Volta	Other	Total
1967	296	15	192	3,425	22,233	3	26,164
1968	427	101	54	3,942	27,039	14	31,577
1969	74	12	805	5,589	25,501	3	31,984
1970	165	-	2,923	7,100	24,725	2	34,915
1971	82	-	1,333	2,995	26,009	6	30,425
1972	136	-	749	1,505	5,637	76	8,103
1973	108	-	1,132	7,948	4,437	2	13,627
1974	226	35	329	6,505	8,873	13	15,981
1975	66	26	-	2,572	3,636	5	6,305
1976	75	50	-	3,478	3,481	50	7,134
TOTAL	1,655	239	7,517	45,059	151,571	174	206,215

SOURCE: External Trade Statistics.

beef for the period 1967 to 1973 (see Table 3.10). When the National Redemption Council assumed control in January 1972, the general policy was to curtail large imports of unnecessary foodstuffs. The volume of imports of mutton and goat meat dropped from 1971 to 1972 by at least 1,000 mt. Imports increased in 1974 and 1975, but not to their previous levels.

In 1973 to 1974 MMB did import some sheep and goat carcasses (see Appendix Table 2), but after 1974, imports were limited to lamb breasts and flaps packed in cartons. From 1975 to 1977, the MMB concentrated on beef quarters; lamb was a specialty trade item targeted to the higher income population and for which the price was not controlled by PIB.

B. - The Structure of Small Ruminant Marketing

Small ruminant trade is very similar to the livestock and beef marketing system. Furthermore, changes in the small ruminant trade have paralleled those of cattle.

1) Evolution of the Marketing System

The sheep and goat trade has developed alongside the cattle trade; traders are specialized, dealing only with this type of trade.

Under the landlord system, all sheep traders who bring animals from the north to the Kumasi market must use a resident landlord to sell the animals. Sheep traders move from market to market, from Bawku in the northeast to Lawra and Wa in the northwest, to collect sheep for transport to the south. The number purchased from northern Ghana exceeds imports of sheep and goats from Sahelian countries, as is seen in Table 3.5 and Tables 3.25 and 3.26. Because of the degree of smuggling of small ruminants to avoid customs, some of those animals reported from northern Ghana were probably smuggled across the border. When visiting the Kumasi market, the author found large numbers of Sudan "long-legged" sheep present in the market.

Sheep dealers operate in the Kumasi market to purchase animals to feed and resell when prices increase. Sheep dealers sell to butchers

who purchase the animals on loan. Dealers will also sell directly to restaurant owners. While butchers from urban areas in the coastal regions once purchased animals on contract, this trade has been curtailed because prices for sheep and goats have increased.

(a). - Changes in Supply and Demand Conditions. Because of the reduction in available supplies of animal protein from imports, supplies from domestic small ruminants have increased (Table 3.5). The response by the marketing system was to shift emphasis to local herds in the north. The annual offtake of sheep from herds in Zone I increased in 1976 and 1977. With Government policy of controlling imports of sheep and goats, the private sector has had to contend with smaller numbers of preferred imported types. Wholesale prices have responded with prices increasing to between ¢200-¢300 per head for a mature ram.

(b). - Response of Marketing System to Government Programs and Policies. With the introduction of the Government (the MMB) into the marketing system for small ruminants in 1972, there was some adjustment in the small ruminants marketing system. The MMB purchased sheep and goats primarily for religious feasts, e.g. Ramadan, Christmas, or Easter. Animals were purchased at the quarantine stations on the northern border and then trucked to the major urban centers in southern Ghana. The animals were sold not only to butchers but to private individuals who requested an animal. For this reason, the second and fourth quarters of the year have been periods when the MMB imported a larger number of sheep and goats (Table 3.8).

2) - The Current Structure of Small Ruminant Marketing

(a). - The Private Sector. The private sector still operates as it did when the borders were open, except that the supply is from indigenous stock and small ruminants which have been smuggled across the border. The Kumasi sheep and goat market is the main trading center for animals from northern Ghana or from the expanding herds in the forest areas

of Ashanti and Brong-Ahafo Regions. Several private sheep farms have been developed in the Ashanti Region to supply the Kumasi market. These private sheep dealers are having an impact that is being felt around Kumasi; there is a large supply of mutton on the market. Not only can animals be fattened and then resold in Kumasi, but they can also be transported to Accra for sale.

(b). - The Public Sector. As was stated above, the MMB has focused on importing for seasonal festivities. Several attempts have been made by the MMB to either set up a marketing office in Ouagadougou or establish Voltaic agents to arrange for consignments of animals. In 1977, the MMB purchased sheep and goats on a contract basis with Voltaic commission buyers. The number, size, and price per head were agreed upon, and the date of delivery of animals at the quarantine station was set in the contract. The MMB has been satisfied with this marketing arrangement, as it gives them insurance on the time of delivery and the quality of the product. Specifications are based on two sizes -- large or small sheep -- and are purchased according to these categories and not by weight.

Transportation charges for sheep and goats from Bolgatanga to southern Ghana are listed below:

Transport	¢5.00/hd
Attendant	¢1.00/hd
Kraal Charges	¢ .50/animal/day
Slaughtering	¢ .20/animal
Smoking and Skinning	¢2.00/animal

These costs are also representative of the private sector.

GIHOC also has been an importer of sheep and goats, but on a smaller scale than the MMB. The only recorded purchase of sheep by GIHOC after 1973 was 400 head in the fourth quarter of 1977. These animals were transported from the northern border to Accra for slaughter and distribution.

3) - Constraints to Expansion of Trade

The same constraints which hinder increased trade in cattle affect the trade in sheep and goats. The MMB has chosen to import small ruminants with higher frequency because during holidays these animals are in high demand and can be easily disposed of. An expansion of trade in small ruminants is likely in the future if the MMB can establish a purchasing system either in Ouagadougou or Niamey. The current Government policy, however, does not favor an increase in imports of small ruminants. The Government has levied a 35 percent duty on imports for MMB and GIHOC, which raises costs appreciably; furthermore the Price and Income Board has not compensated by raising wholesale and retail prices.

C. - Analysis of Prices from 1967 to Present -- Small Ruminants, Mutton and Goat Meat

1) - Imported Small Ruminants

Quarterly imports of small ruminants and associated prices are listed in Table 3.6. Prices for imports are fairly constant from 1967 to 1972, in the range of ¢9.97 ($8.66) to ¢16.10 ($14.00) per head. The average price per head declined from the third quarter of 1973 through the first quarter of 1974. After that prices rose but have fluctuated; the highest price was ¢52.70 ($45.82) per head in the second quarter of 1977. The average prices reported after 1972 were taken from the files of the MMB. The MMB sold imported sheep in 1977 at the following prices.

Grade I	(large size)	¢100-150
Grade II	(small size)	¢ 90-100
Grade III	(local stock)	¢ 75

An estimate of the components of the cost of imported sheep in 1977 from GIHOC files is listed below:

Number of Sheep (hd)	597

Purchase Price	¢28,059
District Council Fees	¢ 239
Customs Duty (35%)	¢ 9,820
Cost at Quarantine Station	¢38,118
Cost per Head (¢/hd)	¢ 65.85
	($55.52)

The customs duty of 35 percent for imported livestock will definitely serve to restrain future expansion of trade.

2) - Domestic Small Ruminants

Because of the smaller size of domestic sheep and goats, a preference is given to imported stock. The price of imported stock once was the main determinant of the price for domestic breeds and influenced both wholesale and retail prices. As noted above, the MMB considers domestic stock as Grade III, selling at the lowest price.

Prices for livestock in northern Ghana are lowest from May until July. The larger imported breeds are able to bring a higher price. In Navrongo in May 1978 prices for various domestic livestock were recorded at the marketplace:

Gimmer	¢100.00
Mature Ewe	¢ 90.00
Mature Ram	¢150.00

For comparison, prices for the imported Sudan sheep in the same market were:

Gimmer	¢140-¢160
Mature Ewe	¢200-¢250
Mature Ram	¢200-¢300

3) - Imported Mutton and Goat Meat

The quantities of imported mutton and goat meat for the period 1967 to 1977 are shown in Table 3.10 with associated average prices. The quantities of mutton and goat meat imported exceeded those of beef

and veal from 1967 to 1972. Prices for imports from 1967 to 1971 were relatively stable, ranging from $329 to $449 per metric ton. Prices after this period have been erratic, with imports falling below the levels of 1967 to 1971.

In 1973 and 1974, the MMB imported lamb and mutton carcasses from New Zealand. The FOB price per metric ton varied from $1,039 to $1,378. In 1975, the MMB shifted imports to lower quality cuts, lamb breasts and flaps, which sold at lower prices ranging from $239/mt in 1977 to a high of $782 in 1975. Transportation charges from New Zealand were approximately $185-190/mt and had increased to $335/mt by the end of 1977. (Appendix Table 2).

4) - Analysis of Differences in Costs Between Imported Mutton and Imported Sheep

A comparison of costs between importing live sheep and importing mutton gives an explanation of Ghana's trade in imported mutton (Table 3.27). The MMB imported carcass meat from New Zealand only in 1974; that price was higher than for live sheep imported from Sahel. Frozen lamb breasts have been the major product imported since 1975, the price having been far lower than the imported live animal price (carcass equivalent). The general trend has been a decline in imports of lamb and mutton from 1975 to 1977. Even though imported sheep prices are higher, customers prefer live animals, especially for festive occasions. Because of the Islamic code on proper slaughter, purchasing of live animals is preferred.

5) - Wholesale and Retail Prices for Mutton and Goat Meat

Prices for mutton and goat meat are higher than prices for beef. For the period 1967 to 1977, prices for fresh mutton are listed in Table 3.21. Prices for the two types of meat were relatively close until 1977, when mutton prices exceeded beef by as much as ¢2.00 per kilogram. Until 1974, the general pattern was for the average retail price for

TABLE 3.27

DIFFERENCE IN PRICE BETWEEN LIVE SHEEP AND MUTTON IMPORTS
(¢/kg)

Year	Sheep from the Sahel Value[a]	New Zealand Mutton Type[b]	Value[a]
1974	1.19	Frozen Lamb breasts	.75
		Brine Cased Lamb Breasts	1.81
		Lamb Carcasses	1.23
1975	2.18	Frozen Lamb Breasts	.86
1976	2.60	Frozen Lamb Breasts	.50
1977	3.00	Frozen Lamb Breasts	.74

SOURCE: Meat Marketing Board files and External Trade Statistics.

[a]Value is for a point-of-entry carcass weight of 13.61 kg. Value of offals is deducted from the border purchase price.

mutton to be lowest in the first and second quarters of each year, with price increases in the third and fourth quarters. Price variations correspond to the dry and wet seasons: prices for mutton are lower towards the end of the dry season and beginning of the wet season, the months of January through June. After the second quarter of 1974, retail prices for mutton increased in each quarter, reflecting inflationary trends in food prices.

A price survey of various markets in April and May 1978 gave some indication of prices of mutton and goat meat compared to beef (Table 3.22). In many of the urban markets visited, mutton and goat meat were being sold, indicating the consumer's preference, higher prices notwithstanding. Kumasi mutton and goat meat were selling for ¢25 ($11.33) per kg. The price was higher than even boneless beef. In Tamale, a livestock surplus

area, prices of mutton and goat meat declined to ¢14/kg but were still higher than either boneless beef or liver.

The Meat Marketing Board's prices for imported lamb breasts are listed in Table 3.23. For the period of January 1975 until June 1978 wholesale and retail prices did not change. The Prices and Income Board (PIB) allowed a wider margin between the two so the MMB could cover fixed organizational costs. The margin for bone-in beef was kept low compared to the other meat items imported by MMB because of its wider distribution to the general population.

CHAPTER FOUR

THE POULTRY, PORK, AND FISH INDUSTRIES

I. - Supply of Poultry and Pork

A. - Historical and Current Pattern of Poultry and Pork Supply

The poultry and pork subsectors have been expanding rapidly because of shortages occurring in the supply of red meat. These two subsectors have been able to expand relative to other subsectors because of Government programs and policies. Producers see a high rate of return on their investment in a relatively short period of time.

1) - Brief Summary of Consumption

Per capita annual consumption of poultry meat and pork have been estimated by FAO at 1.3 kg and 0.4 kg, respectively (FAO, 1976). Consumption of poultry meat is estimated to be 2.6 times higher than mutton and goat meat. Pork consumption has been a relatively minor consumption item compared to beef; consumption figures are closer to that of mutton and goat meat. Increased production in the Accra area has been evident since 1975 with demand from the expatriate and higher income populations of Accra. Consumption of pork is limited in part by Islamic restrictions.

2) - Domestic Production

(a.) - Poultry Production. The poultry industry can be divided into two parts, based on management practices. The traditional sector is a backyard poultry industry with poultry feeding "free range," comprising about 60 percent of the national flock (FAO, 1976). An estimate of flock size for the traditional sector is noted in Table 4.1. Poultry meat produced from this sector was 7,400 mt annually from 1971 to 1973. The growth rate for the number of slaughter birds from the traditional

TABLE 4.1

POULTRY PRODUCTION IN GHANA, 1971 TO 1973

Traditional Sector	
Total Flock (000)	8,300
Slaughter (000)	10,000
Poultry Meat (mt)	7,400
Layers (000)	1,600
Egg Production (mt)	2,800
Commercial Sector	
Layers (000)	1,000
Egg Production (mt)	6,000
Meat from Layers (mt)	500
Broiler production (000)	1,000
Broiler Production (000) (including cockerels)	3,600
Broiler Meat (mt)	4,140
Parent Flock (000)	100
Meat from Parent Flock (mt)	150
Total Poultry Meat (mt)	12,190
Total Egg Production (mt)	9,300

SOURCE: FAO, 1976.

sector is estimated at 1.7 percent per annum for the period 1974 to 1980, with the poultry meat equivalent increasing at a rate of 1.9 percent per year (FAO, 1976).

The commercial sector will be important in meeting national poultry consumption goals. In Table 4.1, figures from the Ministry of Agriculture's estimates of commercial poultry production are presented. Production increased in 1974 and 1977, probably in response to Government incentives. FAO estimates that layer flocks will increase at a rate of 3.3 percent per annum from the 1971 to 1973 period to 1980. A higher rate of growth (6.6 percent) is expected for broiler production.

Total annual production of poultry meat from domestic production was estimated at 12,190 mt in the 1971 to 1973 period, and FAO estimated an annual rate of growth of 4.5 percent. In 1978, layer and broiler production declined because of reduced feed supplies and inadequate parent stock.

A survey of large commercial poultry farms in the Greater Accra Region indicated that all had underutilized plant capacity. Pomandze Hatcheries, the largest commercial operation in Ghana, has a production capacity of 13 million birds annually. In 1978, Pomandze distributed only 2.9 million day-old chicks to customers. Major reasons for poor production were faulty incubators, lack of maize and water, and irregular supplies of electricity. Pomandze, like other commercial operations, relies on replacing parent stock by importing birds twice a year in lots of 37,500. If growth of the commercial poultry sector is to continue, the problems of feed availability must be solved. Importation of feed grains will have to be expanded at least for the next several years.

(b.) - Pork Production. The major portion of pork consumption in Ghana is from domestic production. The livestock census estimated the number of pigs in Ghana to be relatively stable (Table 3.1). During the period 1969 to 1977 no appreciable trend in growth occurred, with a herd size of between 124,000 and 156,000 head. However, FAO estimated that during the period 1971 to 1973 (Table 4.2) the pig population was 200,000 head, approximately 40 percent above the Ministry of Agriculture's estimate for the same period (Table 3.1).

TABLE 4.2

PIG PRODUCTION IN GHANA, TRADITIONAL SECTOR, 1971 TO 1973

Total Herd (head)	200,000
Slaughter rate (%)	70
Slaughter (No. of head)	140,000
Average Carcass (kg/head)	16.3
Pork (mt)	2,280

SOURCE: FAO, 1976.

TABLE 4.3

SUPPLY OF PORK IN GREATER ACCRA, 1967 TO 1977

Year	Official Inspected Slaughter (head)
1967	9,584
1968	12,044
1969	9,517
1970	9,472
1971	---
1972	9,170
1973	10,835
1974	7,503
1975	11,353
1976	10,806
1977	5,104

SOURCE: Accra Medical Health Office files.

Most of the pork consumption is from indigenous stock; the traditional system is both inefficient and unproductive. Pork production was estimated at 2,280 mt per year from 1971 to 1973 from slaughters of 140,000 head (FAO, 1976). An increased output of pork will have to come from the commercial sector of the industry. From slaughter data for Accra, the supply of pork has not increased but rather has declined from the high of 12,044 head in 1968 (Table 4.3). Low supplies of concentrated feed and poor breeding stock seem to be major barriers to growth of the commercial sector.

3) - Imports of Live Poultry and Swine

(a.) - Imports of Live Poultry. The imports of live poultry for the period 1967 to 1978 are listed in Table 4.4; they are low because of the growth which has taken place in Ghana's poultry subsector. In 1978 imports of fowls to replenish parent stock for commercial operations increased dramatically, to approximately 1.5 million birds. The reason for the increase was the purchase of day-old chicks by the Ministry of Agriculture to supply its own farms as well as private commercial operations.

(b.) - Imports of Swine. No imports of swine were reported in the External Trade Statistics for the years 1967 to 1976. All imports were frozen or processed pork.

4) - Imports of Dressed Poultry and Pork

Imports of dressed poultry were insignificant for the period 1967 to 1976 and are not reported in the External Trade Statistics. Because of Ghana's expanded domestic poultry industry during the period 1967 to 1977, very few dressed fowl were required.

Imports of frozen pork for the period of 1968 to 1976 are listed in Table 4.5. Prices per kilogram are listed for 1971, 1974, and 1976. Pork imports are minor compared to beef. The relative price of imported pork has been very high, and demand is from the higher income population.

TABLE 4.4

IMPORTS OF LIVE POULTRY INTO GHANA, 1967 TO 1978

Year	Number
1967	253,892
1968	265,724
1969	136,413
1970	57,526
1971	119,505
1972	87,866
1973	134,888
1974	155,895
1975	139,287
1976	800,000[a]
1977	900,000[a]
1978	1,500,000[a]

SOURCE: External Trade Statistics, 1967 to 1975.

[a]Estimates are from Ministry of Agriculture.

TABLE 4.5

IMPORTS OF PORK INTO GHANA, 1967 TO 1976

Year	Quantity (cwt)	Value $/kg
1968	907	----
1969	194	----
1970	848	----
1971	35	2.11
1972	194	----
1973	499	----
1974	18	4.15
1975	381	
1976	24	6.63

SOURCE: External Trade Statistics, 1967 to 1975.

The Meat Marketing Board imported pigs' feet from Holland between 1974 and 1977. The quantity imported was much larger than what is recorded in the External Trade Statistics (Table 4.6); pigs' feet were an attractive import item by 1977. Since the PIB allowed the MMB to receive a higher return on this product, which had high consumer acceptance, MMB imported 754 mt in 1977 (Table 4.6).

B. - Prices of Poultry and Pork

1) - Recent Trends in Prices

(a.) - Poultry. Very little information is available on price trends for poultry and pork. Until 1976 and 1977 poultry was a substitute for beef because of the price differential; even with an increase in demand for poultry, supplies did not increase because of inefficiencies in the use of available plant capacity and shortages in production inputs. By 1976, poultry was about ¢10 per bird; by 1977 the price had risen to between ¢15-¢20. Pomadze Hatcheries' price in 1978 was ¢4/kg liveweight; while another private firm, Ankofo Processing, supplied dressed poultry at ¢8/kg.

(b.) - Pork. The major supply of pork in Accra comes from private commercial farms in the Greater Accra Region. The commercial farms slaughter their pigs at the Accra abattoir and then distribute the carcasses to department stores and meat shops in Accra. The average liveweight of pigs slaughtered by Associated Farm Limited was 86 kg, with an average carcass weight of 54 kg. The average wholesale price in April 1978 was ¢5.51/kg. Pork retailed in the department stores at ¢7.35/kg.

2) - Prices Relative to Beef, Mutton, and Goat Meat

In Accra, the price of pork in department stores was lower than for other types of meats in April 1978 (Table 4.7). The price for pork

TABLE 4.6

IMPORTS OF PIGS' FEET BY THE MEAT MARKETING BOARD, 1974 TO 1977

Year	Quantity (mt)	Source	F.O.B. ($/mt)	Freight ($/mt)	Total Cost
1974	377.74	Holland	657	121	293,881.72
1975	17.86	Holland	657	129	14,037.96
1976	108.65	Denmark	830	224	114,517.10
1977	26.25	Denmark	-	-	-
	698.23	Holland	529	152	475,494.63
	30.00	U.K.	962	204	34,980.00

SOURCE: Meat Marketing Board files.

TABLE 4.7

RELATIVE PRICE OF MEAT AND FISH IN ACCRA, APRIL 1978

Type	Price (¢/kg)
Beef (bone-in) MMB	3.00
Beef (bone-in) market	11.00
Chicken	8.00
Goat Meat (bone-in)	20.00
Liver	16.00
Mutton (bone-in)	20.00
Pork (bone-in)	7.35
Fish (fresh)	1.36

SOURCE: Second Market Survey

was ¢7.35/kg, while beef was selling at ¢11.00/kg. The price for dressed poultry was slightly higher than pork but still less than beef or mutton. The price differential is the important factor for consumers substituting more chicken for beef, mutton, or goat meat. Mutton and goat meat sell for a very high price, approximately ¢20.00/kg.

II. - Supply of Fish

A. - Historical and Current Pattern of Fish Supply

The fishing industry in Ghana has been important as a source of protein for a country with a deficit in red meat. The State Fishing Corporation (SFC) is the state-owned corporation responsible for purchase, storage, distribution, and retailing of fresh and frozen fish in Ghana. Prices for these items are controlled by the Government. Fish preparations are imported by the Government-owned Ghana National Trading Corporation (GNTC), which is responsible for both wholesaling and retailing

1) - Brief Summary of Consumption

Fish consumption was estimated at 28.8 kg per capita annually for the period 1971 to 1973 (FAO, 1976); total national demand amounted to approximately 262,000 mt. Consumption of fish was approximately fourteen times that of beef and veal. Total national demand in 1976 was estimated to be about 286,000 mt based on information from the Department of Fisheries. The supply of fish has been able to keep pace with population growth but has been unable to replace shortages in other sources of animal protein. Per capita consumption of fish was 28.52 kg in 1976 which was close to the earlier estimate made by FAO.

2) - Domestic Production

Estimates of domestic production of fresh and salt water fish are listed in Table 4.8. Fish production fluctuated over the period 1967 to 1977. Production was highest in 1972, reaching 281,000 mt, and has not reached that level since. The major supply of fish comes from the ocean; seabream is the most common variety,followed by herring. The production season is from June until September. Unfortunately, expansion of territorial boundaries to the two-hundred-mile limit is unlikely to increase output significantly. Ghana has negotiated agreements with other coastal African nations for extraterritorial fishing privileges in more productive waters.

Production of fish from inland waterways is an important supply source. Statistics on fish production from Volta Lake are presented in Table 4.8. This supply of fish has been fairly constant. Several large rivers which feed the Volta Lake are another important source of fish in northern Ghana but no statistics are available. Ghana's domestic supply of fish will be increased only with greater exploitation of inland waters or by expanding into new fishing grounds.

3) - Imports

(a.) - Fresh and Frozen Fish. Imports of fresh and frozen fish for the period 1967 to 1976 are listed in Table 4.9. Imports were low until 1972, when fish imports escalated. With the change in governments in early 1972, the National Redemption Council adopted a liberal import policy for fish products. The value of these imports increased to over US $10 million. Imports increased even more in 1973, corresponding to the red meat shortages in southern Ghana; fish imports dropped after 1973 as red meat supplies increased. In 1976, the value of imports of beef quarters was at its peak, US $6.1 million, and in the same year the quantity of imports of fresh and frozen fish declined by 51 percent from 1975 levels.

TABLE 4.8

DOMESTIC PRODUCTION OF FISH, 1967 TO 1977
(Metric tons)

Year	Open Seas	Volta Lake	Total
1967	95,491	42,000	137,491
1968	73,068	43,500	116,568
1969	117,251	39,500	156,751
1970	156,348	39,903	196,251
1971	176,254	39,217	215,471
1972	249,068	32,383	281,451
1973	155,315	40,732	196,047
1974	182,080	37,300	219,380
1975	212,680	41,945	254,625
1976	195,750	39,000[a]	234,750
1977	233,821	39,000[a]	272,821

SOURCE: Department of Fisheries.

[a]Provisional estimates.

TABLE 4.9

FRESH, FROZEN, AND CANNED FISH IMPORTED TO GHANA, 1967 TO 1976

	Fresh & Frozen Fish		Fish & Fish Preparations in Airtight Containers			
Year	Quantity (mt)	Value ($'000)	Quantity (mt)	Value ($'000)	Total Quantity (mt)	Total Value ($'000)
1967	12,422	N.A.	3,241	N.A.	15,663	N.A.
1968	2,957	400	6,277	3,543	9,234	3,943
1969	2,110	560	7,642	3,758	9,752	4,318
1970	5,724	1,115	21,216	10,936	26,940	12,051
1971	10,047	1,904	17,828	8,267	27,875	10,171
1972	55,811	10,301	12,148	9,939	67,959	20,240
1973	81,928	15,732	17,190	10,124	99,118	25,856
1974	66,441	16,751	11,072	12,416	77,513	29,167
1975	57,507	14,279	10,871	11,376	68,378	25,655
1976	29,856	13,280	17,869	15,096	47,725	28,376

SOURCE: External Trade Statistics, 1967 to 1976.

(b.) - Fish and Fish Preparations in Airtight Containers. Fish and fish preparations in airtight containers were an important import commodity from 1968 to 1971, exceeding imports of fresh and frozen fish (Table 4.9). After 1971, the emphasis shifted to fresh and frozen fish, with the level of imports of fish preparations not exceeding the recorded highs of 1970. Because canned fish has a higher processing cost, the value of imports was close to that of fresh and frozen fish; in 1976, their value exceeded that of the fresh and frozen fish. Total imports after 1972 remained between US $25.8 and $28.4 million.

B. - Fish Prices

1) - Recent Trends

Recent trends in fish prices are illustrated in Table 4.10, with average quarterly prices for three major types of fish products: sea-bream, mackerel, and herring. From 1971 to 1975, quarterly prices were fairly stable, with price fluctuations attributed to seasonality. SFC controlled the price for fresh and frozen fish. In 1977, respective quarterly prices were double and triple those of 1976.

In 1976 and 1977, the price of fish products in airtight containers distributed by the Government was less than ¢1 per tin for mackerel o· sardines. In the marketplace, these items were either not available or were two to three times the official price. The Government has had difficulty in controlling prices and providing constant and regular supplies.

2) - Prices Relative to Other Sources of Animal Protein

Fish is the most inexpensive supply of protein in Ghana (Table 4.7). In 1977, the average price of fresh fish supplied by SFC was ¢1.36/kg, while bone-in beef sold by the MMB was priced at ¢3.00/kg. The price of fresh beef in the market is eight times as much as SFC's average price for fresh fish. In southern Ghana, the demand for fish and fish preparations is extremely high, and exceeds available supply

TABLE 4.10

QUARTERLY PRICES FOR FRESH FISH IN KUMASI
1971 TO 1977

YEAR	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1971	.50	.57	.43	.53
1972	.53	.50	.50	.53
1973	.53	.60	.63	.55
1974	.57	.56	.60	.53
1975	.50	.57	.52	.62
1976	.60	.52	.70	.60
1977	1.33	1.57	1.30	1.27
1978	1.40	1.60	1.60	1.60

SOURCE: Department of Fisheries, Ministry of Agriculture.

[a]Average price for seabream, mackerel, and herring.

at the price levels set by the Government. Because of a short supply, prices for fish are probably higher than those presented in Table 4.7 but are still lower than the prices for equivalent animal protein from other sources.

CHAPTER FIVE

FORECAST OF DEMAND FOR ANIMAL PROTEIN THROUGH 1985

I. - Introduction

To make projections to the year 1985, the base period of 1967 to 1971 is used. This time span reflects a period when Government intervention in the livestock-meat marketing system was minimal. After 1971, increased Government intervention distorted the marketing system. The large quantities of meat imported by MMB after 1975 were sold at Government controlled prices lower than for fresh meat from domestic production. Demand for imported meat being high, all meat was usually sold before noon at the Government retail shops.

For the base period of 1967 through 1971, average annual per capita consumption of meat was 2.09 kg (see Table 2.1); for the same period, the SEDES report estimated an annual per capita consumption of 2.02 kg. The 2.09 kg per capita figure is lower than the estimate for the period of 1972 to 1977, which is 2.49 kg. The figure for the 1967 to 1971 period was used to project per capita consumption through 1985 based on growth in population, rate of urbanization, and observed changes in per capita consumption.

II. - Population Growth

A. - Demand for Red Meat

Population estimates for 1985 are based on projections developed by the Census Bureau (Table 1.6). National growth rates are estimated at 2.7 percent annually from 1973 to 1980 and at 3.0 percent from 1981 to 1990. Population projections based on the 1970 census are 10,069,000 in 1977 and 13,354,000 in 1985. The growth rate is projected to increase from 1981 to 1990 because of the increased number of women of childbearing age.

The proportion of the population in the agricultural sector is estimated to decline from 1970 to 1985; this change will affect the national demand for animal protein. By 1985, the population in the agricultural sector will be 7 percent below 1970 levels. This will place additional pressure on traditional suppliers of animal protein. The growth of the non-agricultural sector will be absorbed into urban areas (Table 1.5).

The projected demand for red meat in 1985 is 27,910 mt based on an annual per capita consumption of 2.09 kg (the meat items included in this analysis are listed in Table 2.1). With a shift in composition of the national population to the nonagricultural sector, it is likely that demand for red meat will be even higher than 27,910 mt in 1985.

B. - Demand for Pork, Poultry, and Other Meat

If pork, poultry, and other meat (e.g. wild game) are included in the demand for animal protein, total demand will increase sharply. Based on FAO's estimates of per capita consumption, these categories contributed an additional five kg per capita annual consumption of animal protein (FAO, 1976). If this estimate is extrapolated, total demand for these products would be 66,770 mt in 1985. Demand for these products will probably increase more than for red meat because of price differentials. The deficits in animal protein resulting from red meat shortages will be partly filled with an increased consumption of poultry.

From personal discussions with Ministry of Agriculture officials, the author believes that consumption of bush meat (e.g. deer or grass-cutter) is declining because of overharvesting. FAO (1976) estimated that bush meat represents consumption of approximately four kg per capita per year. This decline in supply will increase demand for poultry and pork, assuming that total per capita consumption of these three sources of animal protein will remain constant. Overall demand for animal protein in 1985 will be 94,680 mt; 29 percent of this will be demand for red meat. If the higher per capita consumption of red meat for the 1972 to 1977 period is used, final demand for animal protein in 1985 would be 100,021 mt. For a comparison, FAO (1976) figures show a total demand

for meat of 99,000 mt for 1980 based on a low population growth rate, and 111,000 mt assuming a high growth rate.

III. - Effects of Urbanization

Another important factor is the effect of urbanization. Urban growth rates have been estimated by the Central Bureau of Statistics at 5 percent per annum from 1970 to 1985. The percentage of the population living in urban areas with more than 5,000 people will increase from 29 percent in 1970 to 39 percent in 1985, or a total of more than five million people. This high level of urbanization will increase the demand for animal protein.

The effects of urbanization on demand for red meat can be measured on the basis of per capita consumption estimates for six regional capitals (Chapter Two). Average per capita consumption of red meat was 6.35 kg in 1970 for these urban centers (Table 2.6). If other conditions (incomes and prices of red meat and substitute goods) remained stable, consumption of red meat would reach 32,830 mt in urban areas in 1985. Assuming that per capita consumption in the rural areas will match the national average of 2.09 kg, rural consumption would be 16,180 mt in the same year. Total demand for red meat in 1985 for both sectors would be approximately 49,000 mt, which is 75 percent higher than if the national average were applied to the entire population.

When demand for pork, poultry, and other meats are considered, total national demand for animal protein would reach about 115,800 mt in 1985. No distinctions have been made between rural and urban population for consumption of these types of animal protein, and consumption has been assumed to remain constant in both areas. Demand for red meat represents 42 percent of the total demand for animal protein projected for 1985.

IV. - Change in Per Capita Income and the Level of Real Prices

The difficulty in projecting demand for animal protein based on changes in per capita income is that since 1975, high inflation rates have nullified increases in nominal incomes. Stringent macroeconomic policies which devalued the cedi 58 percent in 1978 will also make imported animal protein more expensive.

It seems likely that income will not have a positive effect on consumption of animal protein through 1985. In the short term, through 1981, the high inflation rate will cause real income per capita to hold constant or decline below its level of ¢235 per capita in 1978. As seen through changes in the consumer price index (Table 1.5), real prices for red meat have been increasing since 1972. The effect of increased real prices and successive devaluations will have negative effects on the consumption of red meat.

The price elasticity for meat in countries of East Africa comparable to Ghana has been estimated at 1.2. If real prices for red meat continue to increase through 1985 at their current rate, demand for red meat will be lower than the 49,000 mt projected for 1985. How much less depends on the percentage increase in real prices for all types of animal protein, including fish.

CHAPTER SIX

GENERAL GOVERNMENT POLICIES REGARDING LIVESTOCK AND FISHERIES

I. - Production Policies

A. - Beef and Small Ruminant Production

A general policy for livestock development does not exist. Presently, several ministries of the Government have undertaken livestock projects without the aid of a central coordinating body. Duplication of activities is one consequence of a lack of coordination. Also, information useful to other projects has not been disseminated as effectively as it would be with centralization. There are even similar projects in the same geographic region; for example, Tarkwa, in the Western Region, has two small ruminant projects, one by the Animal Husbandry Division and the other by Veterinary Services -- and both are in the Ministry of Agriculture.

In 1977, 75 percent of all cattle, 48 percent of all sheep, and 52 percent of all goats were located in the Northern and Upper Regions. The Government has been working on but has yet to establish a viable program to increase productivity of these livestock herds. The only visible sign of Government services has been veterinary assistance. Attempts to introduce improved breeds and management practices have been started but results will take time. Part of the problem is that rangelands are communally owned; there is little incentive for producers to invest in improving the rangelands. Another factor which has impeded development of the livestock herds in northern Ghana has been that owners of livestock are absentee landlords. Cattle are cared for by hired Fulani drovers. Livestock rearing has been an occupation which has traditionally carried little social esteem, and this attitude has changed only since the borders closed in 1975 and prices for domestic livestock increased. Furthermore, Government policies have not created incentives for producers to adopt improved management practices.

B. - Poultry and Pork Production

The Government has placed emphasis on these two subsectors and has created incentives for entering the industry. Large Government-owned hatcheries are selling day-old chicks to producers to establish broiler and layer production units. The Government's policy has been to import large quantities of animal feed to expand production. In 1978, the Animal Husbandry Division of the Ministry of Agriculture imported over one million day-old chicks to insure that producers would have a continual supply for broiler production. The Government has not directly entered into pig production but has assisted producers by importing feed.

C. - Fish Production

Government policies in the area of fish production are channelled through the Government's State Fishing Corporation and the Department of Fisheries in the Ministry of Agriculture. By making loans available to fishermen to purchase boats and gear, the Government is improving the national fleet.

Government policy has sought to assist fleets in obtaining entry into the fishing grounds of neighboring West African coastal countries. The fishing grounds within Ghana's 200-mile limit are not as productive as are those of neighboring countries. Furthermore, to increase domestic fish production, Ghana has developed pilot fish farms and is studying the feasibility of supporting them on a large scale.

II. - Import Policies

Regarding importation of livestock and meat, the Government's policy has been to eliminate the traditional cattle trading system in Ghana and to either import live animals from the Sahel or import carcass meat from non-traditional West African suppliers. Choice between the two is based on price differentials as well as on other considerations such

as ease of marketing. Because all meat contracts are now awarded after competitive bidding, livestock and meat from the Sahel will have to be cheaper in price to compete with supplies from South American countries, which are currently the largest exporters of beef to Ghana.

The future marketing system in livestock with neighboring Sahelian countries will be on a forward contract basis. An agency representing the Ghanaian Government will deal directly with the appropriate government agency of livestock-exporting countries. Contracts will be signed specifying the quantity, type, and delivery date before any livestock can be delivered for sale to the quarantine stations at the border.

A policy recommendation made by regional veterinary officers at their annual meeting in Bolgatanga in January 1979 suggested that the Government investigate the possibility of using barter arrangements for purchasing livestock from the Sahel as a method to alleviate the meat shortage in Ghana and to reduce retail prices for animal protein. The trade would be in products which were traditionally export items to the Sahel. Products such as processed timber, kola nuts, and sheet iron would be traded for imported livestock. Furthermore, barter arrangements would reduce the drain of scarce foreign exchange, a shortage which Ghana will be facing up to 1985.

A recent Government policy directive concerning the distribution and retailing of meat will affect imports in the future. The Government has directed the MMB to be the major retailer of imported livestock and meat in an effort to further reduce the role of the middleman in the marketing system. If this policy is successful it will further solidify the Government's control over the purchasing and distribution channels of the livestock-meat marketing system. The private sector will be responsible only for marketing domestic production.

In October 1979 civilian Government again returned to Ghana. The eventual affect of this change on the marketing system is uncertain. However, with a civilian government, there is a possibility that the private sector will be given more freedom within the marketing system. Nevertheless, it is unlikely that the trade in livestock will return

to the system in use before 1971. Under civilian rule shortages of foreign exchange will still require Government control over the number of import licenses granted. The Government initially took control of livestock imports from the Sahel because of corruption by Ghanaian cattle dealers, and it is unlikely in the near future that this trade will be returned to them.

CHAPTER SEVEN

OUTLOOK FOR SUPPLIES OF BEEF AND SMALL RUMINANTS

I. - Natural Increase and Spontaneous Growth

A. - Supply of Beef

FAO estimates the annual growth rate of the national cattle herd at between 2 and 3 percent, based on census figures for 1971 to 1973 (FAO, 1976). Using two-year moving averages of the national herd for the period 1974 through 1977, annual growth was approximately 2.95 percent (Tables 3.1 and 7.1). Projected to the year 1985, the national herd would number about 1,039,000 head (Table 7.1).

When estimating future beef supply from domestic sources, the level of sustainable commercial offtake becomes important. One concern of veterinary officials, especially in northern Ghana, is that offtake is too high because of the higher prices for live cattle as a result of import restrictions on live animals from the Sahel. When large numbers of livestock were being imported, there was less demand for the smaller West African Shorthorn cattle indigenous to Ghana (FAO, 1976).

Medium-term prospects for domestic beef supply for Ghana will depend largely on the level of commercial offtake in Zone I. In production Zone I (see Chapter Three), livestock growth rates are low. Based on census figures in Table 3.1 and using two-year moving averages for 1974 to 1977 the annual growth rate was only 1.7 percent.

The growth rate for this herd is lower than the national rate, partly because of a reduction in inventories during this period. The heavy offtake in 1976 and 1977, in conjunction with the annual mortality rate of 5 percent and a calving rate of 50 percent, diminished the sustained growth rate of the traditional herd. Even though the Ghanaian Government has imposed a ban on movement of breeding stock from Zone I, breeding females are being slaughtered. Officials have been unable

TABLE 7.1

GROWTH RATES AND PROJECTED HERD SIZE FOR CATTLE AND SMALL RUMINANTS FROM 1978 TO 1985

	Cattle			
Annual Growth Rate (%)	National	Zone I	Sheep	Goats
	2.95	1.7	3.0	2.5
Projected Herd Size				
1978	847,547	617,159	1,045,615	853,122
1979	872,550	627,651	1,076,983	874,450
1980	898,290	638,321	1,109,293	896,311
1981	924,789	649,172	1,142,572	918,719
1982	952,071	660,208	1,176,849	941,687
1983	980,157	671,432	1,212,154	965,229
1984	1,009,071	682,846	1,248,519	989,360
1985	1,038,839	694,454	1,285,975	1,014,094

SOURCE: FAO.

[a]Zone I Statistics from Veterinary Services.

to control this slaughter because when herders are in emergency situations and need cash, they have to sell even their breeding stock.

B. - Supply of Small Ruminants

Average annual growth rates for sheep and goats are less precise than for cattle. The livestock census only estimated the number of sheep and goats instead of actually counting. For 1976 and 1977, the average national sheep flock was 1,015,161 head and the goat flock was 832,314 head (Table 3.1). FAO estimated for 1973 a flock growth rate of 3 percent for sheep and 1 percent for goats (FAO, 1976). Examination of flock numbers from 1973 to 1976 indicated that annual flock growth rate for goats was 2.5 percent (Table 3.1). Reported flock size for sheep for the same period seemed suspicious, so FAO estimates have been used. Flock sizes for sheep and goats are projected to 1985 in Table 7.1.

II. - Livestock Projects for the Public and Private Sectors

A. - Cattle Production Projects

Commercial cattle production projects have a limited effect on supply of beef in Ghana. Because Ghana relied heavily on imports of livestock from the Sahel until 1972, little emphasis was placed on investment in commercial ranches. With the drought curtailing supplies and raising prices for imported livestock the Government has considered developing ranches.

From 1972 until 1977, no cohesive development strategy for the livestock subsector was put forth. The various agencies have had different approaches to increasing commercial production. The Animal Husbandry Division of the Ministry of Agriculture emphasizes developing livestock breeding stations where improved breeds are tested. These breeding stations are distribution centers of improved stock; livestock

producers buy from them to upgrade their herds. The success of this approach is mixed; producers have not been able to create the same production environment as that of the breeding station, and low productivity and high mortality of the animals have sometimes been the result. Also, the Animal Husbandry Division is still experimenting with different exotic breeds and has not specified which breed they ultimately want to distribute. It is too early to assess what the results of the program will be.

Veterinary Services has chosen to direct its efforts to artificial insemination, and has been responsible for the collection and distribution of semen from improved breeds. The program recently received a setback when it was discovered that the semen had been infected with the disease streptotrichosis. Consequently, this program is under review. Also the Veterinary Services has had difficulty distributing semen to producers on the date requested.

The Cattle Development Board also had serious problems. They created several livestock ranches, but because of the high disease incidence herd sizes dropped precipitously. The breeding cattle were imported from the Sahel; unfortunately they are prime carriers of bovine pleuropneumonia (CBPP).

The Government of Ghana has entered into a loan project with the World Bank. The Ghana Livestock Company was created and has developed two ranches. One ranch is in the Brong-Ahafo Region at Brammen, and the other ranch is in the Volta Region at Tadzewu. The ranch at Brammen received cattle in 1978 from the Pong-Tamale ranch, which was closed because of a land dispute with local villages. Both ranches purchased breeding stock from Upper Volta. The Brammen ranch has 15,364 hectares, and the Tadzewu ranch has 3,145 hectares. The Brammen ranch will reach a stabilized herd of 6,000 head by 1986 with annual sales expected to amount to 1,176 head. By 1984, the Tadzewu ranch will reach a stabilized herd of 1,390 head with annual sales of 276 head per year.

The Meat Products Division of GIHOC, with assistance from Brazil, is planning a livestock ranch in Zone I in the Northern Region. GIHOC is considering importing Nelores cattle. The goal of this project is to provide a supply of beef for the meat canning factory in Bolgatanga.

The Upper Region Agricultural Development Program (URADEP) is a Ghanaian Government project with several international donor agencies. URADEP has planned to establish ten ranches in Tumu District in the Upper Region. The size of each ranch will be 2,000 hectares. A ranch manager was hired in 1978, but no breeding stock had been purchased. The ranches will attempt to involve local producers, asking them to help develop communal ranches by investing some of their livestock.

A private sector project of some note is the Bank of Ghana's Shai Hills Ranch, which is being managed by Gunn Management Consultants, an Australian firm. The ranch has approximately 7,727 hectares with a stocking rate of 4.5 hectares per mature cow. The Bank of Ghana has been able to receive an import license from the Governmnet to purchase livestock from the Sahel. The major emphasis of the ranch is to establish a brood cow herd by 1981 with an expected offtake of 1,000 steers per year with an average liveweight of 340 kg per head. However, a constraint on rapid commercial development has been the shortage of available breeding stock. If this project is successful, about 167 mt of meat will be added annually to the Tema/Accra urban markets. The Shai Hills Ranch also serves as a fattening operation for immature stock from Upper Volta; immature stock are bought at the beginning of the wet season in April/May and sold at the beginning of the dry season in November/December. For imported Sanga steers a daily gain of one-third of a kilogram has been accrued; sale weight is approximately 330-335 kg for animals which were three to three and one-half years of age. The project has illustrated the benefits of purchasing immature cattle for fattening on the Coastal Plains (Zone III, see Chapter Three) and supplying the Accra/Tema urban centers.

The Bank of Ghana, with Gunn Management, is planning a second ranch at Wulugu in the Northern Region. The ranch is to be 200 square miles in area and will seek to incorporate the herds of several villages into the project.

B. - Small Ruminant Production Projects

The Animal Husbandry Division of the Ministry of Agriculture has several small ruminant projects. One of these projects is in Tarkwa, in the Western Region, and another is in Ejura in the Ashanti Region. The Tarkwa project is experimental and designed to rear sheep and goat on improved pasture. Distribution is to local farmers as well as to institutions. The Ejura project is located in the transitional belt between Zones I and II, and illustrates the potential for converting the transitional zone into a productive livestock area. Long-legged Sudan sheep evidently have adapted to the wetter climate; however, veterinary attention is crucial for success. Only small stock which are well managed with regular prophalaxis will do well; it is a high cost enterprise. Another project is the Animal Husbandry's Perishe Small Ruminant Project near Cape Coast in Zone III. For the period of January 1977 to January 1978, the mortality rate for beginning inventories was as high as 58 percent. Pneumonia, diarrhea, and worm infestation, especially during the wet season, continue to be major factors limiting production in this Zone.

III. - Projected Domestic Supplies of Beef, Mutton and Goat Meat in 1985

In Table 7.2, projected supplies of red meat are listed by production Zone and for the nation (see Chapter Three for details on production Zones). Production Zone I in northern Ghana will continue to be the major source of red meat, supplying 66 percent of the nation's domestic supply. Zone III, the Dry Coastal Belt, will become a more important area, in particular for cattle production. Examples of success in fattening immatures for resale in southern urban areas will have an impact. Projected supply of red meat in 1985 is 20,396 mt.

TABLE 7.2

ESTIMATED RED MEAT PRODUCTION IN GHANA IN 1985
(Metric tons)

Production Zone	Cattle[b]	Sheep[b]	Goats[b]	Total
1	9,349	1,415	2.715	13,479
2	339	902	1,256	2,497
3	3,544	299	577	4,420
Nation	13,232	2,616	4,548	20,396

a. Commercial offtake rates estimated from Zone I are 12% for cattle, 23.9% for sheep, and 36.8% for goats.

b. Carcass weights were assumed to be 125 kg for cattle, 10 kg for sheep, and 15 kg for goats.

CHAPTER EIGHT

OUTLOOK FOR SUPPLIES OF POULTRY, PORK, AND FISH

I. - Natural Increase and Spontaneous Growth

A. - Supplies of Poultry

Supplies of meat from poultry are estimated to increase at an average rate of 3.4 percent per year from 1973 to 1990 (FAO, 1976). This estimate was the average between growth in the backyard poultry production and commercial sectors and represents the low alternative growth rate. Projected production of poultry meat in 1985 will be 18,200 mt. If the Government is capable of insuring adequate supplies of feedstuff and hatcheries can operate near full capacity (which they were unable to do in 1977 and 1978), then poultry meat could be an important source of animal protein offsetting deficits in supplies of red meat by 1985.

B. - Supplies of Pork

From the FAO study of livestock production in Ghana, the most important growth in the pork industry will be in the commercial sector (FAO, 1976). For the period 1971 to 1973, pork production was 2,289 mt annually and projected growth rates to the year 1990 were estimated at a low of 6.4 percent and a high of 7.4 percent. Achieving even the low rate of growth will depend on the availability of feed and the ability of multiplication units to increase the numbers of breeding stock. Assuming the low growth rate, pork production will be 4,800 mt in 1985, with an estimated 50 percent of the supply coming from the commercial sector.

C. - Supplies of Fish

For the period 1974 to 1977, average domestic fish production was 245,394 mt per year (Table 4.8). Based on a three-year moving average,

the annual growth rate for the 1974 to 1977 period was 6.7 percent. The average annual growth rate of domestic production for the 1967 to 1977 period was 8.4 percent, based on three-year moving averages; the annual growth rate has declined in recent years compared to the period between 1967 and 1972.

Projected production of fish from domestic supplies based on a 6.65 percent annual growth rate is 334,350 mt in 1985. This quantity will be possible only if the Government is able to negotiate for expansion into other fishing waters. Unless new sources of supply can be located, domestic production will not exceed 300,000 mt in 1985.

II. - Government Projects

A. - Poultry and Pig Production

The Government program affecting the pork and poultry industries involves importing feedstuffs to allow expansion of production units. The most important consideration for increasing future output is the availability of feed, followed by an availability of breeding stock. The Ministry of Agriculture made a commitment to expand poultry production by importing over one million day-old chicks in 1978. However, Government programs in multiplication of improved pig stock have not been as successful. Pig production has continued to remain largly in the control of private operators who rely on Government for supplies of feedstuffs.

Local regional administrations as well as state farms of the Ministry of Agricultural are involved in the production, slaughter, and marketing of poultry meat. The Government's involvement helps to keep the industry competitive and operating efficiently. The largest producer, Pomadze Farms Ltd., is state-owned and produces for its own use as well as for the private sector. For the period up to 1985, the poultry industry presents the favorable prospect of helping to meet the demand for animal protein.

B. - Fish Production

Government projects in the area of fish production have a goal to increase supplies by developing new sources of production. Development of fish farms is being studied by the Government; however, outputs have not been estimated. In 1978 and 1979, the Government obtained fishing permits in the territorial waters of Angola. Through these sources the Government hopes to increase domestic production in the short- to medium-term. Surprisingly, there are no plans to increase fish production from Volta Lake or its tributaries, where the recorded catch has remained fairly constant at between 32,000 to 44,000 mt per year for the period 1967 to 1977 (Table 3.8).

CHAPTER NINE

SUMMARY OF MARKET OUTLOOK THROUGH 1985

I. - Estimation of Import Requirements

A balance sheet for demand, production, and import requirements is developed in Table 9.1. A low and high alternative in the demand for animal protein is estimated. The demand for beef/veal, mutton, and goat meat includes the impact that the rate of urbanization could have by 1985. The effects of price and income changes on demand were not entered into the analysis. Domestic production of beef/veal is 50 percent of demand under the low alternative and only 33 percent under the high alternative. Ghana will require large imports of beef to satisfy demand.

With an increase in production of small ruminants, especially in the Forest Belt Zone, production of mutton and goat meat will satisfy demand requirements under projections for the low alternative. For the high alternative, Ghana will be a net importer of mutton and goat meat, importing 27 percent of its demand requirements.

In pork production, Ghana will have a production deficit of 10 percent under the low estimate. For the high estimate, Ghana will find it necessary to import 20 percent of its demand requirements. Under either alternative, deficits will cause pork prices to increase and consumption to shift to other sources of animal protein.

Production of poultry meets 1985 demands under the low estimate. The high demand estimate takes into consideration an increased rate of urbanization and a consumer shift to less expensive sources of animal protein from the more expensive beef/veal, mutton, and goat meat; production is expected to fall about 3800 mt short of demand.

Total demand for meat, excluding bush meat, exceeds production by 12,683 mt or 29 percent, under the low estimate. With a high demand

TABLE 9.1

PROJECTED DEMAND AND PRODUCTION OF ANIMAL AND FISH PROTEIN IN 1985[a]
(Metric tons)

Type	Low Estimate	High Estimate
Beef/Veal		
Demand	26,708	39,207
Production	13,232	13,232
Difference	-13,476	-25,975
Mutton and Goat		
Demand	6,677	9,802
Production	7,164	7,164
Difference	487	- 2,638
Pork		
Demand	5,341	6,000[b]
Production	4,800	4,800
Difference	541	- 1,200
Poultry		
Demand	17,360	22,000[b]
Production	18,207	18,207
Difference	847	- 3,793
Total Meat		
Demand	56,086	77,009
Production	43,403	43,403
Difference	-12,683	-33,606
Fish[c]		
Demand	384,595	463,000
Production	300,000	300,000
Difference	-84,595	-163,000

a. Analysis does not include the demand and supply of bush meat.
b. Estimates from FAO, 1976.
c. Estimated production of fish assumes current available sources of supply. Does not include possible expansion into new fishing grounds or fish farms.

for meat, production is short by 77 percent, requiring 33,606 mt in imports. Demand for meat will be reduced if Ghana allows real prices for meat to rise.

A substitute for animal protein is fish, which provides the major source of protein in diets. If Ghana is unable to expand production into new areas, then the shortfalls in demand in 1985 under the low alternative will be 22 percent (85,000 mt) and under the high alternative, 35 percent (163,000 mt).

II. - Government Projects Affecting Imports

A. - Development of Commercial Ranches

Both Government agencies and private firms are becoming more involved in development of commercial ranches because of Ghana's large deficits in red meat production. A major constraint on ranch development has been lack of adequate breeding stock. Importation of breeding stock, either from the Sahel or other livestock producing countries, like Brazil, will have to increase. Foreign sources have been contacted, and discussions have begun about importing stock and hiring management personnel to develop commercial ranches. However, the Government has been hesitant to pursue these projects because of the difficulties that exotic animals experience in tropical climates.

The Shai Hills Ranch in the Dry Coastal Belt (Zone III) has shown favorable results in fattening immature steers for slaughter in the southern urban markets. Fattening operations by both Government and private firms which are being considered would increase demand for imported livestock from the Sahel. Because of the high retail prices that prevailed in 1977 and 1978, fattening operations appear to be profitable even if livestock have to be purchased with foreign exchange.

Commercial ranch operations for small ruminants, especially in the Forest Belt (Zone II), are being encouraged by the Government. Projects in Ejura have been successful in raising the imported Sudan

Long-legged sheep. As small ruminant production is encouraged, demand for imports of breeding stock will increase. Development of the Transitional Belt in the Ashanti and Brong-Ahafo for livestock will require better breeds of sheep and goats to crossbreed with the indigeneous Coastal Dwarf.

B. - Processing Plant

GIHOC's meat canning factory in Bolgatanga needs innovative development plans to return it to a profitable operation. The plant is grossly underutilized because of a low supply of live animals. It is possible that commercial ranches will be developed in the Transitional Belt of Ashanti and Brong-Ahafo that will be capable of supplying the plant. These ranches will require imports of breeding stock over long periods of time. The MMB may import slaughter stock from the Sahel to supply GIHOC's plants. However, some difficulties arose when this arrangement was tried in 1972 and 1973; GIHOC defaulted on large loans from the MMB which were not repaid until 1976. A feasible proposal might be for GIHOC to lease the plant to a Sahelian country which could ensure supplies of livestock, allowing GIHOC to concentrate on marketing activities.

III. - Possible Constraints Limiting Imports

A. - Infrastructure

1) - Transportation and Market Facilities for Livestock Imports

The livestock quarantine stations in Ghana are well developed, having been in existence since the 1920s. The road system from the northern border to the southern urban areas is in satisfactory condition; the majority of the north-south arteries are all-weather roads.

If a return to live imports should occur, holding grounds for livestock located near southern urban areas will have to be developed. The MMB suffered losses in 1973 and 1974 when livestock were purchased in large quantities and distributed to the south; the MMB had to sell the animals immediately because of the lack of feeding facilities.

2) - Storage, Transportation, and Wholesaling Facilities for Imported Meat

The Meat Marketing Board was planning to build large cold storage facilities in Tema and Accra in 1979 to receive shipments of meat for regional distribution. The number of cold vans will have to be increased to handle the greater imports of meat for distribution to regional urban centers. Cold storage facilities in the regional capitals are adequate; MMB rents space from the State Fishing Corporation. If the MMB should decide to expand further into retailing of its meat, large investments in vehicles, shops, and cold storage will be required.

B. - Foreign Exchange

The major constraint on imports of livestock and meat will be the availability of foreign exchange. The 1978 cedi devaluation of 58 percent makes imported livestock and meat more expensive; imports of meat are unlikely to reach the levels of 1975 to 1977. Because of scarce foreign exchange, large deficits in consumption of beef will occur through 1985.

C. - Trend in World Prices for Red Meat

Indications are that beginning in 1979 and continuing for three to four years, the world price for meat will rise. The FOB price for bone-in beef imported to Ghana rose during 1978 by $150 per mt. The combination of rising world prices for beef with scarce foreign exchange and recent devaluations will prove a major constraint on future imports of meat by Ghana.

APPENDIX TABLES

APPENDIX
TABLE 1

SOURCES AND TYPES OF MEAT IMPORTED BY THE MEAT MARKETING BOARD, APRIL 1975 TO DECEMBER 1977

Date	Country of Origin	Type of Meat	Quantity	Weight (kg)	Value (¢)
1975					
May	United Kingdom	Lamb Breast		12,658	118,344
June	New Zealand	Lamb Breast		219,687	221,255
	United Kingdom	Lamb Breast		132,825	120,233
	United Kingdom	Boneless Beef		102,495	120,233
	United Kingdom	Boneless Beef		96,816	103,079
	United Kingdom	Lamb Breast		31,327	33,481
July	South America	Bone-in Beef		600,046	765,900
August	United Kingdom	Boneless Beef		140,058	150,708
September	South America	Bone-in Beef		797,234	918,903
	United Kingdom	Boneless Beef		117,269	125,153
	New Zealand	Bone-in Beef		50,247	447,774
	New Zealand	Bone-in Beef		494,625	558,849
	New Zealand	Lamb Breast		16,000	14,984
November	New Zealand	Bone-in Beef		470,652	512,148
	New Zealand	Bone-in Beef		122,322	94,595
	Holland	Bone-in Beef		7,882	8,242
	Holland	Bone-in Beef		29,238	32,207
	Holland	Bone-in Beef		86,588	90,881
	South America	Bone-in Beef		1,027,655	1,299,996
	South America	Bone-in Beef		954	1,097
ANNUAL				4,670,511	5,711,054

APPENDIX
TABLE 1
(continued)

Date	Country of Origin	Type of Meat	Quantity	Weight (kg)	Value (¢)
1976					
January	New Zealand	Bone-in Beef	360	24,926	
February	Uruguay	Bone-in Beef	157	7,999	
	Uruguay	Bone-in Beef	147	781,075	988,060
May	Uruguay	Bone-in Beef	11,024	620,155	803,653
June	Denmark	Pigs' Feet	600	27,240	21,384
	Denmark	Pigs' Feet	400	18,160	14,184
July	Uruguay	Bone-in Beef	10,886	552,743	775,498
	Denmark	Pigs' Feet	400	18,160	14,688
	Denmark	Pigs' Feet	692	31,383	25,659
	Argentina	Beef Trimmings	8,544	252,943	300,070
	Argentina	Bone-in Beef	4,580	172,672	155,969
August	Denmark	Pigs' Feet	302	13,711	11,144
	New Zealand	Lamb Breast	24,382	521,947	276,110
September	Argentina	Boneless Beef	5,675	176,145	217,660
	Argentina	Bone-in Beef	4,212	285,584	299,163
October	New Zealand	Lamb Breast	9,273	199,649	105,614
	New Zealand	Bone-in Beef	8,954	580,155	750,576
	Argentina	Bone-in Beef	6,407	469,093	491,264
	Argentina	Boneless Beef	4,267	129,943	160,601
December	Uruguay	Bone-in Beef	16,150	764,859	774,037
ANNUAL				5,654,541	7,196,676

APPENDIX
TABLE 1
(Continued)

Date	Country of Origin	Type of Meat	Quantity	Weight (kg)	Value (¢)
1977					
March	Uruguay	Bone-in Beef	7,548	419,019	475,614
April	Holland	Pigs' Feet	500	30,000	17,674
	Holland	Pigs' Feet	329	24,675	14,201
	United Kingdom	Pigs' Feet	500	30,000	17,674
	United Kingdom	Salted Beef	1,000	80,000	89,100
	Uruguay	Bone-in Beef	13,905	699,501	872,112
May	Denmark	Pigs' Feet	350	26,250	15,107
	New Zealand	Lamb Breast	12,792	289,949	196,987
	Denmark	Boneless Beef	8,240	217,206	296,115
	Uruguay	Bone-in Beef	6,646	361,953	451,868
	United Kingdom	Salted Beef	764	61,120	68,072
June	Holland	Pigs' Feet	400	24,000	14,140
	Holland	Pigs' Feet	600	36,000	21,209
	Holland	Pigs' Feet	600	36,000	21,209
	Holland	Pigs' Feet	500	30,000	17,674
	Holland	Pigs' Feet	600	36,000	21,209
	Uruguay	Bone-in Beef	7,526	388,457	484,697
	Holland	Pigs' Feet	1,150	69,000	41,601
July	Holland	Pigs' Feet	600	36,000	21,209
	New Zealand	Lamb Breast	451	349,780	252,606
	Uruguay	Bone-in Beef	18,614	993,753	1,225,702
	Holland	Pigs' Feet	999	45,355	36,646

APPENDIX
TABLE 1
(Continued)

Date	Country of Origin	Type of Meat	Quantity	Weight (kg)	Value (¢)
1977					
July	Holland	Pig Feet	450	27,000	36,646
September	Uruguay	Bone-in Beef	38,798	1,820,975	16,507
	Holland	Pigs' Feet	501	30,060	22,722
	Holland	Pigs' Feet	1,000	45,400	18,818
	Holland	Pigs' Feet	1,000	45,400	35,850
October	Holland	Pigs' Feet	850	38,590	35,850
	Uruguay	Bone-in Beef	12,513	721,383	31,474
	Uruguay	Bone-in Beef	3,522	175,822	900,520
November	Holland	Pigs' Feet	700	42,000	219,382
December	Brazil	Salted Beef	7,334	220,000	2,604
	Holland	Pigs' Feet	1,250	72,000	543,950
	Holland	Pigs' Feet	550	24,750	46,505
	Uruguay	Bone-in Beef	16,176	1,820,995	21,060
	Brazil	Salted Beef	4,334	137,380	1,232,970
	Holland	Pigs' Feet	1,050	47,540	642,850
	Holland	Pigs' Feet	31	1,245	40,207
ANNUAL			174,673	9,554,558	8,483,799

SOURCE: Meat Marketing Board files.

[a]Official exchange rate is U.S. $1.00 = ¢1.15.

TABLE 2

F.O.B. AND FREIGHT COST FOR SELECTED SOURCES AND RED MEAT PURCHASED BY THE MEAT MARKETING BOARD, 1973 TO 1977.

Year	Qtr.	Country of Origin	Exporting Company	Type of Meat[a]	Quality	Net Weight (m.t.)	F.O.B.[b] ($/m.t.)	Freight[b] ($/m.t.)
1973	1	USA	--	Sheep & Goat Carcasses	50% Grd. I 50% Grd. II			
	2	New Zealand	Bothwich & Sons	Lamb breasts	FAQ	62.08	(C&F = $23,350)	
		Martinique	--	Boneless Beef	--	1,800.00	(C&F = $1.34/kg.)	
	3	USA	Int. Kal-Sahara Corp.	Salted Boneless Beef	--	250.00	(C.I.F. = $1,433/m.t.)	
		New Zealand	Bothwich & Sons	Mutton Carcasses	Prime Ewe		535	
		New Zealand	Bothwich & Sons	Mutton	Prime Loins	188.46	1,144	124.00
		New Zealand	Bothwich & Sons	Mutton	Prime Legs		1,378	
		New Zealand	Bothwich & Sons	Mutton	Flaps & Breasts		364	
		New Zealand	Bothwich & Sons	Lamb Breasts & Flaps				
		Holland	--	Salted Beef	--	44.64	(C&F = $6,333)	
1974	1	U.K.	Frank Scott	Lamb breast	--	5.80	1,200	116.00
		U.K.	Frank Scott	Cured Lamb Breast	--	14.28	264	65.00
	2	Holland	Van Dijk	Pigs Feet	--	14.53	658	114.00
		New Zealand	Muir & Co.	Lamb Breast & Flaps	--	8.14	586	166.00
		U.K.	Frank Scott	B.C. Boneless Beef	--	12.86	428	90.86
		U.K.	Frank Scott	B.C. Lamb Breast	--	147.03	903	95.80
		U.K.	Frank Scott	Lamb Breast	--	76.21	685	71.00
		New Zealand	Muir & Co.	Lamb Breast & Flaps	--	72.00	585	179.00
		New Zealand	Muir & Co.	Lamb Carcasses	YM	55.80	--	189.00
		New Zealand	Muir & Co.	Lamb Breasts	LP	68.08	--	173.00
		New Zealand	Muir & Co.	Lamb Carcasses	YL	22.65	1,039	180.00
		Holland	Van Dijk	Pigs Feet	--	99.89	658	114.00
		U.K.	Frank Scott	B.C. Lamb Breasts	--	8.20	673	80.00
		U.K.	Frank Scott	B.C. Boneless Beef	--	31.25	837	80.00
		New Zealand	Muir & Co.	Lamb Breast & Flaps	--	2.90	598	151.00
		New Zealand	Muir & Co.	Lamb Carcasses	P2	30.00	1,066	172.00
		New Zealand	Muir & Co.	Lamb Carcasses	YM	10.01		
		New Zealand	Muir & Co.	Lamb Carcasses	YM	18.27		
		New Zealand	Muir & Co.	Lamb Carcasses	YL	16.73	1,065	172.00

APPENDIX
TABLE 2
(Continued)

Year	Qtr.	Country of Origin	Exporting Company	Type of Meat[a]	Quality	Net Weight (m.t.)	F.O.B.[b] ($/m.t.)	Freight[b] ($/m.t.)
	2	New Zealand	Muir & Co.	Lamb Breast & Flaps	--	148.75	600	152.00
		U.K.	Frank Scott	B.C. Lamb Breasts	--	21.69	1,653	163.00
		Holland	Van Dijk	Pigs Feet	--	228.14	658	114.00
	3	U.K.	Frank Scott	B.C. Boneless Beef	--	193.13	890	69.00
	4	Holland	Van Dijk	B.C. Pigs Feet	--	35.18	657	129.00
		U.K.	Frank Scott	B.C. Boneless Beef	--	299.20	1,339	110.00
1975	1	Holland	Van Dijk	Pigs Feet	--	17.86	657	129.00
		U.K.	Frank Scott	B.C. Boneless Beef	--	17.86	1,482	130.00
	2	U.K.	Frank Scott	Lamb Breasts	--	255.35	671	188.00
		New Zealand	Frank Scott	Boneless Breasts	--	100.90	921	196.00
		New Zealand	Norward	Lamb Breasts	--	32.90	782	187.00
		Australia	Norward	Boneless Beef Briskets	--	100.14	765	181.00
	3	U.K.	Frank Scott	Boneless Beef	--	253.31	869	205.00
		New Zealand	Frank Scott	Beef Quarters	--	1,037.79	394	109.00
		New Zealand	Muir & Co.	Beef Quarters	FAQ/GAQ	122.32	483	218.00
		New Zealand	Muir & Co.	Lamb Breast & Flaps	--	219.73	553	200.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	600.12	860	250.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	799.05	750	250.00
	4	Holland	Frank Scott	Beef Qtrs.	--	123.32	728	199.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	1,028.62	800	250.00
1976	1	New Zealand	Muir & Co.	Beef Qtrs.	GAQ/FAQ	24.93	460	231.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	1,581.00	850	242.00
	2	Denmark	Frank Scott	Pigs Feet	Grade 1	63.15	911	246.00
	3	New Zealand	Muir & Co.	Beef Qtrs.	P1,G,L1	580.16	978	247.00

APPENDIX
TABLE 2
(Continued)

Year	Qtr.	Country of Origin	Exporting Company	Type of Meat[a]	Quality	Net Weight (m.t.)	F.O.B.[b] ($/m.t.)	Freight[b] ($/m.t.)
	3	New Zealand	Frank Scott	Lamb Breasts	--	199.65	239	258.00
		Denmark	Frank Scott	Pigs Feet	--	63.29	748	202.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	522.74	970	250.00
		Uruguay	Covesud, S.A.	Beef Trimmings	--	183.26	828	140.00
		Argentina	Covesud, S.A.	Beef Trimmings	--	85.74	828	140.00
	4	Uruguay	Infoodco	Beef Qtrs.	Good Commercial	764.86	705	175.00
1977	1	Holland	Superior Int.	Pigs Feet	--	49.11	529	152.00
		U.K.	Frank Scott	Pigs Feet	Natural Grade-1	30.31	962	204.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	414.41	820	178.00
	2	Holland	Superior Co.	Pigs Feet	Grade 1	89.29	529	152.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	690.67	920	178.00
		U.K.	Frank Scott	Salted Beef	--	61.12	1,226	123.00
		New Zealand	Muir & Co.	Lamb Breast & Flaps	--	269.75	410	310.00
		New Zealand	Frank Scott	Boneless Beef	--	206.99	1,144	266.00
		Uruguay	Infoodco	Beef Qtrs.	Good Commercial	690.67	920	178.00
	3	New Zealand	Muir & Co.	Lamb Breast & Flaps	--	326.50	423	335.00

SOURCE: Meat Marketing Board official files.

[a]B.C. stands for brine cured.

[b]Exchange Rates: U.S. $1.00 = ¢1.15.

APPENDIX
TABLE 3

REGIONAL DISTRIBUTION OF IMPORTED MEATS BY THE MEAT MARKETING BOARD APRIL 1976 TO JUNE 1977

Regions	BONE-IN BEEF			BONELESS BEEF			LAMB BREAST			SALTED BEEF			PIGS FEET	
	Qty.	Wt.	Value	Qty.	Wt.	Value	Qty.	Wt.	Value	Qty.	Wt.	Value	Qty.	Value
Upper Region (Bolgantanga)	1544	82550	165100.00	295	9043	19894.60	325	6972.5	10995.20	5	--	1127.50	60	6160.00
Northern Region (Tamale)	1841	103062.1	206124.20	255	7608	16737.60	625	13195.3	35492.85	5	--	1127.50	60	6160.00
Ashanti Region (Kumasi)	5504	294845	589690.00	1682	30889	12403.50	1819	38008	101392.75	-	--	--	276	33776.96
Volta Region (Ho)	3213	178735.6	343471.20	1004	30152.4	66335.28	1379	29473	78957.70	40	--	9120.00	240	28326.80
Eastern Region (Koforidua)	3920	204544	409088.00	1175	34510	75528.20	1845	37461.5	109066.68	-	--	--	230	26964.80
Western Region (Sekondi)	4988	274645	549290.00	1478	39722	87388.40	1956	39000.5	106071.33	-	--	--	252	26840.32
Central Region (Cape Coast)	4180	220256	440512.00	1125	29845	60190.30	2365	49011.9	132421.44	30	--	6762.00	283	32358.50
B/Ahafo (Sunyani)	2960	116111.7	292223.40	1237	50298	99582.76	1090	23211.5	64310.25	30	--	6762.00	220	25320.20
G. Accra Region (Accra)	56415	3023493.5	6046987.00	6981	232746	602272.00	18558	373684.3	1033041.68	271	--	61004.90	2187	261948.53
Total	84565	4521242.9	9042485.80	15232	464713.40	1040332.64	29,962	610018.5	1679749.77	381	--	85983.90	3808	447856.11

SOURCE: Meat Marketing Board.

APPENDIX
TABLE 4

MONTHLY REGIONAL DISTRIBUTION OF IMPORTED MEATS BY THE MEAT MARKETING BOARD, APRIL 1976 TO JUNE 1977

MONTHS	BONE-IN BEEF			BONELESS BEEF			LAMB BREAST			SALTED BEEF			PIGS FEET	
	QTY	WT (Kg)	VALUE	QTY	WT (Kg)	VALUE	QTY	WT (Kg)	VALUE	QTY	WT (Kg)	VALUE	QTY	VALUE
April 76	3287	165222.5	330445.00	1	29	55.10	-	-	-	-	-	-	-	-
May 76	6428	361250.6	722501.20	8	228	433.20	8	173	363.30	-	-	-	-	-
June 76	1527	80478	160956.00	-	-	-	-	-	-	-	-	-	-	49540.00
July 76	10826	492300	981600.00	1437	26449	95380.30	40	788	2759.75	-	-	-	540	96112.30
Aug. 76	2297	95837	191674.00	2726	72266	153847.70	1363	25797	68362.05	-	-	-	1049	42207.44
Sept. 76	4383	355052	710104.00	1651	60251	120836.10	8016	165211	437795.40	-	-	-	366	2179.20
Oct. 76	6624	380364.5	760729.00	546	16762	136876.20	5240	106890.5	283259.88	-	-	-	22	2507.15
Nov. 76	3801	248871	497742.00	1838	83544	183686.20	3919	75898	201129.70	-	-	-	72	8205.12
Dec. 76	8912	465137	930274.00	801	23093	50804.60	2577	54886	145447.90	-	-	-	175	19943.00
Jan. 77	6663	313466.3	626932.60	1611	40565.2	89243.44	1600	33554	88918.10	-	-	-	-	-
Feb. 77	3466	171712	343424.00	1378	43031	94273.40	2560	52736.3	139751.20	-	-	-	5	569.80
March 77	3401	204412	408824.00	995	35144	75521.80	994	20392.0	54051.19	-	-	-	-	-
April 77	5447	291793	583586.00	761	24118	53059.60	-	-	-	-	-	-	-	-
May 77	9164	44097.5	890195.00	842	23309	51279.80	2211	44335.4	155173.90	30	-	6762.00	310	44486.60
June 77	8069	450249.5	900499.00	637	15925	35035.00	1434	29356.4	102747.40	351	-	79221.90	1269	182105.50
Total	84295	4521242.9	9042485.80	15232	464714.2	1140332.64	29962	610018.5	1679749.77	381	-	85983.90	3808	447856.11

SOURCE: Meat Marketing Board.

APPENDIX
TABLE 5

INTERNAL TRANSPORTATION RATES FOR CATTLE, SHEEP, AND GOATS AND ATTENDANT FEES PAID BY MEAT MARKETING BOARD, 1976
(Cedis)

	From the Border to:	Transportation Rates	
		Old Rate	New Rate
CATTLE	Bolgatanga	-	3.00
	Tamale	5.00	6.00
	Kumasi	12.00	14.00
	Sunyani	15.00	18,00
	Koforidua	17.00	18.00
	Accra	19.00	20.00
	Cape Coast	19.00	20.00
	Sekondi	20.00	23.00
	Ho	24.00	25.00
SHEEP & GOATS	Bolgatanga	0.60	1.00
	Tamale	1.00	2.00
	Kumasi	2.40	3.00
	Sunyani	2.60	4.00
	Koforidua	2.60	4.00
	Accra	3.00	5.00
	Cape Coast	3.00	5.00
	Sekondi	3.00	6.00
	Ho	3.40	7.00
		Cattle Attendant Fees:	
CATTLE	Bolgatanga	2.00	4.00
	Tamale	4.00	8.00
	Kumasi	11.00	18.00
	Sunyani	11.00	20.00
	Koforidua	15.00	20.00
	Accra	15.00	24.00
	Cape Caost	16.00	24.00
	Sekondi	16.00	30.00
	Ho	20.00	32.00

SOURCE: Meat Marketing Board.

APPENDIX
TABLE 6

DISTRIBUTION OF IMPORTED CATTLE, SHEEP, AND GOATS BY THE MEAT MARKETING BOARD FROM APRIL 1974 TO MARCH 1976

Regional Capital	April 1974 to March 1975				April 1975 to March 1976				Total					
	Cattle (hd.)	Value (¢ 000)	Sheep/ Goats (hd.)	Value (¢ 000)	Cattle (hd.)	Value (¢ 000)	Sheep/ Goats (hd.)	Value (¢ 000)	Cattle (hd.)	Value (¢ 000)	Sheep/ Goats (hd.)	Value (¢ 000)	Cattle Rec'd % of Total	Sheep/ Goats Rec'd % of Total
Accra	15,687	3,775.6	7,566	593.9	228	53.7	9,548	539.8	15,915	3,829.3	16,924	1,133.7	38	45
Kumasi	7,650	2,039.6	1,323	61.9	289	45.8	2,822	173.4	7,939	2,085.4	4,145	235.3	19	11
Koforidua	2,973	738.9	751	28.2	76	17.6	310	17.7	3,049	756.5	1,061	45.9	7	3
Cape Coast	2,329	587.2	603	26.2	87	20.3	570	34.3	2,416	607.5	1,173	60.5	6	3
Takoradi/Sekondi	5,255	1,273.6	1,714	63.8	93	23.1	1,457	75.7	5,348	1,296.7	3,171	139.5	13	8
Sunyani	3,742	933.2	1,122	34.6	107	27.1	669	39.6	3,849	960.3	1,791	74.2	9	5
Ho	1,297	314.6	393	13.9	65	15.4	410	23.8	1,362	330.0	803	37.7	2	2
Tamale	59	17.0	79	4.8	--	--	300	16.8	59	17.0	379	21.6	1	1
Bolgatanga	934	227.0	23	1.3	27	4.9	4,137	383.0	961	231.9	4,160	384.3	2	11
Sundries	1,025	236.9	3,396	82.9	--	--	643	41.8	1,025	236.9	4,039	124.7	2	11
NATIONAL	40,951	10,143.6	16,910	911.5	972	207.9	20,866	1,345.9	41,923	10,351.5	37,836	2,257.4	100	100

SOURCE: Meat Marketing Board's 1974 to 1975 Annual Report and 1975 to 1976 Annual Report.

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ACKNOWLEDGEMENTS

This report is based on fieldwork carried out in the Republic of Liberia in April and May 1978 by Henri P. Josserand, Research Associate at the Center for Research on Economic Development (CRED) of the University of Michigan.

The author would like to thank the Government of Liberia for the considerable help and collaboration offered at every stage of the study, especially through officials of the National Livestock Bureau, Ministry of Agriculture, and the Ministry of Planning and Economic Affairs. Particular thanks are due Messrs. Hilary Mason, Director, and Lancelot Mac Cauley, Assistant Director of the Livestock Bureau, and to their staff for their dedicated and friendly cooperation. Among the many in various capacities who offered their collaboration, Messrs. Elijah Roberts and James Mehn of Monrovia, Samuel Hodge (MOA Coordinator, Grand Gedeh County) and Daniel Nyanfor, Livestock Supervisor, Maryland County, Dr. Jacobs of Sinoe County and the veterinarians of Suakoko, Saniquellie and Voinjama deserve particular acknowledgement.

ABSTRACT

Total Liberian consumption of meat and meat products (excluding game) for 1977 is estimated to have reached over 10.6 thousand metric tons, which is equivalent to a per capita intake of 6.4 kg for that year. The domestic livestock sector supplied over 60 percent of total consumption, the relative contribution of the various animal species being: cattle, 4.4 percent; small ruminants, 14 percent; swine, 52 percent; and poultry, 30 percent.

Livestock and meat imports accounted for the other 4 thousand tons of meat consumed and cost the Republic well over $6 million worth of foreign exchange.

Over the 1968-1977 period, total consumption of meat and meat products grew at an average 4.7 percent per annum, bringing per capita meat intake from 5.7 kg up to 6.4 kg. Domestic production, however, grew at an average combined (all species) rate of 3.5 percent. Total meat and livestock imports therefore increased by a 6.9 percent average annual rate from 2,186.1 tons in 1968 to 3,994 tons in 1977.

During the same 1968-1977 period, imports consisted mostly of frozen meat from Denmark, the United States, Australia and Argentina; the livestock share of livestock and meat imports being over 50 percent in two years only (see Abstract Table II).

Liberian meat imports from West African states were extremely limited; the most significant amount never reached twenty tons annually. Livestock imports consisted of cattle imports from Mali, Ivory Coast, Sierra Leone, and Guinea; these animals were and still are nearly always trekked to the Liberia border, and trucked within the Republic.

From low 1968 and 1969 levels, cattle imports rose very sharply (by factors of 2 and 3) between 1970 and 1972, and peaked at over two thousand tons in 1973 and 1976, the only years during which livestock imports added up to more than half of total meat and livestock imports. As a result of drought-induced destocking, the number of Sahelian animals supplied on southern markets drove down the relative price of livestock enough to induce a notable decrease in the amount of frozen meat imports.

By 1975, livestock imports were back below the 1970 level due to both Sahelian herd reconstitution efforts and falling Liberian real incomes.

Over the last few years, Sahelian (i.e. Malian in the case of Liberia) livestock exports have had to compete not only with frozen meat imports, but with sharply increasing numbers of N'dama cattle from Guinea and Sierra Leone as well.

On the basis of the various growth and offtake parameters presented in Chapter Two, it is estimated that domestic meat production will go on increasing at about 3.5 percent annually up to the 1990 horizon. Aggregate meat demand, on the other hand, is expected to rise faster, at about 4.5 percent yearly on the average. Furthermore, data presented in section 5.3 suggest that the income elasticity of demand for imported meat and livestock is very close to one. It is therefore estimated that for 1985 and 1990 the following will prevail:

	Domestic Production (tons)	Imports of Meat & Livestock (tons)	Total Consumption (tons)
	%	%	%
1985	8,749.5 (58)	6,379.5 (42)	15,129.0 (100)
1990	10,391.7 (55)	8,461.8 (45)	18,853.5 (100)

Our analysis of the changing composition of meat imports over the 1968-1977 period, presented in Chapter 5, reveals a remarkable sensitivity of demand to relative price changes among categories of meat imports. The overall cost increase was kept by the Liberian consumers at 6.5 percent annually through a shift away from the more expensive SITC-defined 011 and 013 meat imports to the cheaper 012 products, which have been rising more steeply but are still less costly than the other two categories.

It is expected that Liberian consumers will go on allocating consumption among the four available meat imports (011, 012, 013, and meat from livestock) according to the relative prices of these four classes of goods. We look for the total value of meat and livestock imports to closely follow the path of national income but conclude that Sahelian livestock will not displace the various competing frozen meat and livestock products (from Guinea and Sierra Leone) to a notable extent, especially on the Monrovia market.

SUMMARY OF SUPPLY AND DEMAND CONDITIONS FOR MEAT IN LIBERIA, 1968-1977

Year	Estimated[1] Domestic Production (metric tons)	As % of Total Consumption	Total[2] Imports (metric tons)	Total Consumption (metric tons)	Per Capita[3] Consumption (kg/year)
1968	4,861.2	69.0	2,186.1	7,047.3	5.70
1969	5,032.8	70.5	2,107.7	7,140.5	5.60
1970	5,210.5	66.0	2,638.8	7,849.3	5.90
1971	5,394.4	57.0	4,005.0	9,399.4	6.90
1972	5,584.8	59.0	3,844.7	9,429.5	6.70
1973	5,782.0	60.0	3,872.5	9,654.5	6.60
1974	5,986.1	63.5	3,443.9	9,430.0	6.30
1975	6,197.4	72.0	2,421.7[4]	8,619.1	5.50*
1976	6,416.2	64.0	3,612.4	10,028.6	6.25
1977	6,644.5	62.5	3,994.0	10,638.5	6.40

SOURCE: Republic of Liberia, Ministry of Planning and Economic Affairs (MPEA), External Trade of Liberia, 1968-1977.

[1]The estimate of domestic production for the most recent (1977) year is based on the data presented in Table 2.2. The geometric weighted mean of the rate of growth of each domestic species yields a 3.5% average rate of growth for the domestic livestock subsector.

[2]These include meat as well as live animal imports from surrounding countries. Tables A through D present the underlying data base.

[3]Consumption figures do not include the contribution of wild game; they are necessarily rough approximations and would not improve the year-to-year comparativeness of the consumption data in this table.

[4]1975 was a year of particularly slow income growth for Liberia.

ABSTRACT II

MEAT IMPORTS OF LIBERIA, ALL SOURCES 1968-1977,
(metric tons)

Year	Red Meat	% of Total	Meat From Live Animals[1]	% of Total	Total
1968	1,730.4	79.2	455.7	20.8	2,186.1
1969	1,655.9	78.6	451.8	21.4	2,107.7
1970	1,541.2	58.4	1,097.6	41.6	2,638.8
1971	2,538.2	63.4	1,466.8	36.6	4.005.0
1972	2,072.7	53.9	1,772.0	46.1	3,844.7
1973	1,609.9	41.6	2,262.6	58.4	3,872.5
1974	1,393.5	40.5	2,050.4	59.5	3,443.9
1975	1,498.1	61.9	923.6	38.1	2,421.7
1976	1,830.3	50.7	1,782.1	49.3	2,612.4
1977	22,122.2	53.1	1,871.8	46.9	3,994.0

SOURCE: MPEA, External Trade of Liberia, 1968-1977.

[1]Meat and offals from live animals from Sierra Leone, Guinea, Ivory Coast, Mali, and Senegal and others. See Tables A through D, Statistical Appendix.

NOTES:
- Offals taken as 25% carcassweight for cattle and 15% for small ruminants.
- Average carcassweight of zebus, 140 kg; N'damas, 100 kg.
- Average carcassweight of small ruminants from Mali, Ivory Coast and Senegal, and others, 11 kg; from Sierra Leone and Guinea, 9 kg.

CHAPTER ONE

INTRODUCTION

This section includes a brief physical, demographic and economic description of the Republic of Liberia. Population data and growth estimates (3.3 percent per annum overall) as well as general economic outlook are presented here as background information and for later use as population and income demand parameters.

1.1. General Setting

The Republic of Liberia is located on the western part of the Gulf of Guinea; the nation's territory covers approximately 113,370 sq. kilometers reaching from the substantial (560 kilometers) Atlantic coastline to borders with Sierra Leone in the northwest, Guinea in the north and Ivory Coast in the east. Annual rainfall on the coast is considerable (4,320 mm), decreasing to 1,778 mm inland; average humidity is on the order of 80 percent

Maps 1.1 and 1.2 illustrate the evolution of the nation's climatic characteristics as one proceeds from the coast to the interior. Tropical rain forest covers the Liberian land almost entirely, imposing substantial labor requirements in terms of land preparation for subsistence agriculture and cash crops. The agricultural calendar for upland rice, for example, devotes five months out of each year to the brushing, burning, and clearing of land prior to seeding and cultivation. As we shall see, this is of some relevance to livestock-raising activities. After rice, the major food crop is cassava; coffee, cocoa and sugarcane constitute the main cash crops.

1.2. Population

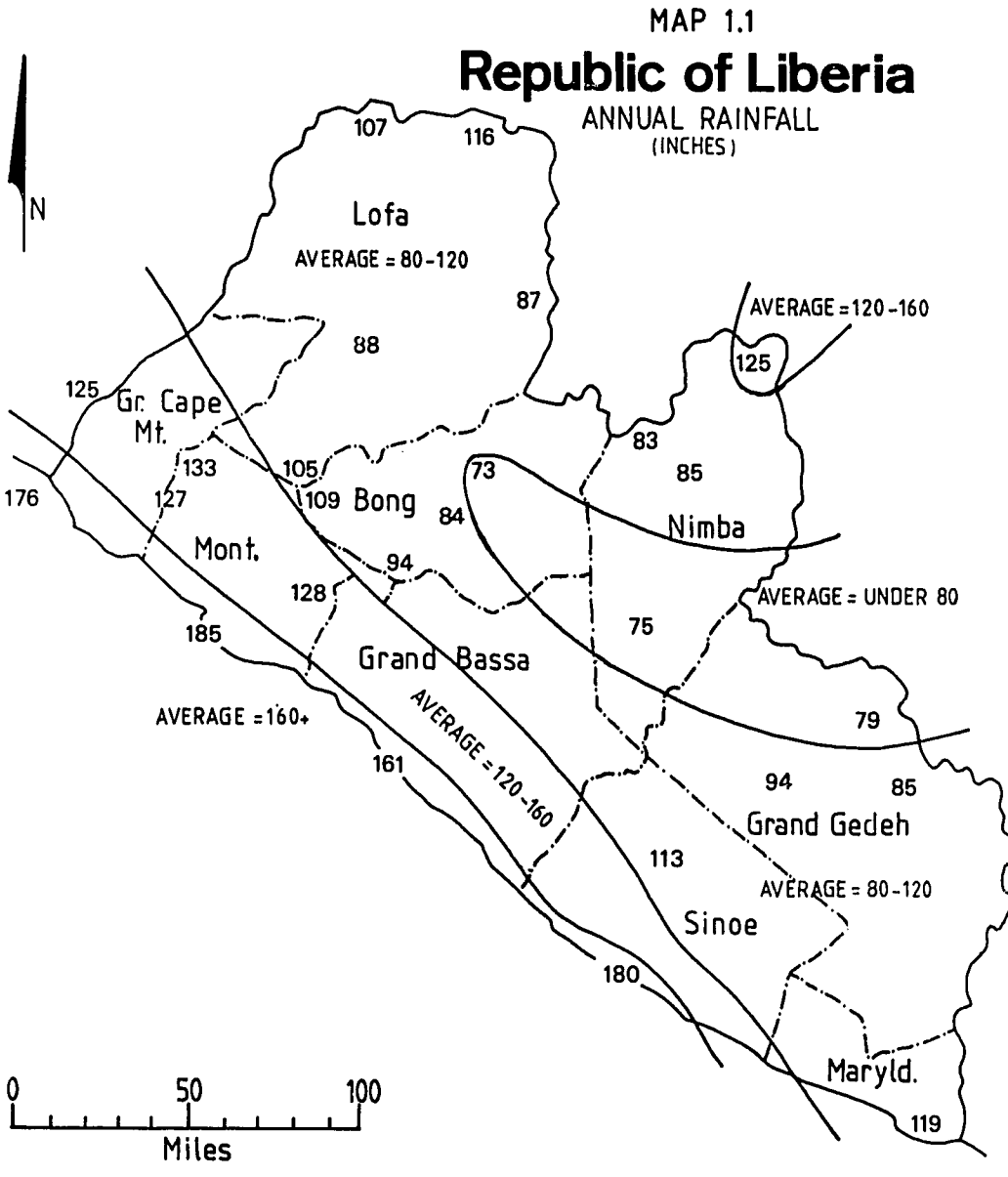
The demographic data presented in this section were collected during the Liberian population censuses of 1962 and 1974, and may be summarized as follows:

1962 Population 1,016,443

Density 27.4 persons/sq. mi. (range: 9.3 in Grand Gedeh County to 188.3 in Montserrado County).

1974 Population 1,503,368

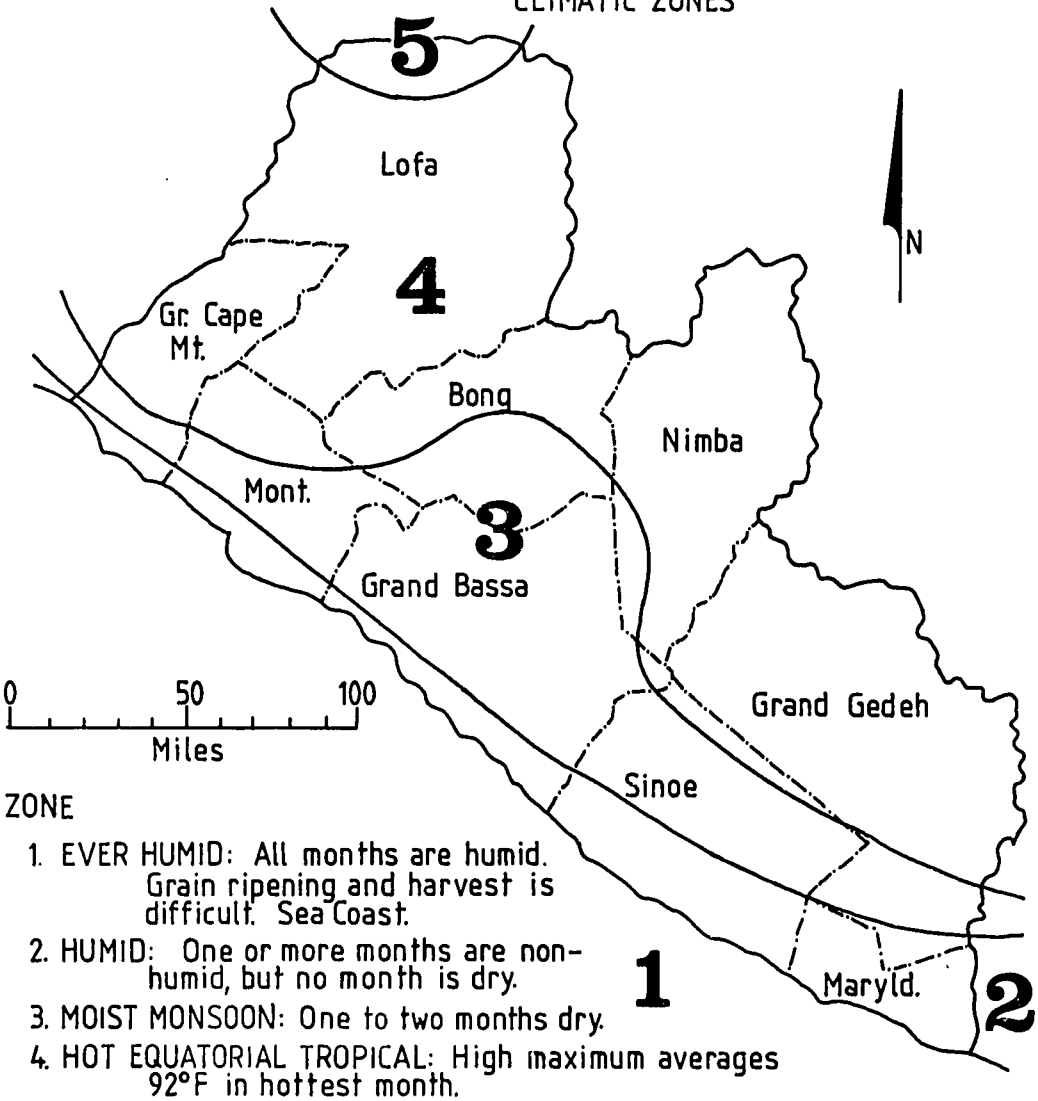
Density 40.5 persons/sq.mi. (range: 11.5 in Grand Gedeh County to 308.7 in Montserrado County).


MAP 1.1
Republic of Liberia
ANNUAL RAINFALL
(INCHES)
N
Lofa
AVERAGE = 80-120
107
116
87
88
AVERAGE = 120-160
125
125
Gr. Cape Mt.
133
105
109
Bong
73
83
85
176
127
84
Nimba
Mont.
94
128
AVERAGE = UNDER 80
75
185
Grand Bassa
AVERAGE = 160+
AVERAGE = 120-160
79
161
94
85
Grand Gedeh
113
AVERAGE = 80-120
Sinoe
180
Maryld.
119
0
50
100
Miles

MAP 1.2

Republic of Liberia

CLIMATIC ZONES



ZONE

1. EVER HUMID: All months are humid. Grain ripening and harvest is difficult. Sea Coast.
2. HUMID: One or more months are non-humid, but no month is dry.
3. MOIST MONSOON: One to two months dry.
4. HOT EQUATORIAL TROPICAL: High maximum averages 92°F in hottest month.
5. FROSTLESS HIGHLANDS: Average daily minimum temperature is below 68° in all months.

SOURCE: Adapted from Crop Ecologic Survey in West Africa, FAO, United Nations.

The average annual population growth rate between the two censuses was 3.32 percent. On the assumption that the Liberian population will continue growing at the same rate (which is high, but not unreasonable since the age groups 15-44 make-up 44.4 percent and 0-14, 40.8 percent of the total population), we can make the following projections:

TABLE 1.1

TOTAL POPULATION 1978, 1980, 1985, 1990

Year	Total Population
1978	1,713,180
1980	1,828,823
1985	2,153,246
1990	2,535,220

Naturally, population growth will not take place evenly throughout the Republic. Data from the two national censuses adjusted for changes in the size of administrative districts shows that growth was very uneven among the country's capital and nine counties. The average annual rates of growth were as follows:

TABLE 1.2

RATES OF POPULATION GROWTH, 1962-1976

	1962-1974
Monrovia	7.6 % p.a.
Montserrado County	5.35% p.a.
Grand Cape Mount County	4.8 % p.a.
Nimba County	3.6 % p.a.
Grand Gedeh County	3.4 % p.a.
Bong County	2.8 % p.a.
Lofa County	2.7 % p.a.
Sinoe County	2.15% p.a.
Grand Bassa County	1.8 % p.a.
Maryland County	1.4 % p.a.
LIBERIA	3.32% p.a.

SOURCE: Karl-Heinz Hasselmann, 1977.

These data reflect the results of twelve-year trends in the redistribution of the Liberian population, and a very detailed demographic analysis would be needed to make solid projections of future population patterns. The reader is invited to note, however, the high growth rate of the Monrovia area and Montserrado County on the one hand, and the below-average growth in the major cattle-raising areas (Maryland, Sinoe, Grand Bassa, and Lofa Countries) on the other. The various rates of population growth in the nine Liberian counties do not, however, reflect all demographic movements. During the twelve-year interval between censuses, a nationwide shift of population from the rural to the urban areas took place, regardless of the overall rate of population growth in each county. As a result of this large-scale migration, the proportion of the Liberian population residing in cities and small towns increased from 20 percent in 1962 to 29 percent (of a much larger population) in 1974.

1.3 Overall Economic Situation and Outlook

The dominant subsectors of the Liberian economy, iron ore mining and rubber plantations, represent almost half of the country's gross domestic product -- mostly in terms of export earnings and taxes. The economics of iron ore mining have very much dictated the shape of the industry's attributes in Liberia; consequently, there are few linkages between the foreign concessionaires' capital-intensive activities and domestic income. In the case of rubber, however, nearly half of the value of domestic activities accrue to Liberia, since employment in the rubber sector is proportionally much greater, and there is a considerably larger degree of private Liberian investment and participation in this activity.

The traditional economy accounts for an estimated 14 percent of GDP (National Socio-Economic Development Plan, Ministry of Planning and Economic Affairs, Monrovia, 1976). The demand for and prices of Liberia's main foreign exchange earning resources are almost entirely exogenous to the nation's economic policies; the early seventies' combination of recession in the economies of Liberia's major clients and of cost-push inflation bearing on most products imported by Liberia strongly influences the latter's economic situation. This may be seen through the interrelated movements of

GDP, balance of trade and domestic price level performance. From the mid-sixties to the early seventies Liberia's gross domestic product -- in real terms -- grew at the average annual rate of nearly 6 percent. Between 1975 and 1977, however, Liberia's GDP in constant 1971 dollars rose an average of 1.05 percent.

TABLE 1.3

GROSS DOMESTIC PRODUCT AT FACTOR COST, 1973-1977
(millions US dollars)

Year	GDP at Current Prices	GDP at 1971 Prices
1973	375.2	343.4
1974	459.7	356.6
1975	559.1	343.5
1976[a]	560.8	354.3
1977[a]	606.0	358.0

SOURCE: Ministry of Planning and Economic Affairs, Annual Report, 1977.

NOTE: [a]preliminary estimates

The nation's balance of trade also deteriorated, the estimated balance for 1977 being lower than at any time since at least the mid-sixties:

TABLE 1.4

FOREIGN TRADE SUMMARY STATISTICS, 1965-1977
(millions US dollars)

Year	Exports	Imports	Balance of Trade
1965	135.4	104.8	30.6
1966	150.5	113.7	36.8
1967	158.8	125.2	33.6
1968	199.4	108.5	90.0
1969	232.8	114.7	118.1
1970	235.9	149.7	86.2
1971	246.6	162.4	84.2
1972	269.8	178.7	91.1
1973	324.0	193.5	130.5
1974	400.2	288.4	111.8
1975	394.4	331.2	63.2
1976[a]	457.0	399.2	57.8
1977[a]	465.0	450.0	15.0

SOURCE: Ministry of Planning and Economic Affairs, Foreign Trade Statistics, selected years.

NOTE: [a]estimates

The GDP deflator used by the Ministry of Planning and Economic Affairs for price level adjustment purposes is the Monrovia Consumer Price Index. This index includes -- with weights in parentheses -- foods (34.4 percent), drink and tobacco (5.7 percent), fuel and light (5 percent), clothing (13.8 percent), household goods and furniture (6.1 percent), health and personal care services (11.4 percent), rent (14.9 percent), and miscellaneous (8.7 percent). During the 1965-1971 period, the general Monrovia Price Index rose at an average yearly rate of 3.6 percent, the food component rising at a very modest 1.2 percent. Between 1972 and 1977, all items rose in price by an average 12.6 percent yearly, and food by an even higher 15.6 percent per year (Ministry of Planning and Economic Affairs, Quarterly Statistical Bulletins).

Economic growth prospects for Liberia depend very much on factors over which the Republic has little or no control, such as the investment and production decisions of the mining and rubber industries, the linkages of the concession sector with the rest of the economy, and the level and use of resources generated by their activity (see 1976-1980 Development Plan). With expectations of a steadier and higher level of demand for steel and rubber products by Western Europe and the United States, and continued improvement in domestic rubber, timber production, manufacturing and services, the average annual growth of real GDP until 1980 is projected at around 4.5 percent (Ministry of Planning and Economic Affairs, 1977). Growth in the traditional sector, however, is expected to remain close to its 1964-1974 level of 3.5 percent.

CHAPTER TWO

THE DOMESTIC LIVESTOCK SUBSECTOR

Chapter Synthesis

This chapter includes a description of the organization, goals and projects of the government agency responsible for livestock production in Liberia. The absolute and relative importance of livestock in the agricultural sector and the whole economy are then discussed. Finally, methods and practices of livestock raising by species and in the traditional as well as in the modern sector are described.

2.1 Government Agencies

The responsibility for public intervention in the livestock subsector falls to the National Livestock Bureau of the Ministry of Agriculture. The Ministry is headed by the Minister, with two Deputy Ministers as principal assistants. There are four major Bureaus, each supervised by an Assistant Minister: Administration, Technical Services, Economic Planning and Evaluation, and Livestock and Fisheries.

The National Livestock Bureau, established in 1956 and reactivated in 1972, is headed by a Director, a Deputy Director, and two Assistant Directors (one for the Upper Counties: Bong, Lofa, Grand Gedeh, Nimba, Sinoe and Maryland, and the other for Lower Counties: Montserrado, Bassa and Grand Cape Mount, the territories of Marshall and Gibi). There are four veterinarians: one Liberian Veterinarian, three Contractual Veterinarians, one Liberian Veterinary Consultant, forty-nine Liberian employees, and one FAO Livestock Production Officer.

For better administration, implementation and control of projects in the various counties, there is one Supervisor and, depending on the density and volume of activities in the area, one, two or three aides in each country. These Supervisors work directly with the farmers, making farm visits as required, giving technical advice and assistance, and administering those treatments that do not require the attention of a veterinarian. The NLB is also charged with meat inspection at slaughterhouses or markets (NLB, 1978). The Bureau's stated objectives are as follows:

1. To educate the farmers in good animal husbandry practices;
2. To develop pasture land in various areas of the country;
3. To encourage the formation of cattle cooperatives;
4. To provide veterinary services for farmers engaged in livestock production;
5. To make available improved breeding stock to farmers;
6. To establish a dairy unit in Montserrado County;
7. To compound feed mixtures from local materials which would be made available to farmers (NLB, 1978).

The focal point of NLB field activities is located at the Suakoko Central Agricultural Experimental Station (CAES), near Gbarnga. There the Bureau manages a dairy herd of thirty exotic (Holstein) cattle, and 220 local N'Dama and N'Dama/Lagunaire cattle. Two hundred and twenty-five acres are used for grazing and pasture experiments bearing on signal grass (Brachiaria brizantha), Stylosanthes gracilis, elephant grass (Pennisetum purpureum and Guinea grass (Pannicum maximum.) The station is also used by the Bureau to administer six-week training courses for livestock aides. Private farmers are encouraged to come to the CAES for instruction and demonstration; some of them keep cattle on the station's pastures or bring animals to be bred (there were fifty-six such private cattle staying at the station in fall of 1978). The CAES staff also encourage local farmers to increase and improve pig raising; 200 to 250 pigs are sold each year to neighboring farmers for the expansion and improvement of their stock.

The Suakoko station also includes the new Mano River Union small ruminants project. Twenty-five acres have been set aside to study the effects to sheep and goat browsing on weeds.

The Bureau also manages a number of projects in several other regions, the main ones currently being:

1. Foyah Interfowar Cooperative (Lofa County)

The objective is to encourage local farmers to form a cattle cooperative by providing over 500 acres of fenced pasture planted with signal grass and stylosanthes. There are currently eighty-one N'Damas belonging to the government which are intended for the generation and improvement of the co-op owned herd. These animals are vaccinated once a year against CBPP, rinderpest, and foot-and-mouth,

and sprayed monthly. They do not suffer from trypanosomiasis and appear to be in excellent condition.

2. Panama (near Greenville, Sinoe County)

This livestock multiplication unit is still in the very early stages of construction and organization. When completed, it will be the county's main training and demonstration station for cattle and pigs. There, too, the land is being cleared for experiments with local grasses.

3. Bariake (Maryland County)

Maryland County's main livestock project is in equally early stages of development. In this instance, too, the objective is to put about a hundred co-op owned head of N'Dama Muturu cattle on improved signal grass pasture.

4. Zleh Town (Grand Gedeh County)

The same description applies to this new project near the city of Zwedru. The Livestock Bureau also provides technical advice, equipment, and stock (heifers, hogs, day-old chicks) to two agricultural and industrial schools; the Booker Washington and Ricks Institutes.

Finally, the NLB organizes an annual CBPP, rinderpest, and foot-and-mouth vaccination campaign; 7,000 animals (slightly over a fifth of the total cattle herd) were vaccinated in 1977.

From the point of view of marketing, the Livestock Bureau and its representatives in the various counties are responsible for the supervision of slaughter and the inspection of meat. Bureau agents also inspect cattle near the various border entry points and deliver health certificates for animals trucked through the country; a two-week quarantine period is often required. At the retail level, no official prices for fresh meat are set in Monrovia or the counties of the interior. So far, with the exception of the small-scale sheep/goats Mano River Union project, the NLB efforts hear almost entirely on cattle. This is often the case in coastal countries of West Africa and may be, in our opinion, explained by the fact that cattle are a more "obvious" (because of imports and urban beef consumption) and concentrated target. They are also fewest in number among all species. Without neglecting the potential for cattle production, the government policy, as expressed by the Ministry of Planning and Economic Affairs, is to put the

emphasis on swine, small ruminants, and poultry production (MPEA, 1978) primarily because of these species' faster reproductive rates and because of the better income distribution effect involved. The limited extent of NLB's involvement in species other than cattle up to this point may also be explained by a vigorous investment into semi-industrial swine and poultry production by a relatively small number of Liberian entrepreneurs. Their contribution to the total supply of meat -- and that of large concessionary investors -- is further discussed later in this chapter. Table 2.1, following, shows the place of the livestock among the various agricultural development projects.

TABLE 2.1

PUBLIC INVESTMENT IN AGRICULTURE, 1977-78

	Amount ($)	Percentage of Total
Rice Production	$ 3,533,412	12.3%
Tree Crop Production	9,022,718	32.6
Rubber Production	518,777	1.9
Livestock	1,296,854	4.7
Fisheries Development	422,524	1.5
Other	12,855,824	46.5
Total	$ 27,650,109	100.0%

SOURCE: MPEA, 1978.

2.2 Economic Importance and Major Characteristics

Statistical data on the Liberian livestock subsector are both scarce and unverifiable. The statistical section of the Ministry of Agriculture has addressed the issue by including a livestock component in other surveys (such as the second stage of the Crop Production survey), but the results are so far not generalizable to the Republic as a whole. As is often the case when a number of different sources propose estimates for the same uncertain parameters, it is difficult to judge the degree of independence

between one estimate and the next. The size of the domestic livestock sector shown in Table 2.2 is based on estimates of the two most reliable sources, the FAO and SEDES.[1] Although to a large extent animals population numbers are guesses, other parameters, such as the inter-related growth and offtake rates, are based on comparisons with animals raised under reasonably similar conditions but with better statistical control. Furthermore, the growth and offtake parameters are biologically limited, and the long-run margin of error -- especially for females -- is considerably narrower than in the case of herd size estimation. Various data available for 1973 and our own estimations of current and past herd sizes give an idea of the relative importance of livestock in the domestic economy:

Total GDP	$375.2 million
Agriculture	75.2
Livestock	6.0

In that year, livestock (here market priced at $1.00/lb overall) accounted for about 1.6 percent of total GDP or 8 percent of the value of total agricultural activity.

2.2.1 Cattle

Liberian cattle are predominantly of the dwarf West African shorthorn "Muturu" or Mutu" (Bos taurus) breed, domestic N'Damas being found only (and in limited numbers) on ranches and near the borders of Guinea and Sierra Leone (e.g. Lofa County). Cattle ownership is not concentrated; the average cattle raiser owns only two head. It is rather particular to the Liberian case that in all regions and during most of the year, animals are completely unsupervised and roam freely through bush and forest. In the hinterland, cattle are said to come back at night to sleep around the villages, whereas in some coastal areas they may remain in the pasture overnight. Naturally, cases of animals lost or stolen are frequently reported.

The highest levels of cattle concentration are found in Sinoe and Maryland counties. Although there are at present no supportive data, the extensive survey undertaken by the author and National Livestock Bureau

officials throughout eight Liberian counties in April/May 1978 suggests that about a third of all privately owned cattle in Liberia are found in Sinoe and Maryland counties. The next most important regions for cattle raising are Lofa and Bong counties, the former because of the availability of good N'Dama stock both from Guinea and Sierra Leone, and the latter due to the influence of Liberia's major livestock program (the Suakoko CAES).

The most commonly reported or observed cattle diseases are piroplasmosis, streptothricosis, and other tick-borne diseases; the NLB sends teams to notify farmers of impending vaccination campaigns, but response has so far been less than enthusiastic.

It should finally be noted that there is little marketing of domestic beef at the urban level. Local cattle are consumed within the villages; one very rarely finds Muturu meat on the markets of towns and cities. Because of this lack of rural meat surplus, all beef consumed in small cities and towns is from imported rather than local animals. This differs fundamentally from the cases of other coastal states like Togo and Benin, where about 90 percent of imported cattle are consumed in the capital, and where cities and towns of the interior have to rely on local production. Liberia's national cattle herd is much smaller than either Togo's or Benin's and even fails to satisfy the demand for beef in regional markets.

2.2.2 Small Ruminants, Poultry, and Swine

In almost every sense these species are more important to Liberians than cattle. They are more widely owned by the rural population, contribute much more than beef (see Table 2.2) to the total domestic meat supply and grow at faster rates than cattle. Most common diseases are swine pasteurellosis and newcastle and fowl pox.

Table 2.2 shows the estimated size and rates of growth for the various local livestock species.

TABLE 2.2

ESTIMATES OF DOMESTIC LIVESTOCK AND MEAT PRODUCTION, 1977

1. Cattle

national herd	30,000 head
rate of growth	2% p.a.
offtake rate	10%
mean carcassweight	77.5 kg
offals: 25% of carcassweight	
Total Meat and Offals available	291 metric tons

2. Small Ruminants

national herd	363,000 head
rate of growth	3% p.a.
offtake rate	25%
mean carcassweight	9 kg
offals: 15% of carcassweight	
Total Meat and Offals available	939 metric tons

3. Swine

Traditional sector:	67,640 head	Modern:	32,900 head
rates of growth	3% p.a.		4% p.a.
offtake rates	60%		80%
carcassweight	35 kg		65 kg
offals: 10% of carcassweight			10% of carcassweight
Total Meat and Offals available			3,444.5 metric tons

4. Poultry

total for Liberia	1,970,000 head
rate of growth	4% p.a.
offtake rate	100%
1 kg meat + offals/head	
Total Meat and Offals available	1,970 metric tons

SOURCE: FAO, 1977; SEDES, 1973.

The relative contribution of the various species deserves special notice:

cattle	4.4 percent
small ruminants	14.0
swine	52.0
poultry	29.6
	100.0 percent

In 1977, the domestic meat supply reached a total of 6,644.5 metric tons, or about 5 kg per capita. Because of its quantitative significance, the contribution of wild game to domestic meat production cannot be dismissed merely on the grounds of an obvious dearth of data. "Estimates" range from 500 to 4,000 tons of meat per year; we will simply indicate in this report that setting the contribution of wild game at 3,000 tons of meat, an amount close to that of meat derived from all small ruminants, would raise the 1977 level of domestic meat consumption to 5.8 kg per person.

2.3 Modern Private Sector Production

The tight meat supply situation and ensuing high urban prices have prompted reactions from the Liberian private sector which were manifested in a number of ways. In the case of cattle, there are currently two major fully integrated (from breeding through finishing) ranches. One, located in Buchanan, belongs to a Liberian entrepreneur; the second is on the Uniroyal LAC rubber plantation thirty miles north of Buchanan, along the Buchanan-Yekepa LAMCO railroad. The LAC plantation's N'dama herd now numbers 350 head. The cattle, raised on improved stylosanthes, are in excellent condition, weight gain averaging fifteen lb/month during the dry season and twenty lb/month during the rainy season. The thirty-five to forty head culled yearly for consumption are consumed by employees and families, or sent live by train for slaughter in Buchanan or at the LAMCO mine in Nimba County. LAC also raises about 600 swine, mostly for consumption by the 12,000 to 14,000 employees and dependents living on the plantation. Finishers fed on imported and local (including rubber seed) feed weigh 180 lb on average.

The success of the LAC experiment is prompting some of the other large iron ore and rubber concessions to make plans to start or reactivate cattle

and swine raising on their concessions. Two crucial inputs, land and land-clearing equipment, are available and may be used at little marginal cost. A ready market for meat and meat products exists on the concession itself as well as in the urban settlements that always surround these enterprises. It seems, in fact, quite possible that a partial solution to the shortage of meat in Liberia might reside in the encouragement by the Liberian government of livestock-raising ventures on mining concessions and rubber plantations.

The very stiff urban demand for meat (mainly Monrovia) and the traditional sector's inability to satisfy this need have also led to the establishment of a few modern farms -- Baker and Sangai farms being prime examples -- for large-scale production of poultry, eggs, and pork. These farms apply up-to-date management practices to imported breeds, and may be estimated to supply 55 percent of domestic pork, at least 20 percent of domestic poultry, and virtually all the eggs consumed in the nation's cities and towns. As one might expect, restrictions have been placed on imports of pork and poultry to protect domestic production.

Notes to Chapter 2

[1]a) Food and Agriculture Organization of the United Nations, Provisional Food Balance Sheets, 1972-74 Averages, Rome, 1977.

b) Société d'Etudes pour le Développement Economique et Social, Approvisionnement en Viandes de l'Afrique de l'Ouest, Paris, 1973.

CHAPTER THREE

TRANSPORTATION

Chapter Synthesis

This chapter provides an overview of the Liberian transport network: roads, railroads and ports. Entry points, major flows, and methods of transportation for imported livestock are then described. Finally, trucking costs are presented and analyzed to serve as the basis for an estimation of economic efficiency as measured by the fraction of total retail meat cost directly imputable to trucking.

3.1 General Network

3.1.1 Roads

Liberia's road network dates mostly back to the late 1960s, when an intensification of public roads construction coincided with extensive road building by private companies involved in mining, forestry, and agriculture (see National Planning Council, 1975). By 1974, the total road network spanned over 4,500 miles. During the last ten years, the emphasis in public network expansion has been put on secondary rural roads. The development of Liberia's road network in recent times is illustrated by the following data:

TABLE 3.1

EVOLUTION OF THE ROAD NETWORK, 1964-1974, (miles)

	1964	1971	1974
Public Roads	1,750	2,901	3,148
Primary	810	1,144	
Asphalt	(160)	(203)	
Laterite	(650)	(941)	
Secondary	940	1,757	
Laterite	(330)	(487)	
Dry Weather	(610)	(1,270)	
Private Roads	530	1,270	1,394
Asphalt	(30)	(86)	n.a.
Laterite	(500)	(1,184)	n.a.
Total all Roads	2,280	4,171	4,542

SOURCE: National Socio-Economic Development Plan, NPC, 1976, p. 41
NOTE: Table does not include farm-to-market or feeder roads.

In spite of the progress achieved, Liberia still has one of the lowest road densities in West Africa:

TABLE 3.2

ROAD DENSITIES IN WEST AFRICA

Country	Miles of Road per square mile
Ghana	.233
Nigeria	.155
Sierra Leone	.149
Gambia	.126
Liberia	.046

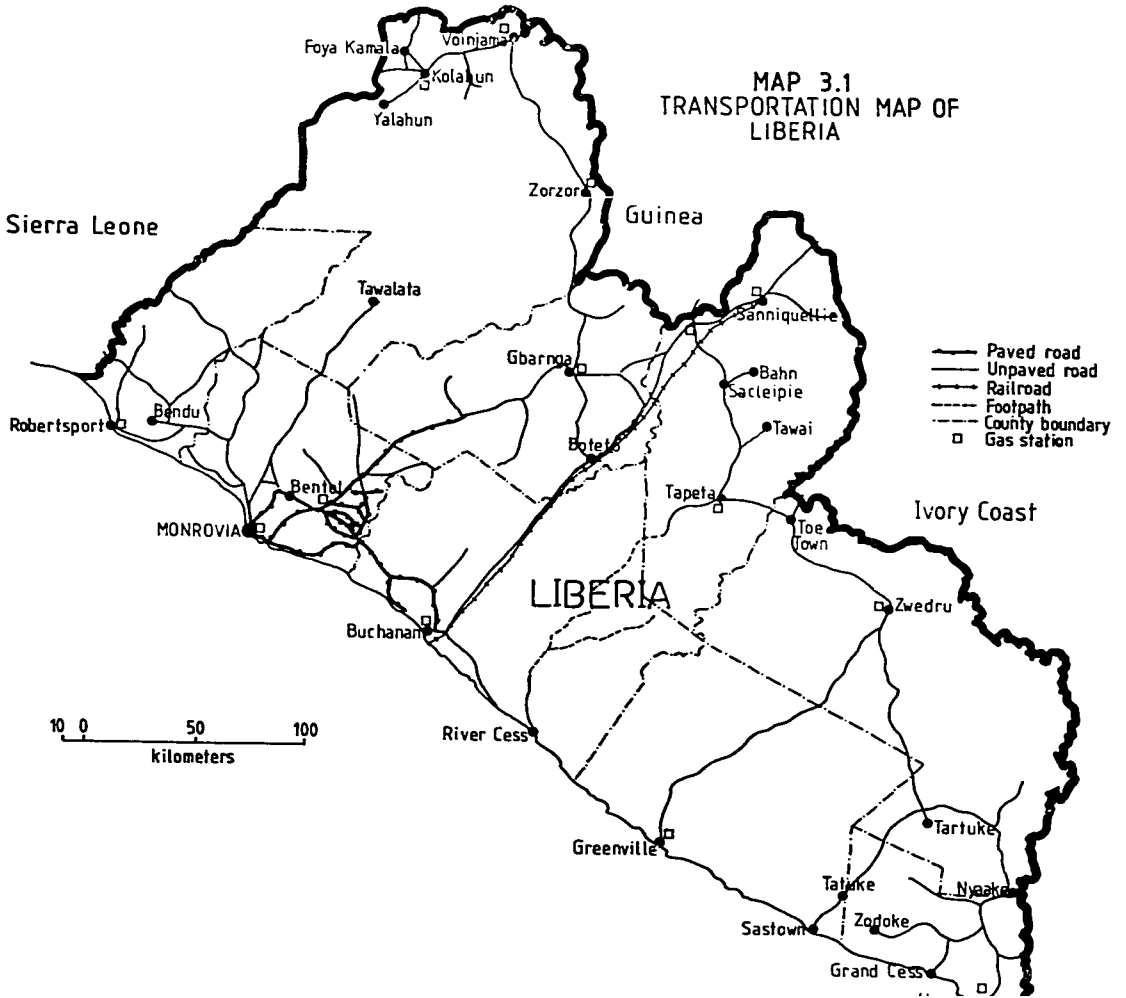
SOURCE: NPC, 1976, p. 42.

Since funds were allocated to construction rather than maintenance and many major roads handle a volume of traffic well beyond expectations, much of the road network is in bad condition.

The major primary road runs northeast from Monrovia through Montserrado, Bong, and Nimba Counties all the way to Yekepa, the Lamco mining town on the Guinean border (see Map 3.1). This road is paved from Monrovia to Totota and graded from there on; it branches off at several levels and in various directions. From Gbarnga it runs northwest into Lofa county all the way to the Sierra Leone border through Voinjama and Foyah. From Ganta it runs southeast through Nimba and into Grand Gedeh Counties. At the city of Zwedru, the road splits again into two main arteries reaching southward to the coast through Sinoe (to Greenville) and Maryland (to Harper) Counties.

The second major road from Monrovia follows the coast in a northwesterly direction through Montserrado and Cape Mount Counties, reaching Robertsport, the Bomi Hills mining area, and the Mano River bridge, the main road link between Liberia and Sierra Leone. The last primary road also runs along the coast, from Monrovia to Buchanan, in Grand Bassa County; in section 3.2.1, the way each one of these roads affects livestock transport will be discussed.

MAP 3.1
TRANSPORTATION MAP OF
LIBERIA



The 1976-1980 Socio-Economic Development Plan outlines the investment task of the Ministry of Public Works to construct or improve 160 miles of paved roads, about 300 miles of laterite surface roads, and an unspecified amount of feeder roads.

3.1.2 Railroads

There are only two railroads in Liberia; both belong to and are operated by private mining companies. The longest one (170 miles) goes from Yekepa, near the Guinean border in Nimba County, southwest to the port of Buchanan. The second railway runs for ninety-nine miles from the Bomi Hills mining area to the port of Monrovia. Both lines are used almost exclusively for the transport of pelletized iron ore, although the Lamco train occasionally handles passengers and limited quantities of livestock or meat from LAC to Yekepa, as noted in section 2.3.

3.1.3 Ports

There are four major ports in Liberia: Monrovia, Buchanan, Harper, and Greenville. Monrovia is the country's major general cargo port; it handled on average 52 percent of total import and export tonnage during the 1970-74 period (about 14 million tons freight handling per year [NPC, 1976]). Virtually all of the imported chilled or frozen meat is unloaded in Monrovia. The port of Buchanan belongs to and is operated by the LAMCO mining Company; freight movements at this port average about 12 million tons per year and consist mostly of iron ore exports. Greenville and Harper are much smaller ports, and account for less than one percent of all port freight movements, which averaged 25,170 million tons during the 1970-74 period.

It should finally be noted that the National Port Authority (NPA) is reported to be quite sound financially; net profits averaged about $1 million annually in 1970-73 and reached almost $2 million in 1974 (NPC, 1976). Also, Monrovia and Buchanan are expected to retain the lion's share of the national maritime trade.

3.2. Livestock Transport

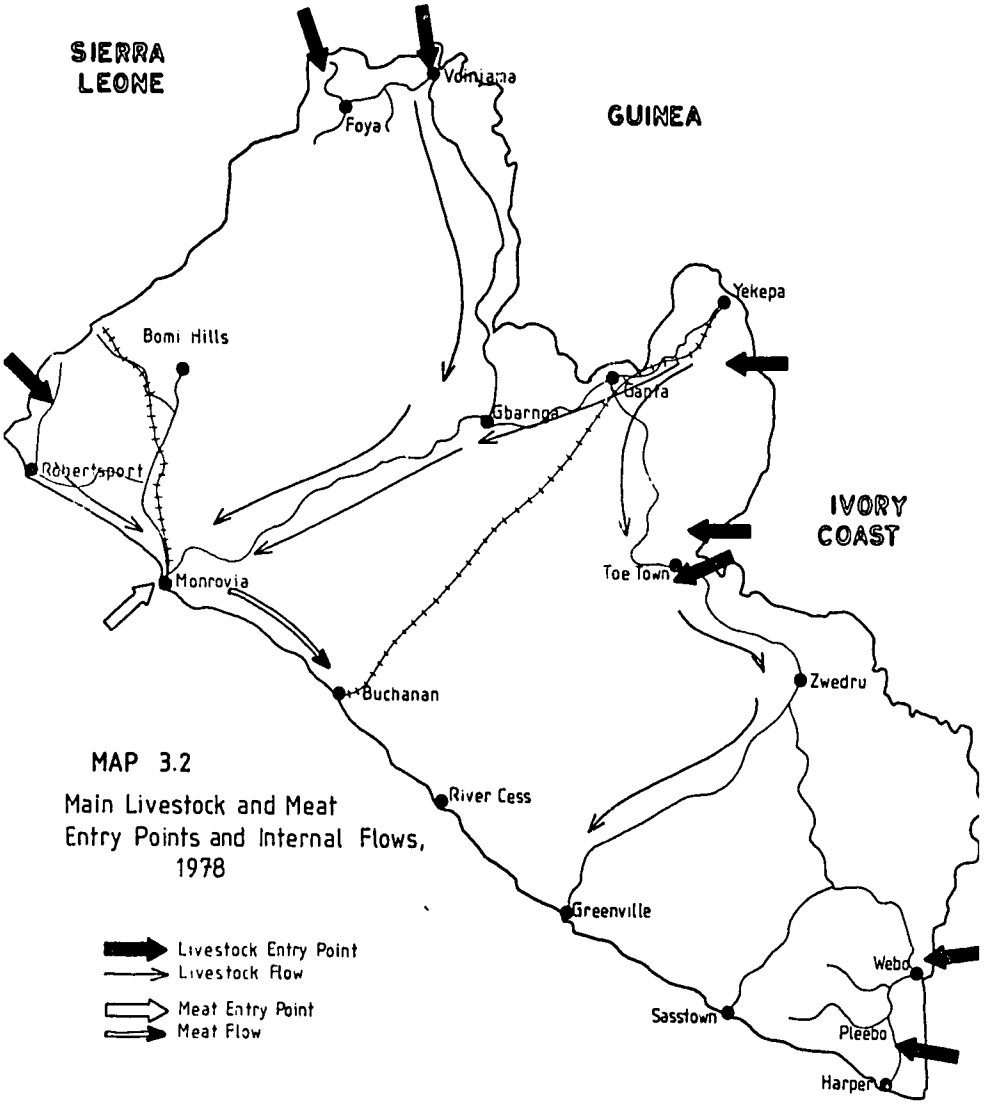
3.2.1 Ways and Means

Map 3.2 provides an overview of livestock entry points and transportation flows. The most salient points from the map are the diversity of origins and destinations, and the use of virtually all major roads for transport of imported live animals to supply urban centers in every county. This is due to Liberia's overall deficit in cattle compared to neighboring states. Also, no Liberian region may realistically be considered to have surplus livestock available to others; all inter-regional transfers bear on imported cattle.

Monrovia is undoubtedly the main consumption center for meat; the capital is supplied animals from Sierra Leone and Guinea (mostly N'Damas) coming across the Mano River, through Liberian customs into Cape Mount County, and trucked from there to the capital. Lofa County's cattle entry points are the Foyah-Koindu road and the Voinjama area, where again, Sierra-Leone and Guinean N'Damas go through customs. A small fraction of these is consumed in Upper Lofa County (e.g. three/week in Foyah, ten/week in Voinjama); the rest are trucked to Gbarnga and on to Monrovia.

The most important entry point for live cattle is the border post of Gbande, in the northeastern part of Nimba County. In early 1978, as many as 400 head of cattle per month went through the Liberian customs there. Animals are usually kept at the border for two weeks before being walked on to Saniquellie. Unlike cattle entering the Republic through the check-points already mentioned, these cattle include a high proportion of Malian Zebus trekked or trucked south through Ivory Coast by way of Man and Dannané and trekked from there to Saniquellie through Gbandé. The other imported animals are N'damas from the Nzérekoré region of southeastern Guinea. One hundred to 150 small ruminants may also be expected to go through Gbande every month (about the same number as in Upper Lofa County).

Once trekked to Saniquellie, most cattle are immediately loaded onto trucks and taken to Monrovia through the primary Saniquellie - Ganta - Gbarnga - Monrovia road. Some are sold en route in major urban settlements.



MAP 3.2

Main Livestock and Meat Entry Points and Internal Flows, 1978

The animals not trucked southwestward are either walked from Saniquellie to surrounding small towns (e.g. Kahnple) or are trucked in the following directions: i) northward to the mining communities located along the road leading to Yekepa (e.g. Camp 4); or ii) southeastward to towns like Sacleipie and even as far as Tapeta.

The urban communities of Grand Gedeh, Sinoe and Maryland Counties are, on the other hand, supplied with imported cattle from Ivory Coast (Zebus and Baoulé-type animals) through the Toe Town entry point. From there cattle are trekked southeastward to Zwedru, or trucked to farther destinations along the road leading down to Greenville through Sinoe County.

Maryland County, located along the coast at the southeastern tip of Liberia, gets cattle from southwestern Ivory Coast. Cattle cross the Cavalla river at two main points indicated on Map 3.2; from the town of Grabo in Ivory Coast to the Webo area, and to the Pleebo area, about twenty miles north of Harper.

From the above description of livestock flows it may be seen that most transfers are made by truck; trekking of cattle in Liberia is done only in those few instances when the distances to be covered are on the order of twenty miles or so (e.g. Saniquellie - Yekepa, twenty-three miles; Saniquellie - Kahuple, sixteen miles, Gbande - Saniquellie, twenty-six miles; Saniquellie - Ganta, twenty-five miles). The longest reported trek is from Saniquellie to Gbarnga, seventy-one miles. The dense Liberian vegetation and humid climate are thought to explain this choice. Trucks are reportedly easy to find, except in some regions at the height of the coffee and cocoa marketing season (December to March).

3.2.2. Transport Costs

The following table summarizes data collected during the spring of 1978 in the various counties.

The data indicate that the average cost of transporting cattle by truck over Liberian roads amounts to 4 cents/kg liveweight per 100 mile unit. This may also be expressed as 40 cents per liveweight ton/mile, and constitutes a significant charge. In Togo, for example, a comparable calculation for cattle transport between Dapango and Lomé yields an estimated cost of 16 cents per liveweight ton/mile. Another useful way to interpret

TABLE 3.3

CATTLE TRANSPORT COSTS, LIBERIA, 1978

From	To	Cost per head ($)	Average Size of Shipment (head)	Distance (miles)	Cost: kg live-weight per 100 miles ($)
Voinjama	Monrovia	15.00	15 - 16	247	.03
Voinjama	Kakata	13.40	15 - 16	203	.03
Voinjama	Harbel	15.00	15 - 16	125	.04
Saniquellie	Monrovia	12.50	10	193	.03
Saniquellie	Bahu	7.25	9	69	.04
Saniquellie	Sacleipie	7.00	3	52	.06
Zwedru	Greenville	11.50	10 - 13	119	.04
Toe Town	Harper	22.50		200	.06
Mano River	Monrovia	8.50	15	99	.04
Mano River	Buchanan	16.70	15	193	.04
Monrovia	Buchanan	8.50		94	.04

SOURCE: 1978 Field Survey

NOTE: [a] Equals $\frac{\text{cost per head/mile x 100}}{X}$

X = 190 for animals from Voinjama (N'damas) and Toe Town, and
= 230 for all other cattle (mostly Zebus).

the data is to derive the cost of trucking per kilogram carcassweight, to obtain an idea of the percentage of final product value imputable to the trucking of the animal. Taking three cases from Table 3.3, Toe Town - Harper, involving 200 miles of transport over logging roads, as well as Voinjama - Monrovia and Saniquellie - Monrovia, the two most important cattle flows, we obtain:

Toe Town - Harper $22.50/95 kg = 24¢/kg carcass weight

Voinjama - Monrovia $15/95 kg = 16¢/kg carcass weight

Saniquellie - Monrovia $12.50/115 kg = 11¢/kg carcass weight

Considering that at the time of the study the retail price of meat was equal to or near $1.00/lb. ($2.20/kg), trucking cost alone may be said to have accounted for 11, 7.3 and 5 percent of retail value in the three instances, respectively. Given the condition of Liberian roads, the opinion is expressed in this report that cattle trucking takes place with an acceptable degree of economic efficiency.

CHAPTER FOUR

LIVESTOCK AND MEAT MARKETING

Chapter Synthesis

This chapter starts with a description of the physical structure of Liberian livestock markets. Practices of meat retailing in the capital and the rest of the country are then discussed. The consumption of all meat for Monrovia (11 kg/capita per annum) and the interior (5.3 kg + game), for a national average of 7.9 kg/capita per annum (including game) are then derived. A relationship between world market meat prices and the levels and distribution of prices and consumption of fresh or frozen meats in both Monrovia and towns of the countryside is introduced by a discussion of meat prices in interior towns.

4.1 Physical Structure of Livestock Markets

There are only three areas that may be considered cattle markets in Liberia; the Saniquellie and Foyah-Voinjama townships are clearly turning points in live cattle flows and act as "regrouping" markets. This is where significant numbers of animals are gathered and convoys organized for shipping to terminal markets. The third one is the Monrovia cattle market. In both Upper Lofa County and Saniquellie, no organized holding areas or loading ramps are available; cattle are pegged in open fields, near town, while health certificates are checked and until trucking has been arranged. Monrovia apparently is the only location where animals are unloaded into an organized and supervised area to be held until transactions between merchants and butchers are completed. Markets usually have a special section for small ruminants and poultry, but the number of animals thus offered for sale by merchants and farmers is naturally smaller than in other coastal countries like Togo and Benin, where livestock is more plentiful.

In all towns and villages of the hinterland, butchering and the sale of meat are also done at the market; slaughterhouses are found only in larger settlements, such as Saniquellie and Buchanan.

4.2. Meat Retail Trade

4.2.1. Interior Towns and Villages

Liberian butchers buy cattle from merchants on credit, the debt to be repaid within a few days out of the proceeds of the meat sale. As noted above, very few interior towns have slaughterhouses; cattle are therefore killed and butchered at the market -- often before a crowd of prospective meat buyers -- and sold immediately. In some cases, an agent of the Livestock Bureau inspects the meat. It is interesting that all Liberian butchers use scales, and that meat is never sold in tas (little piles of a mixture of meat, gristle and fifth quarter). Meat is sold with or without bone, called steak, brisket or soup meat according to quality. Except in two or three major interior towns, butchers operate out of market stalls rather than established shops. There are several reported instances of butchers, especially of Fulani or Mandingo extraction, acting as cattle merchants as well. In Greenville, for example, a Mandingo town butcher is reported to occasionally bring N'Damas back from Guinea for local consumption. This represents a 250 to 275-mile journey for the animals.

Two final remarks are in order to complete this section. First, in towns where cattle are killed at the market, there is no slaughter tax, whereas in localities where a butcher or other private citizen obtained permission (from the NLB) to build a slaughterhouse, a tax is levied to enable the operator to amortize his investment. Secondly, meat is occasionally sold outside of rural markets; farmers in some counties display a substantial amount of meat from wild game along main roads, mostly deer quarters.

4.2.2. Monrovia

Monrovia butchers are said to include a high proportion of people originally from Guinea, Mali, and Sierra Leone. They, too, buy cattle on credit from merchants at the holding area located a few miles out of town, through a broker (the equivalent of the Hausa dillali), to whom they pay $2.00 per head of cattle bought. The animals are then walked to the slaughterhouse.

The Monrovia slaughterhouse was built in 1966, with assistance from Yugoslavia; it is located on Bushrod Island. Daily output currently (Spring 1978) amounts to twenty-five to thirty head of cattle per day, two-thirds of which are Malian Zebus, the other third N'Damas from Guinea and

Sierra Leone. It is rather small in size, but still operates at less than half theoretical capacity; it is, however, rather inadequate from the point of view of condition and equipment. Most of the installations, from saws to cold rooms, scales, and incinerator, are out of order. The slaughterhouse is leased to a private company that has been managing and operating it for several years; in exchange, the company receives a fee from butchers equal to $15 per head of cattle and $5 per small ruminant or hog, amounts quite disproportionate to services rendered to butchers and the community at large. There is only one van (nonrefrigerated) for the transport of meat from the slaughterhouse to markets or shops; so only four or five butchers can use it at a time. The cost for this service is $1.50/carcass to downtown Monrovia, and $2.00/carcass to the "old road" area. Other butchers take delivery of the meat in their own vehicles, private cars or taxis. An agent of the Livestock Bureau inspects the meat and checks that it is properly handled during transport to the market. A recent veterinarian's report on file at the National Livestock Bureau states that the slaughterhouse location and operations will become a definite health hazard to the capital within a few years.

Monrovia butchers work out of permanent stalls at markets or established shops. None of their attempts to organize themselves as a professiona group or association has so far been successful. To exercise their profession out of permanent shops, they must register with the Ministry of Commerce; the yearly business registration fee for sole proprietorship is $100.

4.3. Meat Consumption

National Livestock Bureau statistics indicate that twenty-five to thirty head of cattle are slaughtered daily in Monrovia, with one-third N'dama, two-thirds Zebu distribution. This corresponds to about 900 tons a year, or 3.6 kg of fresh beef per person yearly. A comparable amount of fresh meat from small ruminants, swine and poultry is also consumed yearly in the capital. The two thousand-plus tons of frozen meat imported into Liberia (handled and stored at the port of Monrovia by a few large private import-export companies) are partly consumed in the capital. The remainder goes to a few major interior towns and to the rubber and mining concessions.

The question of knowing how much imported meat stays in Monrovia and how much finds its way to the interior is far from settled. The approximation used in this report is that imported meat is divided equally between the capital and the rest of the country. For 1978, the suggested distribution of meat consumption over Liberia is presented below in Table 4.1:

TABLE 4.1

ESTIMATED MEAT CONSUMPTION, MONROVIA AND OTHER AREAS, 1978

	Monrovia	Other Areas	Liberia
Population est. 1978	257,810	1,455,370 (1978)	1,713,180 (1978)
	(tons)	(tons)	
Beef from Imported cattle	929.5	1,000	1,929.5[a]
Domestic Beef	---	291	291.0
Other fresh meats	929.5	5,424	6,353.5[b]
Imported Frozen Meat	1,000.0	1,000	2,000.0
Total Consumption	2,859.0	7,715	10,574.0
Per Capita Consumption (kg/year)	11.1 kg	5.3 kg [c]	6.2 kg

SOURCE: Adapted from National Livestock Bureau reports, External Trade Statistics.

NOTE: a) estimated from data presented in Abstract Table II.
b) from data presented in Table 2.2
c) If an estimated 3,000 tons of meat from wild game are included, these levels of consumption rise to 7.3 and 7.9 kg respectively.

The total estimated consumption of all meats in Monrovia reaches over eleven kg per capita per year, compared to 5.3 kg in the rest of the country and a national average of 6.2 kg. It is interesting to note that the capital absorbs about half of the live cattle imports, half of the frozen meat imports, and over a sixth of the domestic meat production. The capital's total

meat consumption may also be expressed as 21 percent of all domestic and imported meats consumed in the country.

Again with respect to data contained in Table 4.1, it is not unrealistic to divide live cattle imports equally between Monrovia and all other areas. Half of the total Liberian urban population is in settlements of the interior; a sample collected in a few towns during the Spring 1978 survey indicated that their total beef consumption amounted to about 200 tons yearly.[1] It is therefore not unreasonable to estimate total urban beef consumption in the interior at five times that amount.

4.4. Livestock and Meat Prices

Livestock prices in the interior of the country are not collected by the NLB or other agencies, and the survey upon which this report is based was too brief to shed much light on the matter. However, the prices of meat and related products in several interior markets were collected during the survey, and are presented below:

TABLE 4.2

RETAIL PRICE OF MEAT AND RELATED PRODUCTS, 1978

Town	Meat (lb. beef with bone)	Fish (lb)	Bushmeat (deer quarter, 4-5 lbs.)
Gbarnga	$1.00	-	-
Voinjama	1.00	-	-
Foyah	1.00	-	-
Zwedru	1.00	$1.25	$1.50
Harper	1.00	.50	2.75
Pleebo	1.00	.50	-
Greenville	1.00	.65	-
Saniquellie	1.00	-	-

SOURCE: 1978 Field Survey.
NOTE: Small ruminant and meat was usually 40 - 50 percent more expensive than beef.

The spatial homogeneity of free-market prices in Liberia is quite striking. It is suggested that the following factors play a role in spatial price equalization: i) the towns surveyed are located along major roads; ii) the distance between the various towns is limited as a result of Liberia's small size; and iii) the supply sources are scattered (see Map 3.2). Fish prices are much more closely related to the market's location: Harper and Greenville are seaports, whereas Zwedru is much farther inland. In some counties, deer-meat is cheaper than beef (especially in Grand Gedeh), but because of the official ban on game hunting it is not openly sold at markets. In some parts of the country game is said to constitute the primary source of animal protein; there are, however, signs that expolitation now takes place beyond the maximum sustainable yield. Hunting now requires longer trips through the forest, reportedly even into Ivory Coast at times, to ensure a steady supply of game. Overexploitation is also suggested by the disappearance, over the last few years, of several animal species, e.g. several types of primates. The price of game meat is therefore likely to increase further, and "bushmeat" may eventually be withdrawn from the monetized economy.

Beef consumption in the interior of Liberia is such that prices reflect supply conditions in producing countries (Mali, Guinea, Sierra Leone) and demand conditions in Liberia's urban areas. Considering that Monrovia consumes about half of all cattle imported into Liberia, and that in the capital this fresh beef faces stiff competition from frozen meat imports, one may conclude that the level of cattle consumption in the capital is a direct function of world meat prices. This would mean that world meat prices also influence the price of beef in the interior towns. The implications of this set of relationships, in terms of meat available to Monrovia and the rest of the country under various assumptions, are presented in the next chapter's analysis of total Liberian meat and cattle imports.

Note to Chapter 4

[1]Towns surveyed were Voinjama, Kolahun, Zorzor, Zwedru, Harper, Pleebo, Greenville, Saniquellie, Sacleipie.

CHAPTER FIVE

LIVESTOCK AND MEAT IMPORTS

Chapter Synthesis

This chapter first provides an overview of the level, composition, and origin of livestock and meat imports from 1968 through 1977, including a discussion of the effects of the early seventies' Sahel drought. The foreign exchange cost of meat and livestock imports is derived. For 1977 it amounts to well over $6 million. The effect of prices on demand for meat and live animals, as well as the cross-elasticities of demand with respect to price among meat categories, are analyzed. Finally, the future meat-vs-livestock price competitiveness is examined, with the conclusion that cattle imports will not displace meat imports to a significant extent over the forecast period.

5.1 Livestock and Meat Imports

Table 5.1 presents a summary of Liberian imports of meat and meat preparation from all sources, as well as the meat and offals weight equivalence of imports of live animals. The weight equivalence of live animal imports is calculated on the basis of data presented in Tables A through D of the Statistical Appendix. With the exception of 1973 and 1974, when drought-induced exports of cattle from the Sahelian states increased considerably, the share of meat in Liberia's imports of meat and livestock was generally equal to or greater than half of the total. Meat imports included essentially carcasses and selected offals of beef, mutton, pork, and poultry in proportions that remained remarkably constant throughout the period considered: pork and pork preparations, 70 percent; beef, 20 percent, poultry and mutton, 10 percent, (MPEA, 1968-1977). We shall see, however, that although the proportions of meat from these animal species have remained equal, imports have undergone fundamental changes with respect to SITC categories of meats imported.

Meat imports from West African states were extremely limited; the most significant amount never reached twenty tons per year and consisted of beef carcasses from Mali during the early seventies. Major non-West African meat suppliers were, in decreasing order of quantities exported:

Pork:

Denmark, the United States, and the Netherlands;

TABLE 5.1

MEAT IMPORTS OF LIBERIA, ALL SOURCES 1968-1977 (metric tons)

Year	Red Meat	%	Meat From Live Animals[a]	%	Total
1968	1,730.4	79.2	455.7	20.8	2,186.1
1969	1,655.9	78.6	451.8	21.4	2,107.7
1970	1,541.2	58.4	1,097.6	41.6	2,638.8
1971	2,538.2	63.4	1,466.8	36.6	4,005.0
1972	2,072.7	53.9	1,772.	46.1	3,844.7
1973	1,609.9	41.6	2,262.6	58.4	3,872.5
1974	1,393.5	40.5	2,050.4	59.5	3,443.9
1975	1,498.1	61.9	923.6	38.1	2,421.7
1976	1,830.3	50.7	1,782.1	49.3	2,612.4
1977	22,122.2	53.1	1,871.8	46.9	3,994.0

SOURCE: MPEA, External Trade of Liberia, 1968-1977.

NOTES: [a]Meat and offals from live animals from Sierra Leone, Guinea, Ivory Coast, Mali, and Senegal and others. See Tables A through D, Statistical Appendix.

- Offals taken as 25% carcassweight for cattle and 15% for small ruminants.
- Average carcassweight of Zebus: 140 kg; N'damas: 100 kg.
- Average carcassweight of small ruminants from Mali, Ivory Coast, and Senegal and others: 11 kg; from Sierra Leone and Guinea: 9 kg.

Beef:

Denmark, the United States, Australia and Argentina;

Mutton:

United States, Denmark and Australia;

Poultry:

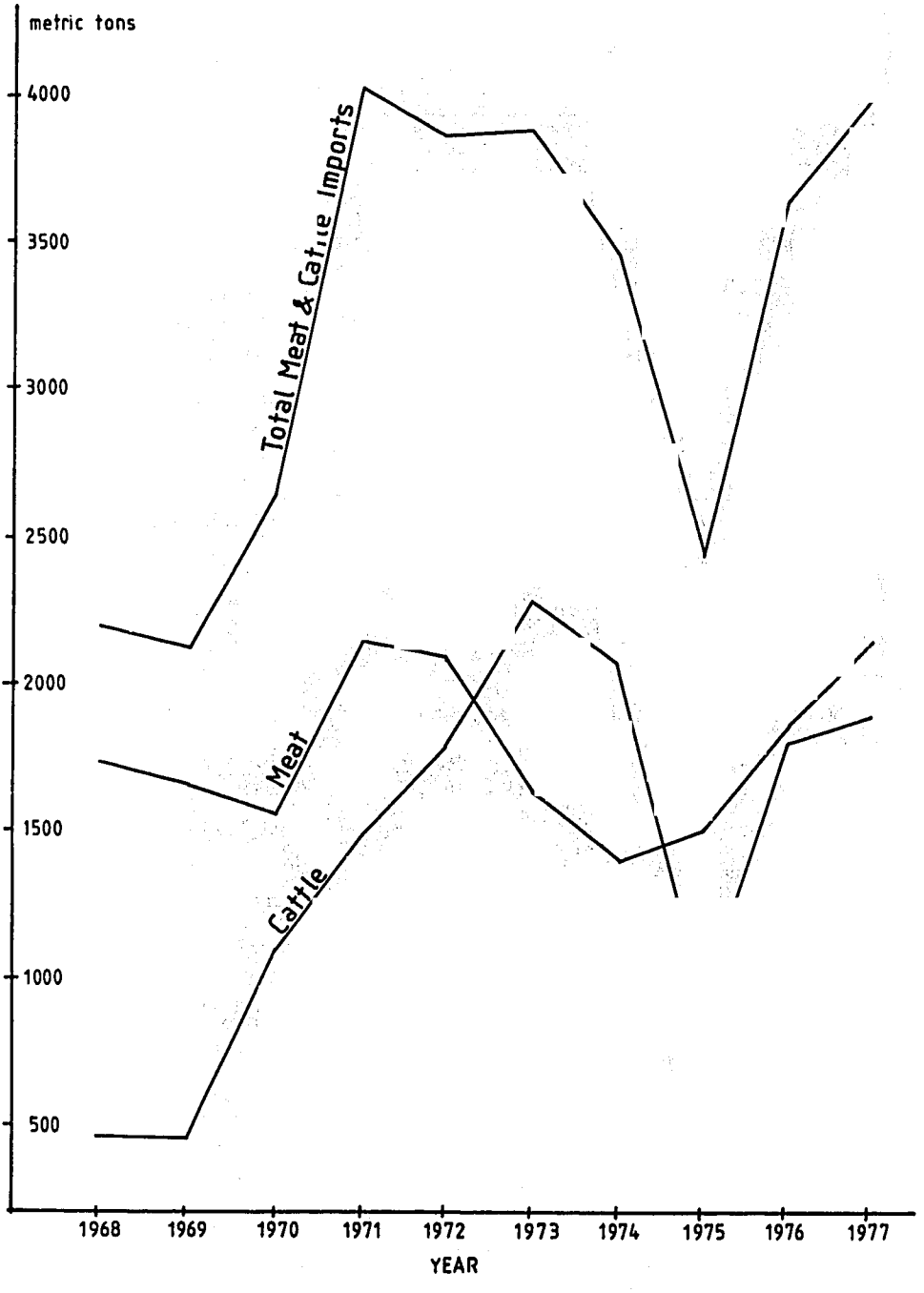
United States and Denmark.

Official cattle imports by Liberia, for the two breeds Zebu and N'dama are given in Table E, Statistical Appendix. The livestock component of Liberian imports consists mainly of cattle trekked from Mali down through Ivory Coast and across the Liberian border to Saniquellie. They are then walked to nearby final markets or trucked to Monrovia. An interesting development within the last few years has been the significant increase in the number of N'dama cattle exported by Sierra-Leone, although it is admittedly difficult to assess how many originally came from Guinea. The main entry points for these cattle are the bridge on the Mano river in Cape Mount County and the Foya-Koindu road in Lofa County (see Map 3.2). Live small ruminants are imported from Mali, Ivory Coast, and, also in increasing numbers, from Sierra-Leone. Finally, the live poultry coming into Liberia is mostly from the Netherlands, and these fowl are raised as layers or fryers on the few modern poultry farms. Live chicks are not included in "meat" import calculations for this report; to do so would involve double-counting since they eventually appear in the "poultry" component of the domestic livestock subsection.

Imports of meat and of live animals are substitute rather than complementary goods with respect to each other, and a relative increase in the price of one is likely to lead to a shift in consumption in favor of the other. In the case of Liberia, however, the pattern of relative consumption for both kinds of meat products taken as a whole does not seem overly sensitive to price changes. Indeed, quantities consumed of meat imported as such or on the hoof have, for the period under consideration, moved in the same direction and at comparable rates of increase (see Figure 5 Notable exceptions to this trend are found in 1973 and 1974, when there

FIGURE 5.1

LIBERIAN IMPORTS 1968-1977



was a definite glut of Sahelian animals on the market. During these two years, the relative price of meat from imported cattle fell enough to induce a significant decrease in the amount of meat imported from Europe and the Americas. By 1975, imports of Sahelian cattle had dried up to less than half the level of the previous year as a consequence of lower Liberian incomes and voluntarily reduced offtake for herd reconstitution purposes in the Sahel.

The qualification of the statement about low cross-elasticity of demand with respect to price between imported meats and live animals bears re-emphasizing; by constrast, the quantities demanded for the various available categories of imported frozen meats are extremely sensitive to relative price changes.

5.2 Foreign Exchange Cost of Imports

It is possible to estimate the cost to Liberia of meat imports by using the values reported in the external trade statistics for meat products coming into the port of Monrovia. As far as live animals are concerned, however, the official values recorded are derived from outdated schedules and do not reflect the current true cost to the country.[1] It is, nevertheless, possible to estimate the foreign exchange cost of live cattle imports, by calculating the proportion of the final cost remitted to foreigners of an average bovine eventually slaughtered in Monrovia. The following calculations are based on price, transportation costs and profit margin data collected by the author during field work in Liberia and Togo, and by Mr. John Staatz during the performance of similar research in Ivory Coast. The costs of bringing a mature Zebu steer worth 70,000 MF ($152.00) from Mali to Saniquellie through Dannané is approximately 13,500 CFAF ($58.00).[2] Assuming that the cattle merchant takes, on the average, a 10 percent profit above direct costs, the price to a Liberian purchaser in Saniquellie amounts to $231.

The cost of the Liberian import tax, discussed below, and other entry fees for veterinary inspection, etc. are treated as direct foreign exchange earnings and will therefore be shown as such in Table 5.2. Truck transport to Monrovia currently amounts to $13.50/head, including transporter's profit. Further expenses are incurred in Monrovia by keeping the animals at the holding area outside of the city, in slaughter ($15/head), and in the transport of carcasses from Bushrod Island to butcher shops or market stalls. When the commissions of butchers and, in some cases, further intermediaries are added, the final cost of the product derived from a 600-lb Zebu with a 50 percent dressing percentage amounts to over $300.

Out of the total income derived from marketing the animal, a maximum of 30 percent of the final market price constitutes value added to the product within the Republic of Liberia. The other 70 percent constitutes payments to foreigners. These payments are now offset to a very limited extent by customs receipts, since as of October 1, 1977, cattle and other livestock enter the country duty-free, being charged only a Consular Invoice fee of 1.5 percent of CIF value. Prior to 1977, the tax on imported cattle was $5.00/head or 5 percent of CIF value. This value turned out to be close to $100/head in most years. The net foreign cost of imported cattle for the period 1970-77 is summarized in Tables 5.2 and 5.3. Table 5.4 then provides the total foreign exchange cost (in current dollars) of meat and live animal imports. It should be noted that live animals are, for the purpose of our calculations, defined as cattle only. There are two reasons for this: i) in terms of value, cattle imports consistently accout for over 95 percent of all live animal imports, and ii) price data for small ruminants are too poor to provide any improvement of the results by including them. Total amounts shown are therefore to be judged as being on the low side of actual amounts.

TABLE 5.2

FOREIGN EXCHANGE COST OF IMPORTED CATTLE
(1970-1977)

	Total imports of Meat from live cattle (metric tons) [a]	Average final Value in $/kg carcassweight[b]	Value of Imports[c]	Estimated Customs Receipts[d]	Net Payments to foreigners[e]
	$	$	$	$	$
1970	1,048.25	1.19	1,247,417	31,285	841,907
1971	1,399.20	1.19	1,665,048	40,935	1,124,599
1972	1,702.75	1.19	2,026,272	50,260	1,368,030
1973	2,168.60	1.38	2,992,668	63,465	2,031,403
1974	1,961.20	1.67	3,275,204	58,245	2,234,398
1975	1,440.45	2.19	3,154,585	46,285	2,161,924
1976	1,728.80	2.19	3,786,072	56,705	2,593,545
1977	1,808.60	2.20	3,978,920	57,665	2,727,579

NOTES:

a Derived from Tables A through E, Statistical Appendix.

b Calculated from the Monrovia Consumer Price Index, Ministry of Planning and Economic Affairs, 1970-1977.

c From (1) x (2).

d Average $5.00/head of officially imported bovines.

e (3) x .7 - (4).

TABLE 5.3

TOTAL FOREIGN EXCHANGE COST OF IMPORTING MEAT AND CATTLE
(1970-1977)

	(1) Value of Meat Imports ($)	%	(2) Value of cattle imports ($)	%	Total ($)
1970	1,404,292	62.5	841,907	37.5	2,246,199
1971	2,629,373	70.	1,124,599	30.	3,753,972
1972	1,999,143	59.4	1,368,030	40.6	3,367,173
1973	1,964,167	49.2	2,031,403	50.8	3,995,570
1974	2,192,595	49.5	2,234,398	50.5	4,426,993
1975	2,529,535	53.9	2,161,924	46.1	4,691,459
1976	2,710,945	51.1	2,593,545	48.9	5,304,490
1977	3,387,855	55.4	2,727,579	44.6	6,115,434

SOURCES: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1970-1977; and Table 5.2.

TABLE 5.4

SUMMARY OF SUPPLY AND PRICE CONDITIONS FOR IMPORTED MEATS AND LIVE CATTLE
1968 - 1977

	All Meats				Live Cattle			
Year	$ Value	Tons	$/ton	$.lb	$ Value	Tons	$/Ton	$/lb Carcassweight
1968	1,581,261	1,730.4	914.0	.41		436.50		
1969	1,346,149	1,655.9	813.0	.37		415.65		
1970	1,404,292	1,541.2	911.0	.41	1,247,417	1,048.25	1,190	.54
1971	2,629,373	2,538.2	1,036.0	.47	1,665,048	1,399.20	1,190	.54
1972	1,999,143	2,072.7	964.5	.44	2,026,272	1,702.75	1,190	.54
1973	1,964,167	1,609.9	1,220.0	.55	2,992,668	2,168.60	1,380	.63
1974	2,192,595	1,393.5	1,573.0	.71	3,275,204	1,961.20	1,670	.76
1975	2,529,535	1,498.1	1,688.5	.77	3,154,585	1,440.45	2,190	.99
1976	2,710,945	1,830.3	1,481.0	.67	3,786,072	1,728.80	2,190	.99
1977	3,387,855	2,122.2	1,596.0	.72	3,978,920	1,808.60	2,200	1.00

SOURCE: Republic of Liberia, External Trade Statistics, 1968-1977.

5.3 Meat Prices and Demand for Imports

Meat and meat products imported into Liberia are recorded and listed in the country's external trade statistics under three main internationally-used SITC classifications. The first, 011, is defined as "meat, chilled or frozen" and includes meat from beef, mutton, pork, and chicken. C.I.F. prices in this category of imports rose by 7 percent during the period under study, from $.66 to $1.21/lb. The percentage share of this class among all meat imports decreased from 30 percent to 19 percent.

The second class, 012, is defined as "meat, dried, salted or smoked" and includes such products as bacon, ham, and corned beef. C.I.F. prices in this category rose faster, though from a lower base, and up to a level still low in absolute terms: ($.23/lb to $.54/lb). The percentage share of class 012 in all meat imports rose from 50 percent to 60 percent during the period under consideration.

Class 013, "meat, canned, and preparations" includes such items as sausages, meat juices, and preparations. Prices for these products rose at an average 7.75 percent from $.48 to $.94/lb; their percentage share of meat imports falling from 20 percent to 14 percent of total. The price and relative quantities for these three classes may be summarized as follows:

		1968	1977
C.I.F. price/lb.	011	$ .66	$ 1.21
	012	.23	.54
	013	.48	.94
Percent of meat imports	011	30%	19%
	012	50%	67%
	013	30%	14%
		100%	100%

It should be noted that the evolution in the respective shares of 011, 012, and 013 reflects a steady trend rather than a temporary situation (see Table 5.5). The analysis of this meat import data strongly indicates that the overall increase in the cost of meat imports ($.41 to $.72/lb. over the period) was kept at this 6.5 percent rate by a shift away from more expensive class 011 and class 013 to cheaper class 012 meat imports, which have been rising in price more quickly but are still less costly than the other two categories.

TABLE 5.5

PRICES AND RELATIVE QUANTITIES OF MEAT AND LIVESTOCK IMPORTS (1968-1977)

	011 Meat		012 Meat		013 Meat		Livestock
	Unit Price $/lb	% of total	Unit Price $/lb	% of total	Unit Price $/lb	% of total	Unit Price $/lb
1968	.66	30.2	.23	48.4	.48	21.4	-
1969	.62	28.0	.18	52.4	.51	19.6	-
1970	.70	23.9	.22	52.7	.54	23.3	.54
1971	.70	-	.37	-	.51	-	.54
1972	.71	27.0	.26	51.7	.53	21.2	.54
1973	.79	30.3	.37	45.3	.61	24.3	.63
1974	.88	35.2	.53	43.7	.81	21.1	.76
1975	1.11	27.4	.57	55.5	.87	17.0	.99
1976	1.08	21.5	.49	67.3	.97	11.2	.99
1977	1.21	18.8	.54	66.9	.94	14.2	1.00

SOURCE: Ministry of Planning and Economic Affairs, External Trade of Liberia, and Monrovia Consumer Price Index, 1968-1977.

The question of the price competitiveness of cattle imports with respect to meat imports should, therefore, be approached at several levels. Table 5.5 shows that meat from live cattle has consistently been price-competitive with respect to class 011 (the most similar) meat products imports, but has not been able to compete with less expensive class 013 and -- especially -- class 012 products. In fact, the price of meat from live cattle has consistently been slightly higher than the weighted average price of all categories of meat imports (see Table 5.4 and Figure 5.2).

Given that Liberia has responded to changes in price levels and rates of increase for its various meat imports (011, 012, 013, and livestock) by reallocating, to a large extent, consumption from the more to the less expensive meat products, it is quite difficult to derive a demand curve for "meat" as a homogeneous product. Price/quantity relationships would have to be expressed in a series of simultaneous equations where the quantity consumed of each of the four main categories (011, 012, 013, and meat from livestock) is a function of its own price and income, but also of the prices of the other three meat categories. For each year we would have:

$$Q_{011} = f\ (P_{011},\ Y,\ P_{012},\ P_{013},\ P_{ctl})$$

$$Q_{012} = f\ (P_{012},\ Y,\ P_{011},\ P_{013},\ P_{ctl})$$

$$Q_{013} = f\ (P_{013},\ Y,\ P_{011},\ P_{012},\ P_{ctl})$$

$$Q_{ctl} = f\ (P_{ctl},\ Y,\ P_{011},\ P_{012},\ P_{013})$$

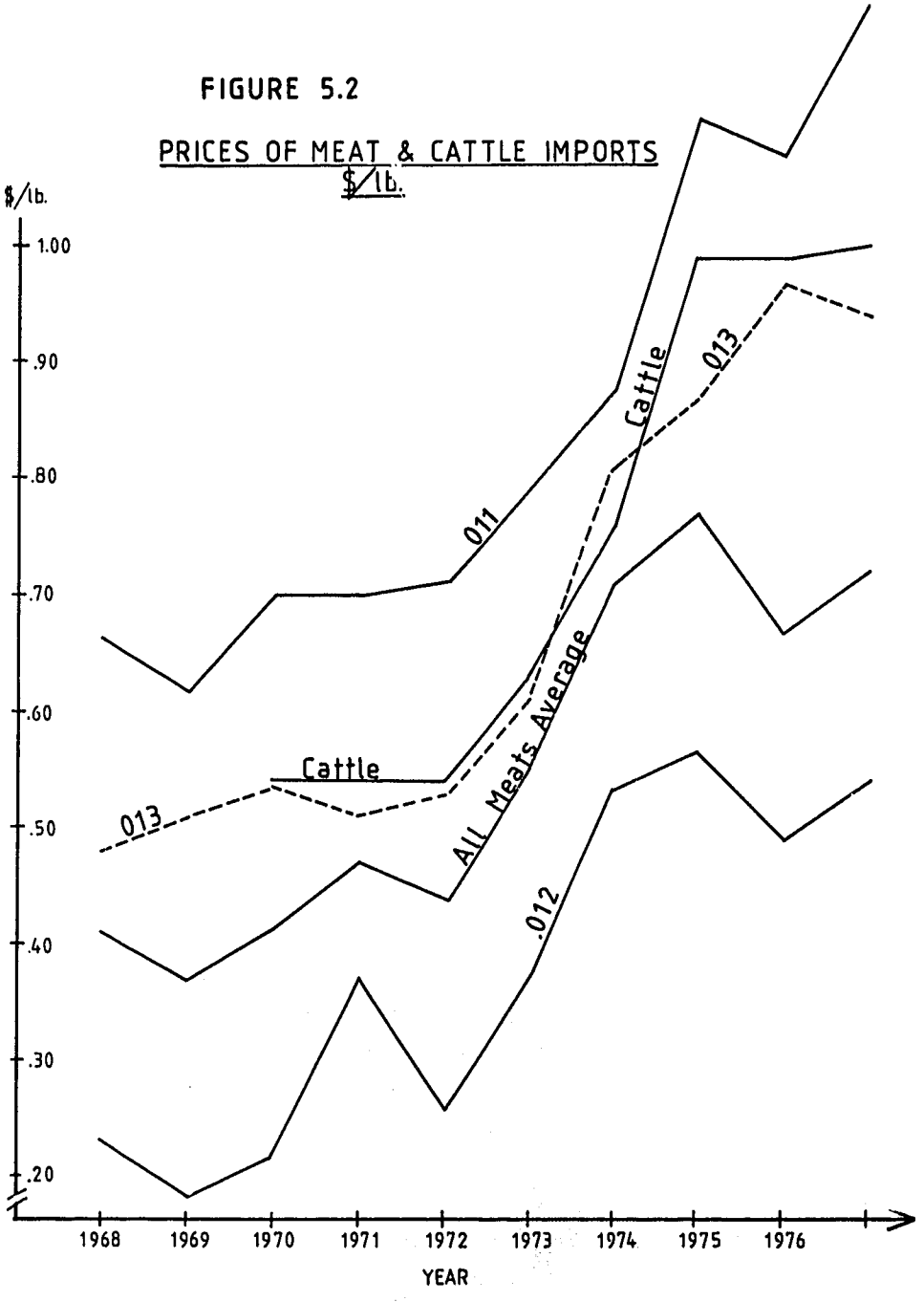
where Y is income, and P and Q price and quantities demanded of the various (011, 012, 013 and meat from livestock) categories.

Although encouraging -- coefficients are properly signed -- the results of the various regressions are not very strong statistically, (because of the small number of observations available compared to that usually required for demand and consumption studies). Therefore, a simpler approach is needed.

Given that fundamental changes have occurred over time in the respective share of the four meat import products -- 011, 012, 013 and cattle --the only practical way to relate the changes in the amount of all meats imported to

FIGURE 5.2

PRICES OF MEAT & CATTLE IMPORTS



changes in income is to use the total dollar (current) value of all meat imports as a single-variable function of the explanatory variable, income. The ordinary least-squares regression (linear in the logs of both variables) of total yearly dollar values of imports between 1970 and 1976 on current GDP at factor prices yields an income elasticity of demand for meat imports of 1.02. For the proportion of the changes in value of imports explained by changes in income (70 percent), the relationship is direct; a given percentage change in GDP would induce an equal relative change in total value of imports of meats, and in the same direction. The implications in terms of the future demand for imported meats is that as measured by its total dollar value, it can be expected to follow closely the path of national income as defined by current GDP. In addition, although it is not possible to forecast precisely in advance exactly how the shift will occur, we may expect that the shift from one meat category to another due to changes in relative prices will occur as it did during the period under study.

5.4 Future Meat vs Livestock Price Competitiveness

With respect to the relative share of live cattle in total meat imports our conclusion is that livestock will not displace the various competing meat products to a notable extent. West African live cattle would take up a large share of the Liberian meat market only if three different sets of economic circumstances were to prevail. The first set would duplicate the 1973-74 situation when drought in the Sahel increased the availability of cattle for sale and drove its price down, relative to that of imported meats. This situtation, as well as the next one considered, would amount to a shift of the cattle supply curve to the right, lowering price and increasing quantity demanded. Naturally such a situation would be short-term in nature and would be offset by the swing of the supply curve to the left in subsequent years, initially even beyond its original position. Although not unlikely, this situation would not improve the long-run competitiveness of cattle in Liberia. The second scenario (also involving a shift of the supply curve to the right) would consist of an efficiency improvement of the domestic livestock marketing system. In

this instance, the effects would be longer-lasting than in the drought case, but the likelihood of its happening is also lower, considering the current reasonably efficient state of the Liberian livestock marketing system, (even granting the obvious exception of the Monrovia slaughterhouse) The third set of circumstances which could favor the competitiveness of imported cattle consists of a situation where the price of imported meat rises much faster and to higher absolute levels than that of meat from imported cattle. There would be a slight chance of this happening if the Liberian public went on to consume fixed proportions of the three meat import categories. We have seen that over the last nine years, Liberian consumers faced with sharp meat price increases have reallocated their expenditures among meat categories (out of classes 011 and 013 and into class 012) to maintain their consumption level while minimizing the impact of price hikes. It is fully expected that they will go on behaving very much in the same manner, thereby reducing any potential price-competitive edge for West African cattle.

On the basis of the growth and offtake parameters used in Table 2.2, the compound domestic supply of meat and offals is estimated to have an average 3.5 percent growth potential over the next few years. Under a moderate rate of growth in income, the domestic livestock sector will continue to satisfy between 60 and 70 percent of the country's needs. If, however, the recent slow rate of growth in incomes gives way to one more comparable to that of previous periods (e.g. 1969-71), the total value of meat imports may well rise by more than the secular 6.9 percent per year in real terms.[3] What will happen to amounts of meat imported and, therefore, per capita consumption, will again depend on the absolute and relative prices of the various available categories.

---

[1]This constitutes by no means an exceptional situation; the schedules used for import taxation by Togolese customs set the value of a bovine at 8,000 CFAF, roughly four times less than its current market value.

[2]The exchange rates in effect at the time of this survey (Spring, 1978) were: 1$ = 230 CFAF = 460 MF.

[3]The 1970-77 increase in dollar value of meat imports increased by an average 15.4 percent p.a. measured in nominal terms and 5.8 percent when adjusted with the meat component of Monrovia Price Index.

STATISTICAL APPENDIX

TABLE A: Official Liberian Imports of Live Animals from Ivory Coast
TABLE B: Official Liberian Imports of Live Animals from Mali
TABLE C: Official Liberian Imports of Live Animals from Sierra-Leone
TABLE D: Official Liberian Imports of Live Animals from Guinea
TABLE E: Official Cattle Imports, by Breed

TABLE A

OFFICIAL LIBERIAN IMPORTS OF LIVE ANIMALS
FROM IVORY COAST

	Cattle (head)	Sheep (head)	Goats (head)	Tons
1977	5,942	3,546	232	1,087.6
1976	4,494	2,967	474	830.0
1975	4,439	1,200	296	795.7
1974	9,532	5,741	943	1,752.6
1973	10,224	5,418	1,673	1,878.9
1972	7,775	2,923	564	1,404.7
1971	5,624	2,006	142	1,011.4
1970	3,682	1,539	451	669.5
1969	354	295	502	72.0
1968	774	524	110	143.5

SOURCE: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1968-1977.

TABLE B

OFFICIAL LIBERIAN IMPORTS OF LIVE ANIMALS FROM MALI

	Cattle (head)	Sheep (head)	Goats (head)	Tons
1977	- 0 -	- 0 -	24	.3
1976	25	- 0 -	- 0 -	4.4
1975	17	- 0 -	- 0 -	3.
1974	53	- 0 -	- 0 -	9.3
1973	20	- 0 -	- 0 -	3.5
1972	281	1,079	525	69.5
1971	1,354	2,753	179	274.
1970	1,130	- 0 -	540	218.4
1969	1,088	680	1,242	214.7
1968	399	313	472	79.7

SOURCE: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1968-1977.

NOTE: The decrease in the number of animals from Mali is partly due to the fact that many of these cattle are labeled "from Ivory Coast" at the Liberian border.

TABLE C

OFFICIAL LIBERIAN IMPORTS OF LIVE ANIMALS FROM SIERRA-LEONE

	Cattle (head)	Sheep (head)	Goats (head)	Tons
1977	4,840	854	156	675.9
1976	6,069	517	178	841.7
1975	3,888	355	52	538.8
1974	1,126	60	4	155.5
1973	669	194	-	94.0
1972	1,014	302	15	142.7
1971	776	13	23	107.1
1970	1,007	121	1	139.7
1969	538	54	18	74.7
1968	774	-	-	106.4

SOURCE: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1968-1977.

TABLE D

OFFICIAL LIBERIAN IMPORTS OF LIVE ANIMALS
FROM GUINEA

	Cattle (head)	Sheep (head)	Goats (head)	Tons
1977	751	258	115	107.1
1976	753	86	155	106.0
1975	900	64	50	124.9
1974	938	269	120	133.0
1973	736	111	117	103.5
1972	582	40	57	81.0
1971	119	14	55	17.1
1970	240	130	106	25.4
1969	181	20	91	26.0
1968	271	95	30	38.5

SOURCE: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1968-1977.

TABLE E

OFFICIAL CATTLE IMPORTS, BY BREED
(no. of head)

	Zebus	Weight	N'damas	Weight	Total
1968	1,673	292.8 tons	1,045	143.70tons	436.50 tons
1969	1,810	316.75	719	98.90	415.65
1970	5,010	876.75	1,247	171.50	1,048.25
1971	7,292	1,276.10	895	123.10	1,399.20
1972	8,476	1,483.30	1,596	219.45	1,702.75
1973	11,288	1,975.40	1,405	193.20	2,168.60
1974	9,585	1,677.40	2,064	283.80	1,961.20
1975	4,469	782.10	4,788	658.35	1,440.45
1976	4.519	790.80	6,822	938.00	1,728.80
1977	5,942	1,039.85	5,591	768.80	1,808.60

SOURCE: Adapted from: Ministry of Planning and Economic Affairs, External Trade of Liberia, 1968-1977.

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ACKNOWLEDGEMENTS

The fieldwork upon which this report is based was carried out in the Republic of Togo between March 18th and April 10th, 1978 by Henri P. Josserand, Research Associate at the Center for Research on Economic Development (CRED) of the University of Michigan.

The author would like to thank the Togolese Government for the considerable help and collaboration offered at every stage of the study, chiefly through officials of the Ministries of Développement Rural and Aménagement Rural, especially Mr. Ayéva and Professor Amédégnato. Particular thanks go to the Director of the Service Vétérinaire et de la Santé Animale, Dr. Amaïzo, and to the Director of the Production Animale, Mr. Somoko, as well as to their staff, for their dedicated assistance.

Sincere thanks are also due Messrs. Kouada and Bangana for valuable information about the fishing sector, Mr. Dosseh, of the Customs Service, Mr. Codjia of Contributions Directes, Dr. Sama, Director of the ONAF abattoir, and all those who, in an official or personal capacity, have contributed to the study. The author wishes to express his gratitude to Messrs. Kavégé and Freitas, livestock agents, for their deep personal interest.

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LIST OF ACRONYMS

AID	Agency for International Development
CEBV	Communauté Economique du Bétail et de la Viande
CFT	Chemins de fer du Togo
CNCA	Caisse Nationale de Credit Agricole
CRED	Center for Research on Economic Development
FAC	Fonds d'Aide et de Coopération
FED	Fonds Européen de Développement
IBRD	International Bank for Reconstruction and Development
ONAF	Office National des Abattoirs et Frigorifiques
ORSTOM	Office de la Recherche Scientifique et Technique Outremer
REDSO/WA	Regional Economic Development Services Office/West Africa
SEDES	Société d'Etudes pour le Développement Economique et Social
SEIA	Service de l'Elevage et des Industries Animales
SPA	Service de la Production Animale
SVSA	Service Vétérinaire et de la Santé Animale
UNDP	United Nations Development Program
UNESCO	United Nations Economic and Social Council

ABSTRACT

Total Togolese consumption of meat and meat products in 1975 was estimated at well over 14,000 tons. Per capita yearly meat intake therefore amounts to over seven kg., as opposed to nearly twelve kg. for fish. The relative contributions of the various types of meat were: beef, 24.4 percent; sheep/goat meat, 28.5 percent; pork, 27 percent; and poultry 20 percent. Aggregate demand for all meats is projected to grow by 4.3 - 4.45 percent yearly over the 1975 - 1990 period. The domestic supply of meat from all animal species, on the other hand, is expected to grow at an average annual rate of between 4 and 4.6 percent depending on the degree of success of government livestock projects.

The national meat deficit is calculated to reach over 2,300 tons by 1980, over 3,200 tons by 1985 and about 3,500 tons by 1990. The domestic supply of fish will not be sufficient as a protein substitute since about half of total fish consumption is from imports.

Togolese imports of meat from carcasses and from live animals increased from 862 tons in 1965 to 1,310 tons in 1976, with an average yearly growth rate of 3.2 percent. Live cattle, now mostly from Upper Volta, make up most of total imports (65 percent in 1976); with respect to meat, however, the major supplier over the 1971 - 1975 period has been the United States, distantly followed by France, Iran and Argentina.

Chapters three through six of this study deal with several aspects of livestock and meat marketing in Togo: transportation, physical structure, practices and profitability. It is argued that displacement of Sahelian cattle imports by non-African meat imports was not due to marketing inefficiencies but rather to better price competitiveness on the part of non-African suppliers at a time when Sahelian producers were feeling the effects of the drought.

Other things remaining equal, Upper Volta should remain the major cattle supplier to Togo, which currently absorbs about 7.5 percent of Voltaic cattle exports. The future level of these exports will basically depend on the relative prices of domestic and imported cattle both in Togo and in other client countries (especially Ivory Coast) and on frozen

meat supply and price conditions in Lomé, where meat consumption is concentrated.

Although we obviously do not know what price relationships may prevail between frozen meat and livestock ten or fifteen years from now, it is nevertheless possible to define a range of potential Sahelian cattle exports to Togo. In one extreme case, Togo's deficit may be filled entirely by non-African meat imports; this would naturally mean no Sahelian cattle exports to Togo. If the prevailing meat/cattle ratio is maintained, however, a 3,500-ton deficit would be met by 1,155 tons of imported meat and about 15,600 head of Sahelian cattle. At the other extreme where there would be no imports of frozen meat, Sahelian cattle exports to Togo could reach about 23,500 head by 1990.

It is apparent that none of the three possible cases would pose any supply problems to a single Sahelian supplier. The highest level of exports, 23,500 head of cattle a year, still represents only 66 percent of total 1976 Voltaic exports, or 6.3 percent of the Voltaic bovines that are expected to be marketable by 1990.

A final caveat is in order. In this study, meat is considered to be only one of two major sources of animal protein. Barring any major change in the relative prices of meat and fish, there should be very little substitution of one for the other. This assumes that future demands for fish can be met from both domestic supply and imports throughout the time period considered. This would result in a high level of fish imports, over 30,000 tons by 1990.

TABLE I

SUMMARY OF TOTAL AND PER CAPITA CONSUMPTION OF ALL MEATS, 1969-1975

	DOMESTIC MEAT SUPPLY (tons)						IMPORTS			TOTAL		
Year	Beef	Sheep/ Goat Meat	Pork	Poultry	Total	Per Capita Kg/year	Live Animals (tons)	Meat (tons)	Total Meat Imports	Total Meat Consumption	Domestic Production as % of Supply	Per Capita Consumption of all meats (kg/year)
1969	2,332.6	2,600.1	3,044.9	1,874.1	9,351.7	5.2	1,235.8	42.2	1,278.0	11,129.7	88.5%	5.85
1970	2,323.2	2,682.0	2,586.1	1,991.4	9,582.7	4.9	483.4	82.2	565.6	10,148.3	94.4%	5.20
1971	2,302.3	2,266.0	2,695.2	2,075.6	9,339.1	4.7	733.0	249.2	982.2	10,321.3	90.5%	5.15
1972	2,541.0	3,318.0	2,901.3	2,157.2	10,917.5	5.3	683.9	322.6	1,006.5	11,924.0	91.5%	5.80
1973	3,292.0	3,098.6	3,256.7	1.957.1	11,604.4	5.5	1,140.9	286.2	1,427.1	13,031.5	89.0%	6.20
1974	2,999.3	3,266.0	3,234.0	2,365.0	11,864.3	5.5	1,090.4	350.8	1,441.2	13,305.5	89.0%	6.20
1975	3,069.7	3,592.2	3,409.0	2,504.2	12,575.1	5.7	1,302.1	388.0	1,690.1	14.265.2	88.0%	6.50
	24.4%	28.5%	27.1%	20.0%	100.0%							

TABLE II

TOGOLESE IMPORTS OF MEAT AND LIVESTOCK, 1965-1976

(metric tons)

Year	Meat Imports	Meat From Cattle Imports	Meat From Small Ruminant Imports	Meat From All Livestock Imports	Percent of Total	Total
1965	31	773.2	57.5	830.7	96%	861.7
1966	34.2	459.1	128.6	587.7	94%	621.9
1967	36.3	705	92	797	95.6%	833.3
1968	27.1	1,051.8	93.1	1,144.9	98%	1,172
1969	42.2	1,070.4	165.4	1,235.8	98%	1,278
1970	82.2	372.9	110.5	483.4	85.5%	565.6
1971	249.2	641.6	91.4	733	74.6%	982.2
1972	322.6	648	35.9	683.9	68%	1,006.5
1973	286.6	1,117.4	23.5	1,140.9	80%	1,427.1
1974	350.8	1,085.8	4.6	1,090.4	76%	1,441.2
1975	388	1,281.6	20.5	1,302.1	77%	1,690.1
1976	432.8	857.3	n/a	-	-	1,290

SOURCE: Adapted from External Trade Statistics, 1965-1976.

CHAPTER ONE

INTRODUCTION

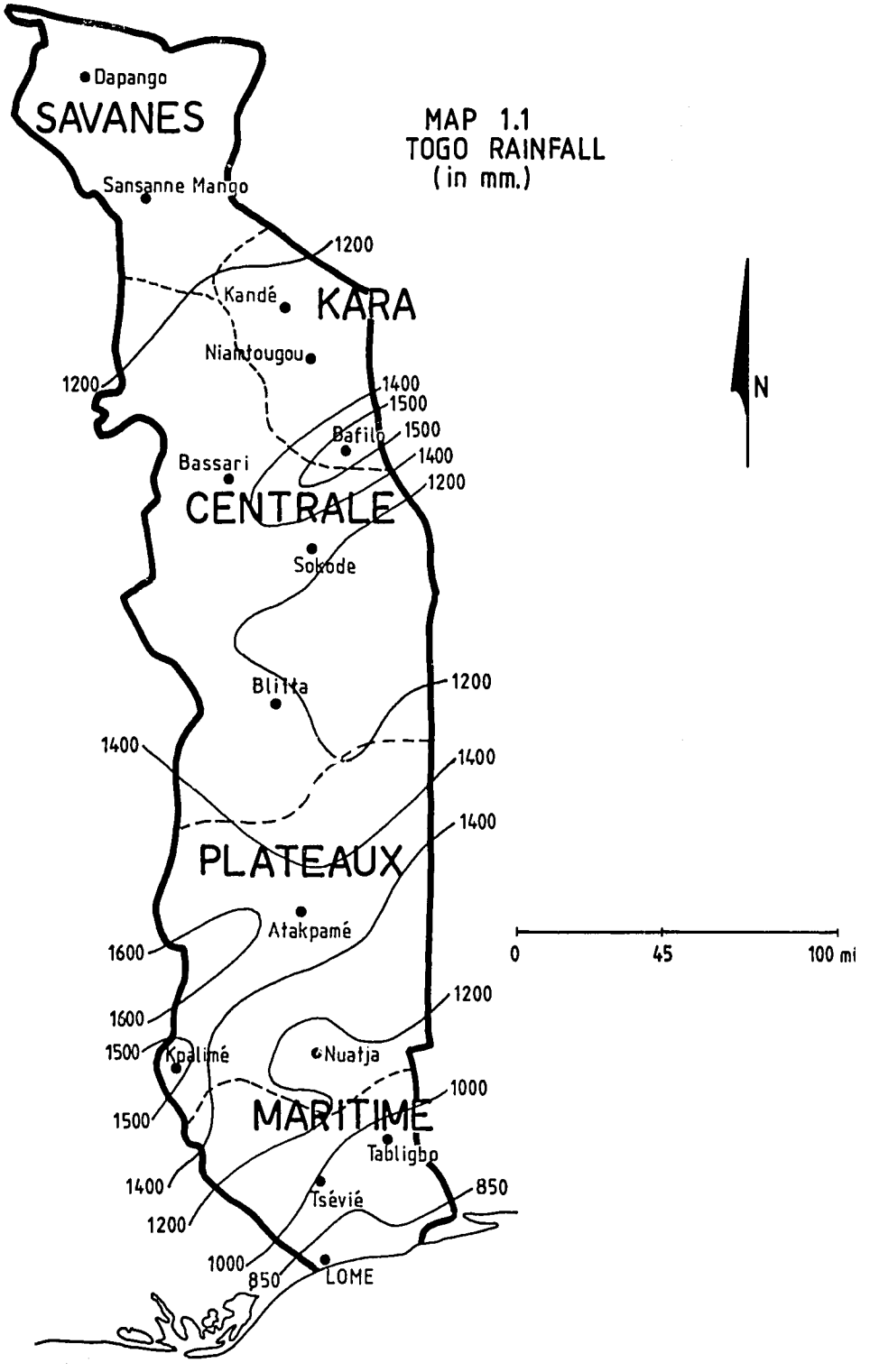
Chapter Synthesis

This chapter includes a brief physical, demographic and economic description of the Republic of Togo. Population distribution data and growth estimates in rural and urban areas, as well as general economic outlook and predictions, are derived here as background information and as population and income parameters to be used in Chapter Seven.

1.1 General Setting

The Republic of Togo is located on the Gulf of Guinea and stretches almost due north from the ocean to its boundary with Upper Volta; it borders on Ghana in the west and on Benin in the east. The country's shape is peculiarly elongated, its narrow end on the Atlantic Ocean spanning a mere 50 kilometers. Maximum width reaches 225 kilometers, and the nation extends 510 kilometers in length. This particular geographic situation has traditionally endowed the country's 56,600 square kilometers of land with a high diversity of climate, rainfall, soils, terrain and systems of agricultural production.

Agricultural activity closely follows the patterns of climate and terrain; northern areas are devoted mostly to millet and groundnut production, yams and cassava appearing as one progresses southward, followed by cotton, maize, rice, and eventually coffee and palm products in the southern-most region. Map 1.1 illustrates rainfall distribution and the country's division into its five administrative Regions: from north to south, Savanes, Kara, Centrale, Plateaux and Maritime. Livestock raising, especially of cattle, has traditionally been a more important economic activity in the Savanes Region. The Centrale, Plateaux, Kara and Maritime areas follow in decreasing order of importance in terms of livestock production.


MAP 1.1
TOGO RAINFALL
(in mm.)
Dapango
SAVANES
Sansanne Mango
Kandé
KARA
Niamtougou
Bafilo
Bassari
CENTRALE
Sokode
Blitta
PLATEAUX
Atakpamé
Kpalimé
Nuatja
MARITIME
Tabligbo
Tsévié
LOME
1200
1400
1500
1600
1000
850
N
0
45
100 mi

1.2 Population

On the basis of the 1970 national census, the Togolese population as of January 1976 numbered approximately 2,198,700 and was growing at an average rate of 2.6 percent. The percentage of the population living in rural areas is high even by African standards (85 percent), and the percentage of the active population receiving a salary is correspondingly low: 4.4 percent. Table 1.1, below, shows the absolute and relative distribution of the population over the five Regions.

TABLE 1.1

POPULATION, DENSITY AND RATE OF GROWTH, BY REGION, 1975

Region	Population	Population Density	Rate of Growth
Maritime	799,700	125/km^2	2.6%
Plateaux	550,700	32	3.4
Centrale	323,600	6	1.8
Kara	257,500	59	1.9
Savanes	267,200	31	2.4
Total Togo	2,198,700	38.8	2.6

SOURCES: Ministry of Planning, Annuaire Statistique, 1974.
Ministry of Planning, Recueil Quantitatif, 1975.

The Maritime Region is by far the most populated in absolute as well as in relative terms. The most striking feature in this table is the very high population density in the Kara Region, almost half that of the most urbanized area of Togo. Population pressure in the Kara and, to a lesser extent, in the Maritime Region have led to over-utilization and depletion of land. Out-migration certainly accounts for the very low rates of population growth in the Kara and Centrale Regions, and in turn is strongly felt as immigration into the Maritime and Plateaux Regions.

1.3 Overall Economic Situation and Outlook

Table 1.2 shows the evolution over time of the Togolese gross domestic product at current market prices. In the aggregate and as measured by its GDP, the Togolese economy progressed from 1966 to 1975 at the rate of 11.4 percent per annum (5.4 percent in constant prices). The rates of growth by sector, expressed in constant prices, were 2.3 percent, 5.1 percent, and 8.6 percent for the primary, secondary and tertiary sectors. The most spectacular growth in individual subsectors occurred in mining and quarrying, transportation, and government and other services.

External trade statistics (Table 1.3) show that between 1966 and 1975 little progress was made in the quantity exported of the four main agricultural foreign exchange earning products (cocoa beans, coffee, palm kernels and cotton). Gains in export volumes were notable, however, in phosphates (especially during 1973-74) and in "other products, where the increase may denote diversification as well as increased output of the same export goods. On the import side, Table 1.4 shows that the quantity of consumer goods imported (including food and beverages) has grown at a slower pace than any of the other import items. As in many other countries, worldwide inflationary trends were most keenly felt in fuels and semi-processed goods.

Togo's trade balance for this period may be summarized as follows:

	(in millions of CFA francs)	
	1966-70	1971-75
Exports (goods)	52,968	110,714
Imports (goods)	66,924	127,836
Trade balance	-13,956	-17,122

A sharp increase in phosphate prices as well as an expansion in output led to a temporary trade surplus in 1974 and early 1975. By the end of the same year, however, phosphate prices dropped to their pre-1975 level, where they were expected to remain till 1980. The outlook for the country's export crop earnings has improved, but the

TABLE 1.2

GDP AT CURRENT MARKET PRICES, BY ORIGIN. 1966-1975
(in Billions of CFA Francs)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Agriculture	20.0	21.3	22.5	24.9	22.0	21.5	24.9	25.6	28.4	31.3
Livestock, Forestry and Fisheries	3.3	3.9	4.2	5.0	5.1	6.1	4.9	5.2	5.6	5.9
TOTAL PRIMARY SECTOR	23.3	25.2	26.7	29.9	27.1	27.6	29.8	30.8	34.0	37.2
Mining and quarrying	3.4	3.5	3.1	3.3	3.7	3.9	4.5	5.7	31.4	17.8
Manufacturing Industries	5.3	5.9	6.9	7.6	6.7	6.4	7.4	8.5	10.4	13.0
Construction, Electricity, Water	3.0	3.9	3.1	3.9	4.0	4.7	6.4	6.0	7.4	8.8
TOTAL SECONDARY SECTOR	11.7	13.3	13.1	14.8	14.4	15.0	18.3	20.2	40.2	39.6
Commerce	9.7	9.9	10.3	13.2	17.5	18.0	18.7	19.9	25.0	28.4
Transportation	2.8	2.9	3.8	4.8	5.4	6.7	7.2	7.5	8.4	9.2
Government services	3.5	3.6	3.6	3.9	4.4	5.5	6.1	7.0	8.2	11.2
Other services	2.1	2.1	2.4	3.0	4.6	7.1	7.9	8.1	9.0	9.8
TOTAL TERTIARY SECTOR	18.1	18.5	20.1	24.8	31.9	37.3	30.9	42.3	50.6	58.6
GDP AT CURRENT MARKET PRICES	53.1	57.0	59.9	69.5	73.4	79.9	88.0	93.3	133.8	135.4

SOURCE: IBRD, 1977.

TABLE 1.3

COMPOSITION OF RECORDED EXPORTS, 1966-1975

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
					(in Millions of CFA Francs)					
Phosphate	3,771	3,032	3,237	3,356	3,720	4,788	4,794	6,267	34,533	16,500
Cocoa beans	1,688	2,349	2,314	4,026	6,336	4,246	3,719	3,556	5,363	4,584
Coffee	1,953	838	1,602	1,749	2,657	2,435	2,599	1,801	1,971	1,600
Palm Kernels	544	427	573	481	656	517	191	210	670	
Cotton	307	415	379	162	351	311	387	310	410	2,816
Other products	609	833	1,444	1,703	1,456	1,329	969	1,611	2,227	
TOTAL	8,872	7,894	9,549	11,477	15,176	13,626	12,659	13,755	45,174	25,500
					(in Thousands of metric tons)					
Phosphate	969	1,020	1,259	1,320	1,504	1,814	1,793	2,197	2,580	1,120
Cocoa beans	17	17	14	19	31	27	27	18	16	16
Coffee	13	6	10	11	13	12	11	11	11	8
Palm kernels	17	13	13	16	17	17	10	6	7	6
Cotton	5	7	7	2	5	5	6	4	5	7
Other products	12	13	19	20	21	21	15	15	24	23
TOTAL	1,033	1,076	,322	1,388	1,591	1,896	1,862	2,251	2,643	1,180

SOURCE: IBRD, 1977.

TABLE 1.4

COMPOSITION OF RECORDED IMPORTS, 1966-1975

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
				(in Millions of CFA Francs)						
Consumer goods	6,906	6,865	6,751	8,455	10,378	10,376	11,243	11,375	14,335	18,036
Foodstuffs and beverages	(2,645)	(2,538)	(2,189)	(3,183)	(4,071)	(3,716)	(4,035)	(4,447)	(4,673)	(6,516)
Other	(4,261)	(4,327)	(4,562)	(5,272)	(6,307)	(6,660)	(7,208)	(6,928)	(9,662)	(11,520)
Fuels	483	505	536	679	785	1,069	1,197	1,155	2,757	3,004
Raw materials	282	381	495	607	654	868	860	859	771	1,080
Semi-processed goods	1,584	1,397	1,492	1,898	2,761	3,042	2,775	3,610	5,146	6,220
Equipment	2,413	1,985	2,349	2,933	3,350	4,100	5,306	5,389	5,603	7,660
TOTAL	11,668	11,133	11,623	14,572	17,928	19,455	21,381	22,388	28,612	36,000
				(in Thousands of Metric Tons)						
Consumer goods	48	48	49	57	63	56	62	68	55	54.3
Foodstuffs and beverages	(38)	(37)	(38)	(45)	(50)	(42)	(47)	(54)	(40)	35.3
Other	(10)	(11)	(11)	(12)	(13)	(14)	(15)	(14)	(15)	19
Fuels	61	67	66	86	86	104	111	106	98	100
Raw materials	13	13	18	21	24	22	22	28	32	13.2
Semi-processed goods	78	68	79	106	113	122	35	173	150	112
Equipment	6	6	7	9	9	9	12	10	10	61
TOTAL	206	202	219	279	295	313	242	385	345	340.4

SOURCE: IBRD 1977

continuing decline in Togo's terms of trade will set the average rate of growth of the nation's effective imports purchasing power much lower than the GDP growth rate. The outlook for real growth in the economy is, however, viewed as favorable in all sectors up to 1985. This is in spite of the heavy foreign debt contracted when phosphate revenues fell and in spite of the sizeable inflationary pressure brought about by the sharp increase in government spending set off in 1974 and 1975.

Recent World Bank estimates (IBRD, 1977) set the average long-term growth in GDP at a likely sustainable 7 percent per annum. Deterioration in Togolese terms of trade and domestic inflationary trends will likely translate this into a 3.5 to 4 percent real growth in GDI per annum up to 1980 and 4 to 4.5 percent over the following five years or so.

CHAPTER TWO

THE DOMESTIC LIVESTOCK SUBSECTOR

Chapter Synthesis

This chapter includes a discussion of livestock development policies as defined and implemented by the two relevant government agencies. Intervention is heavily weighed in favor of cattle health control and the establishment of large-scale breeding and fattening ranches. Only limited attempts have thus far been made to reach other livestock species in spite of the fact that as a whole they account for three-fourths of the total domestic meat supply.

Overall, the livestock subsector is still very traditional in character. For cattle, the last ten years have seen a general increase in herd size as well as a fuller offtake of marketable animals (young males and steers) and greater protection of reproducing stock. Cattle and poultry raising continue to be concentrated in the Savanes Region, whereas other Regions have posted increases in the number of small ruminants and swine.

The last part of this chapter consists of a discussion of the various public livestock development programs and lays the groundwork for the production forecasts derived in section 7.32.

2.1 Government Agencies

The responsibility for public intervention in the domestic livestock subsector falls to two services operating under the twin development ministries. The Service Veterinaire et de la Sante Animale (SVSA) retains most of the mandate of the previous Service de l'Elevage et des Industries Animales (SEIA). Answering to the Minister of Amenagement Rural, it is primarily involved in animal health, vaccination campaigns, and extension services. The SVSA is also charged with the control and inspection of imported animals, especially Voltaic Zebus, and of all livestock movements in general. Finally, the Service collects and publishes yearly statistics on the size of the national herds, controlled slaughters, and imports of live animals and meat.

The second part of the government which deals in livestock, the Service de la Production Animale (SPA), was created only recently, when

the former Ministere de l'Equipement Rural was split into the two current development ministries. Under the Ministere du Developpement Rural, the SPA is assigned the task of improving the technical aspects of livestock and meat production and marketing. SPA, for instance, is directly in charge of the implementation of the Third Plan's specific livestock programs, such as the Borgou, Dako and Adele ranches, as well as being responsible for the continued improvement of cattle trails and markets.

At the time of this study there were approximately 160 full-time professionals working for both services in capacities ranging from Veterinary Doctor and Head of Service to para-veterinary agent. Their distribution over the country was as follows:

TABLE 2.1

PERCENTAGE DISTRIBUTION OF LIVESTOCK SERVICE AGENTS IN TOGO
(percent)

General Headquarters in Lome:	28
Regions:	
Maritime	7
Plateaux	13
Centrale	16
Kara	12
Savanes	24
	100[a]

SOURCE: SVSA Annual Reports, 1971 through 1975.
[a]About 160 agents (1978).

2.2 Economic Importance and Main Characteristics

The livestock subsector is growing in absolute terms (see Table A of the Statistical Appendix) but continues to play a minor role in

the Togolese economy. In 1975 its share of the nation's gross domestic product was estimates at 4.8 percent, exactly 15 percent of the value of economic activity in the primary sector.

TABLE 2.2

SHARE OF GDP BY CLASS OF PRIMARY SECTOR ACTIVITY, 1975
(percent)

Agriculture	22.4
Fishing	3.2
Livestock	4.8
Forestry	1.6
Total Primary Sector	32.0

SOURCE: Ministere du Plan, Troisieme Plan de Developpement.

Small stock ownership/management is widespread in all Regions, small ruminants and poultry being found on almost every single farm, while swine raising is more concentrated. Cattle ownership is much less prevalent, and the entrusting system is widely used. The majority of cattle (95 percent according to livestock agents) are kept by Fulani herdsmen on behalf of Togolese owners.

The latest available (1975) cattle herd census shows that most herds are fairly small in size (see Table 2.3).

TABLE 2.3

SIZE DISTRIBUTION OF CATTLE HERDS
BY REGION, 1975

	Number of Herds With:		
Region	50 Head	50-100 Head	100 Head
Maritime	99	70	26
Plateaux	192	131	62
Centrale	839	271	74
Kara	1,217	150	54
Savanes	358	368	229
TOTAL	2,705	990	445

SOURCE: SVSA Annual Report, 1975.

NOTE: Assuming a mean of 25 for the first herd class, 75 for the second, and 150 for the last, this would add up to 208,625 head, as compared to the 1975 official grand total of 226,886.

The farmer/owner typically spends a limited amount of time and resources caring for or watching his animals. During the dry season, for example, many cattle are reportedly left to fend for themselves and wander about in search of pasture and water, a practice evocatively called elevage de divagation. Cattle are owned mainly as an investment and store of wealth and are sold only to meet large cash requirements or slaughtered to fulfill traditional obligations (funerals, weddings, etc.). Common needs for meat and cash are often met by consumption or sale of small ruminants or poultry raised by the household. It is not uncommon in Togo to see cattle herds managed by Fulani on behalf of an owner or owners who reside most of the year at the other end of the country or even in Ghana. Occasionally, the herd built up by an elder for use as a legacy upon his death is bequeathed to relatives living in various cities and Regions, but the same herder may remain in charge of most of the animals.

As in many other countries where these systems of absentee ownership and gardiennage prevail, the interests of owners, herders and farmers can be divergent or conflicting (Delgado, 1977). Most owners are basically interested in seeing their livestock capital grow in numbers. They show little preoccupation for age/sex structure and marketing potential, while the hired herders concern themselves with what they preceive as a proper management of the herd. This involves traditional (and some modern) veterinary care and selection/breeding strategies. Herders often strive to reconcile the owner's interests with maximizing milk output, calf cropping and maintaining good relations with cattle merchants' collecteurs.

The stocking capacity over most of Togo is constrained by the water supply rather than by availability of rangeland. Occasionally, however, the use of public pasture land for cattle has become a cause of serious economic and social tensions. In the Maritime Region, for instance, a field was cultivated next to fenced pasture land (while land was available elsewhere) to provoke "crop destruction" and claim legal reparation. Several cattle examined among the same herd by the author also showed scars from cutlass lacerations reportedly inflicted by neighboring farmers.

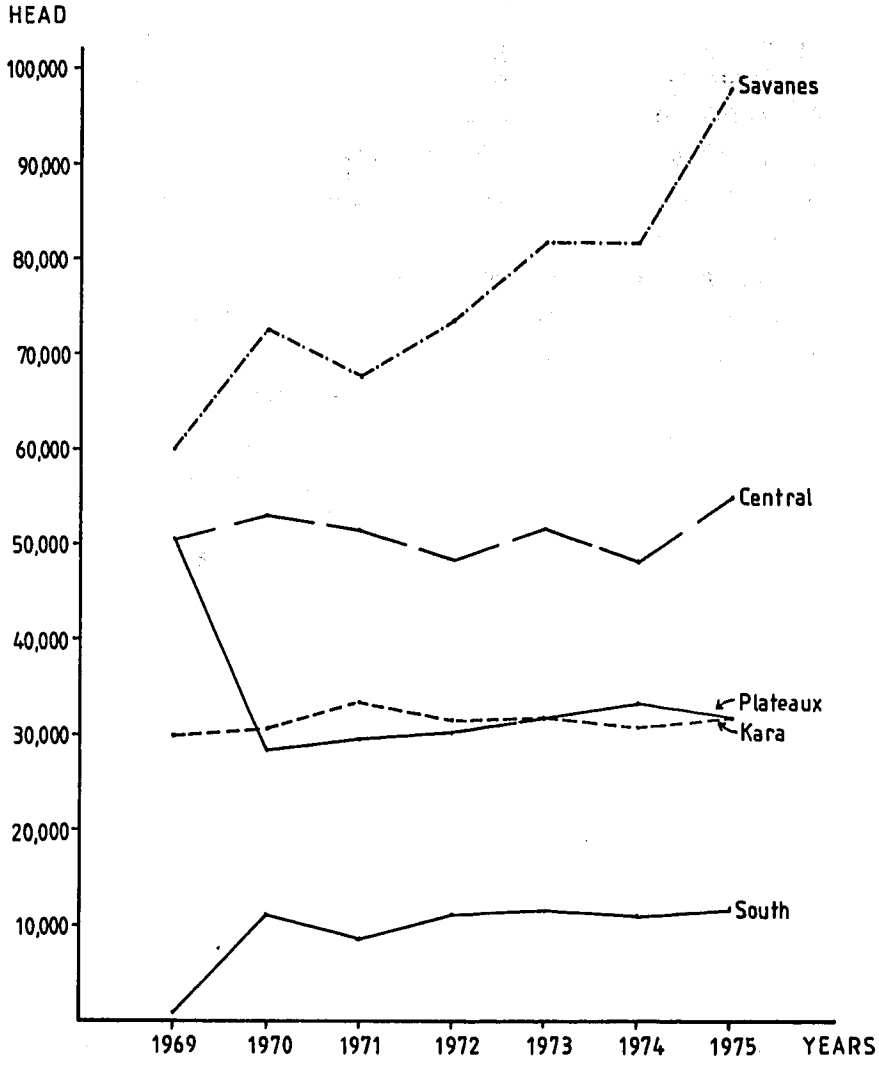
2.3 Cattle

The vast majority of Togolese cattle breeds are of the Bos Taurus, or "Taurin" genus. From the coastal areas to the north, cattle breeds increase in size but show a decreasing degree of trypano tolerance. The main breeds thus found from south to north include West African shorthorn such as the dwarf "Mutu" or Muturu, the larger Lagunaire and Baoule (300-400 lbs liveweight), and the N'dama (450 lbs.). From the upper Centrale Region northward one finds Somba and Borgou bovine breeds weighing close to 500 lbs. Finally, Bos Indicus, or Zebu humped cattle, are raised with Somba and Borgou in the Savanes Region.

Figure 2.1 shows the rank and absolute change over time in the regional herds, the Centrale and Savanes Regions clearly being the most

FIGURE 2.1

Regional Distribution of Cattle, 1969-1975
(No. of Head)



Source: Adapted from SVSA annual reports.

significant cattle-raising areas. Table 2.4, on the other hand, shows the relative evolution of cattle-raising between Regions.

It appears that every Region has lost to the Savanes in relative importance of cattle raising; this does not, however, necessarily apply to every species. We may also note that the very significant 1974-1975 increase in cattle numbers in the Savanes is due both to a development of the Region's domestic cattle-raising vocation and to a large influx of herds from southern Upper Volta. By 1975, the geographic distribution of cattle as opposed to that of 1970 was as shown in Table 2.5.

Except in the Savanes, the gain in cattle density was very modest. The slight increment in the number of head of cattle per capita between 1970 and 1975 was compounded by an improvement in the mean carcass weight of animals slaughtered during the same period. (See Table F of the Statistical Appendix).

2.3.1 Composition of the National Cattle Herd

Charts 2.1 and 2.2 depict the age/sex composition of the cattle herd at various points in time. The first one shows the size of the male and female age groups in 1969 and 1975. With the exception of calves, the male components of the national herd decreased in absolute and relative importance during the period considered, whereas there was a gain in every female age group but culled cows. Chart 2.2 also shows that the more recent herd structure is the outcome of a progressive increase for the female and decrease for the male cattle age groups. This percentage decrease in the number of males (from 29.4 percent to 24.3 percent of the total herd) and increase in the number of females (34.5 percent to 35.8 percent) strongly suggests an increase in the commercial exploitation of the national herd. The greater proportional offtake of males may account, at least partly, for the increase in mean carcass weight noted previously.

TABLE 2.4

DISTRIBUTION OF CATTLE BY REGIONS, 1969-1975
(percent)

Year	Regions				
	Maritime	Plateaux	Centrale	Kara	Savanes
1969	4.55	25.12	25.11	15.04	30.17
1970	5.53	14.38	26.89	15.96	37.25
1971	5.16	15.44	27.09	17.37	34.93
1972	5.55	15.68	25.21	16.06	37.49
1973	5.55	15.34	24.64	15.37	39.08
1974	5.29	16.04	24.20	15.04	39.43
1975	4.93	13.79	24.25	14.05	42.97

SOURCE: Adapted from SVSA Annual Reports.

NOTE: The order of absolute magnitude is shown on the scale of Figure 2.1; detailed data are presented in Table A of the Statistical Appendix.

TABLE 2.5

CATTLE DENSITY AND POPULATION/CATTLE RATIO
BY REGION, 1970 AND 1975

Region	Density (Head/km^2)		Population per Head of Cattle	
Maritime	1.68	1.75	66.1	71.5
Plateaux	1.64	1.84	16.8	17.6
Centrale	2.55	2.70	5.7	5.9
Kara	7.11	7.30	7.6	8.1
Savanes	8.40	11.30	3.3	2.7
Togo	3.40	4.00	10.00	9.7

SOURCE: Adapted from SVSA Annual Reports, 1974 Annuaire Statistique, and Ministère du Plan, Recueil Quantitatif, 1976.

CHART 2.1
AGE/SEX COMPOSITION OF
THE NATIONAL BOVINE HERD, TOGO,
1969 AND 1975

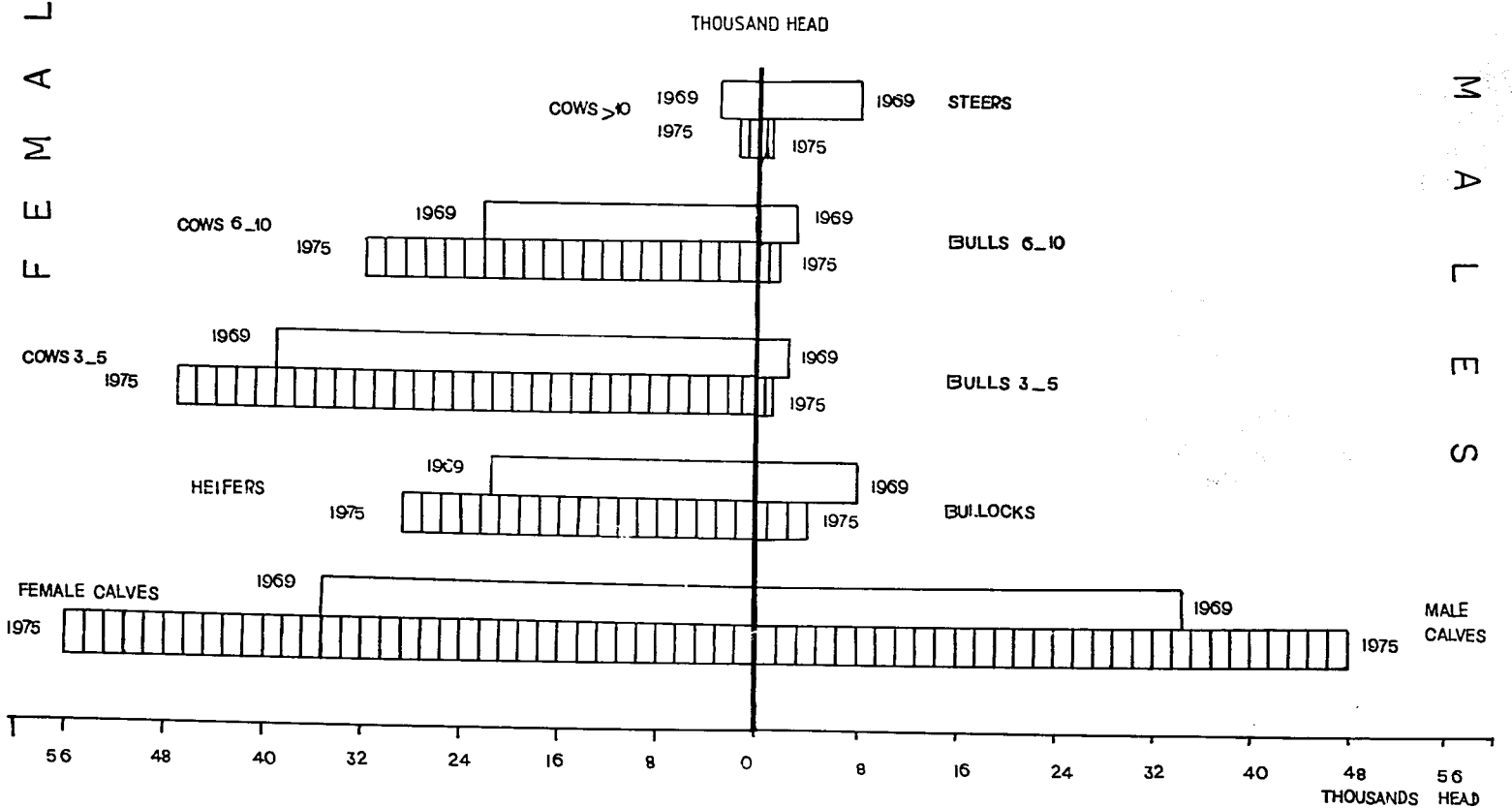


CHART 2.2

AGE/SEX COMPOSITION OF
YEARLY INCREMENTS/DECREMENTS IN THE
NATIONAL BOVINE HERD, TOGO, 1969-75

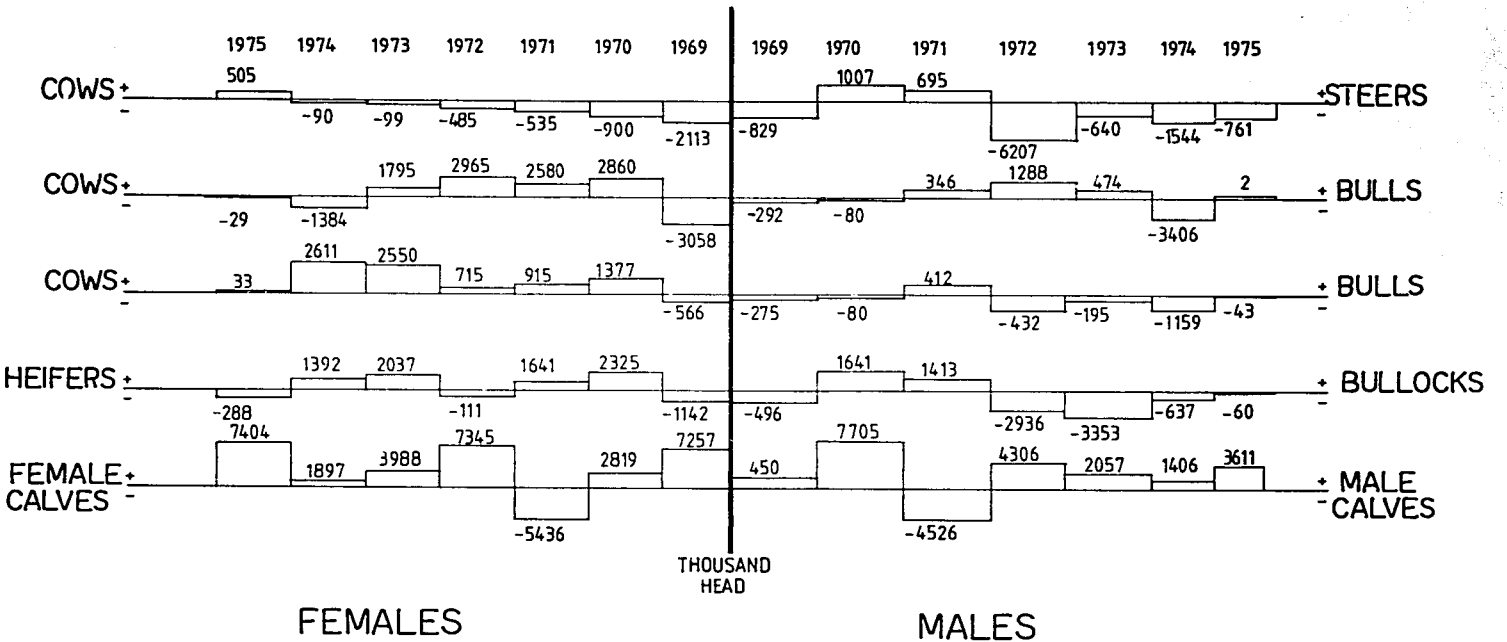


Table 2.6 shows the age/sex distribution in 1969 and 1975 of: i) animals raised in the traditional sector, ii) a Baoule-type herd raised at Gbatope, in the Maritime Region, for commercial purposes on improved and fenced natural pasture land, and iii) the N'dama herd raised in a carefully improved and controlled environment at the Avetonou Agricultural Research Station. Comparing herd composition in Gbatope and Avetonou with that of the 1975 national herd structure shows that there remains room for improvement in traditional herd exploitation. Chart 2.2, however, suggests a slackening of the 1969-1975 trend of increased offtake since yearly increments and decreases measured are of declining magnitudes. In conclusion, it seems likely that in the short run traditional Togolese herds will be exploited as they were in 1975. Any further structural progress will remain, as it is now to a large extent, a function of public policies and interventions in cattle health and production.

2.3.2 Exploitation of Domestic and Imported Cattle

Zebus imported from Upper Volta represent just over a third of all cattle slaughtered in Togo, the other two-thirds being domestic Taurine. Consumption of Zebu beef is heavily concentrated in the Maritime Region, 83 percent of the total, on the average, and the Plateaux Region, 12 percent. The remaining 5 percent of Zebus consumed in Togo are distributed among the other three Regions (see Table 2.7). The cattle import trade concentrates upon the major final markets, very few imported animals being sold on the way south. The age distributions of male and female Zebus slaughtered in Togo are shown on Figures 2.2 and 2.3. Please note that they are drawn on very different scales. Ninety percent of Zebus killed during the 1967-1975 period were males in the 1-5-year-old group, whereas females were chiefly found in the 5-10-year-old bracket, being in many cases animals reckoned to have little or no further breeding potential. Carcass weights at the Lome abattoir were recorded as ranging from 116 through 150 kilograms. (See Table F in the Statistical Appendix).

TABLE 2.6

AGE/SEX COMPOSITION OF TOGOLESE CATTLE HERDS
IN VARIOUS SECTORS AND SELECTED YEARS
(Percent)

National Herd (Traditional)	1969		1975
Males	29.4		24.3
Females	70.6		75.7
Reproducing Females	34.5		35.8
Gbatope (Commercial)		**1978**	
Males		16.3	
Females		87.7	
Reproducing Females		55.0	
Avetonou N'Dama Herd (Industrial)		**1976**	
Males		20.3	
Females		79.7	
Reproducing Females		35.9	

SOURCE: Traditional: Adapted from SVSA Annual Reports.
Gbatope: 1978 Field survey.
Avetonou: 1976 Annual Report, Avetonou A.R.S.

TABLE 2.7

DISTRIBUTION OF ZEBU/TAURIN CATTLE SLAUGHTERS, BY REGION, 1972-1975 (percentages)

	Zebus	Taurins	Zebus as % of ΣZ in Togo	Taurins as % of ΣT in Togo
Maritime				
1972	50.9	49.1	85.2	42.3
1973	48.3	51.7	85.3	51.6
1974	44.3	55.7	78.5	50.2
1975	64.8	35.2	86.3	35.0
Plateaux				
1972	38.0	62.0	12.9	10.9
1973	48.0	52.0	13.2	8.1
1974	51.2	48.8	16.7	8.1
1975	38.9	61.1	10.3	12.0
Centrale				
1972	2.2	97.8	1.0	23.1
1973	2.5	97.5	0.8	17.9
1974	2.4	97.6	0.8	16.3
1975	1.4	98.6	0.4	22.4
Kara				
1972	0.6	99.4	0.1	8.7
1973	1.0	99.0	0.15	7.9
1974	11.0	89.0	2.3	9.6
1975	5.5	94.5	1.0	13.5
Savanes				
1972	2.5	97.5	0.7	14.9
1973	1.8	98.2	0.5	14.4
1974	4.7	95.3	1.5	15.8
1975	7.6	92.2	1.8	16.9
Total, Togo				
1972	34	66	100	100
1973	36	64	100	100
1974	34	66	100	100
1975	43	57	100	100

SOURCE: Adapted from various SVSA documents.

FIGURE 2.2

AGE DISTRIBUTION OF MALE ZEBUS
SLAUGHTERED IN TOGO, 1967-1975

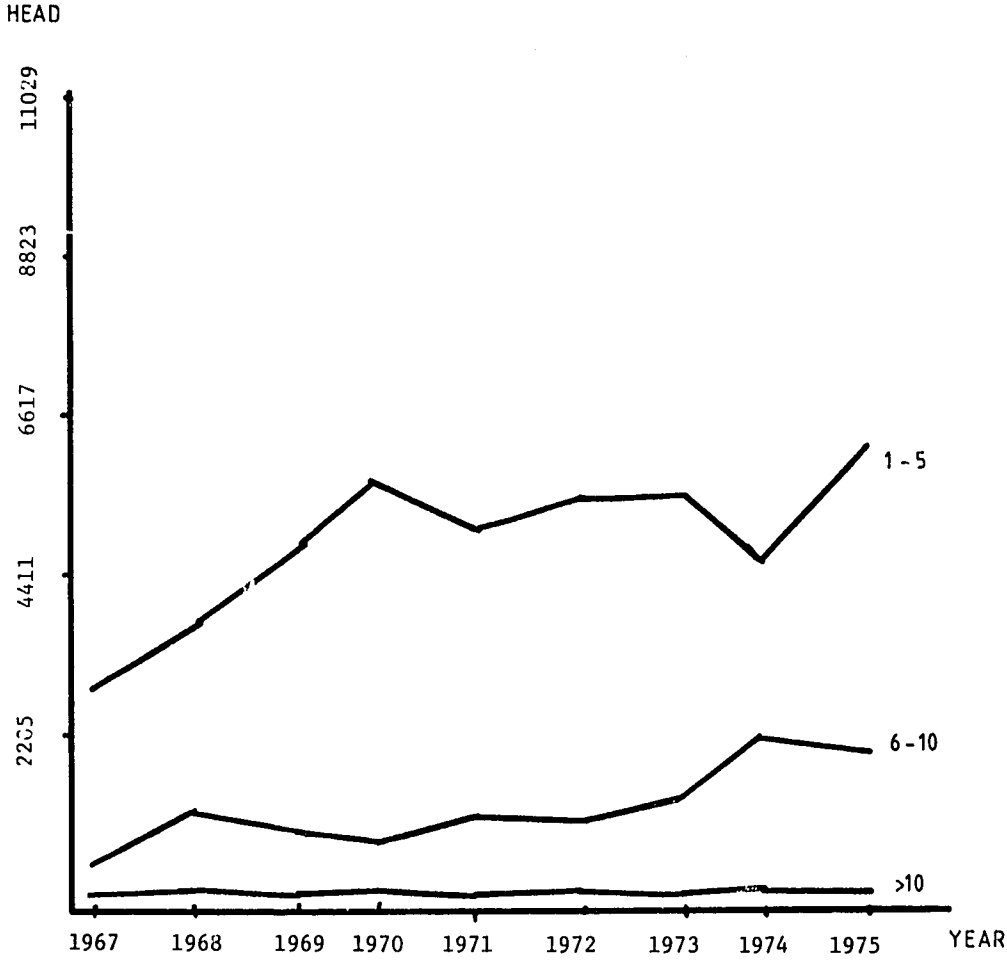
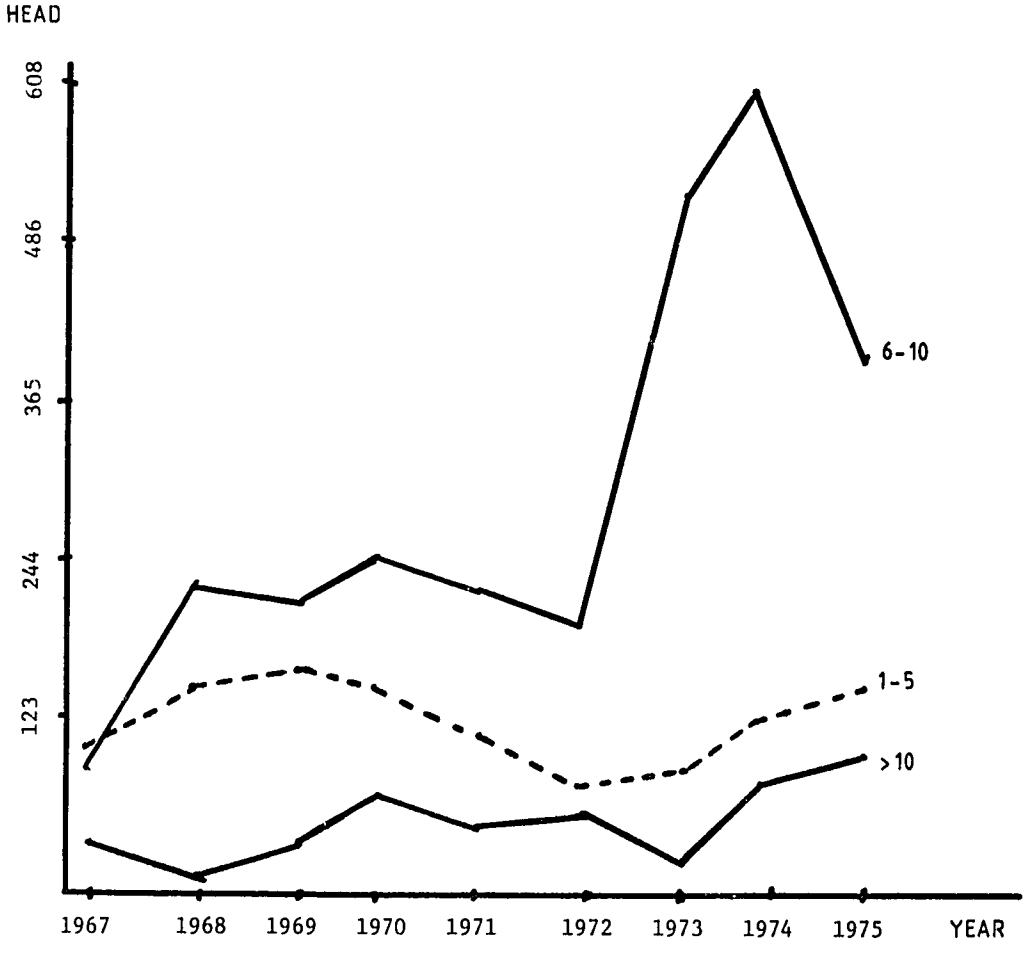


FIGURE 2.3

AGE DISTRIBUTION OF FEMALE ZEBUS
SLAUGHTERED IN TOGO, 1967 - 1975



In addition to most imported Zebus, the Maritime Region absorbed an average 45 percent of the total supply of domestic Taurin cattle as well. The remainder of Taurin cattle were, as Table 2.7 shows, divided among the four other Regions as follows: Centrale, 18 percent; Savanes, 15 percent; and Plateaux and Kara, 10 percent each. Sixty-five percent of slaughtered Taurins were males, mostly found in the 1-5-year-old age group (see Figure 2.4). Females, accounting for the remaining 35 percent of slaughter, were mostly found in the 6-10-year-old group (see Figure 2.5).

2.4 Small Ruminants, Swine and Poultry

These species have been the object of much less interest and intervention on the part of livestock services than cattle, despite the importance of their contribution to the total domestic supply of red meat. In 1975, for example, cattle accounted for 24.5 percent of total domestic meat consumed in Togo, whereas small ruminants provided 28.5 percent, swine 27 percent, and poultry 20 percent. There has been a surge of interest in recent years in small ruminants and other "farmyard livestock," but official action is just starting, primarily because extreme geographic dispersion and large absolute numbers raise enormous problems of logistics.

Unlike data on cattle, which are collected and compiled in a rather systematic manner, the size of the national herd of small ruminants, swine and poultry is estimated each year by the SVSA. Since these official estimates are used here to derive domestic supply and consumption of meat from these species, the final results will have to be taken with appropriate caution.

Besides cattle, small ruminants are the only livestock species imported from Upper Volta in significant numbers. Although their movements across borders are quite difficult to control, most estimates place the total amount of official and unrecorded imports at around 10,000 head/year, the majority of animals being, again, destined for the southern urban markets.

FIGURE 2.4

AGE DISTRIBUTION OF MALE TAURINS
SLAUGHTERED IN TOGO, 1967 - 1975

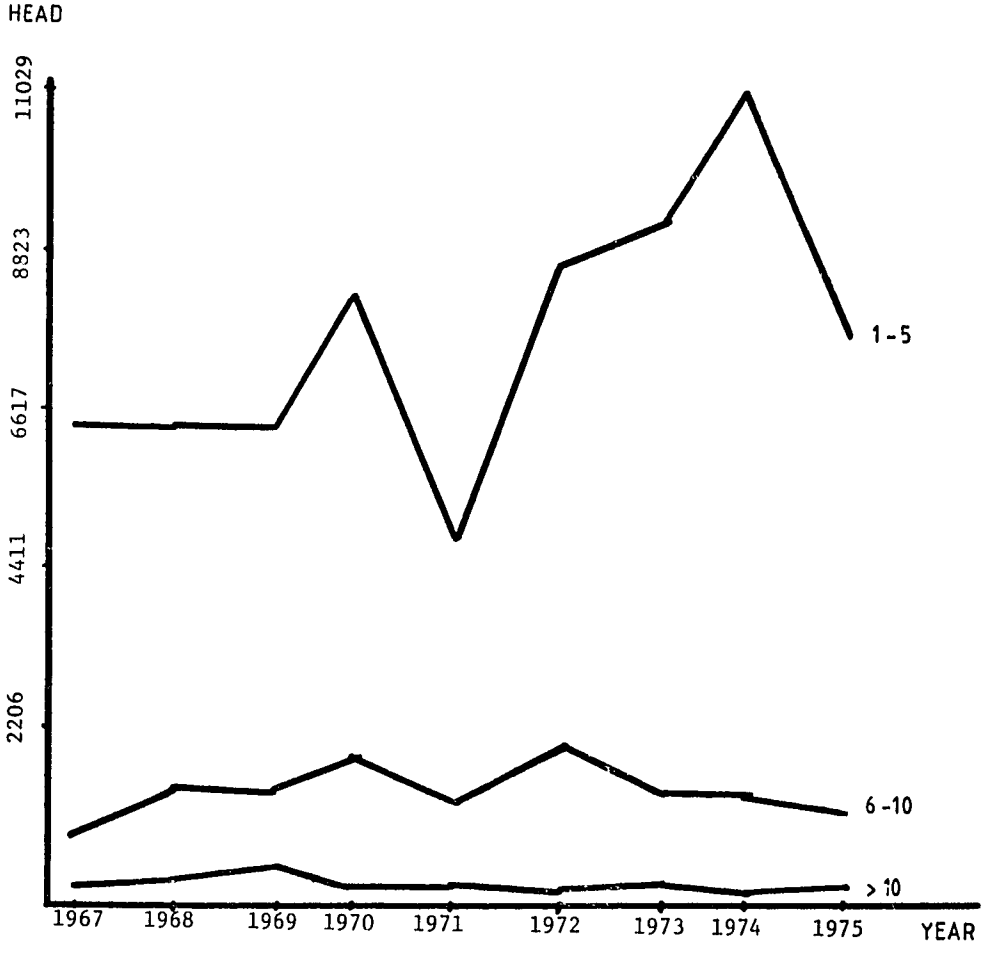


FIGURE 2.5

AGE DISTRIBUTION OF FEMALE TAURINS
SLAUGHTERED IN TOGO, 1967 - 1975

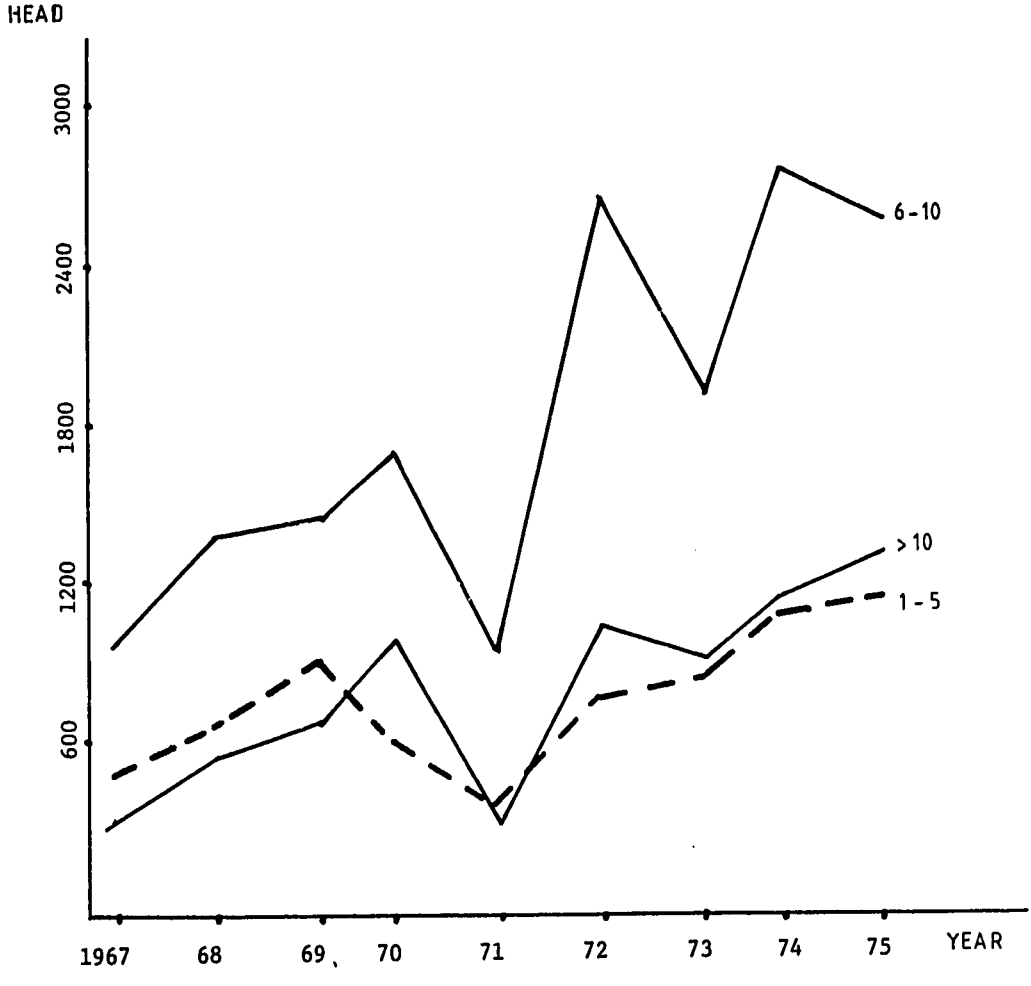


Table 2.8 shows the Regional distribution of small livestock species in 1969 and 1975, as well as their estimated average yearly rates of growth. The Maritime Region's role as a small stock raiser improved during this period, whereas the Kara posted a relative decline for three out of four species. The Savanes' improving position as a cattle-raising area was not matched with respect to small ruminants and swine, but the Region improved its national lead in poultry production.

The tradition of small stock raising is more widespread than that of cattle husbandry, but the former is still done in a less specialized and skilled fashion than the latter. Ownership of small stock is extremely diffuse; almost every rural (and many urban) households keep small stock as a supply of meat and as an easily convertible asset. Mortality and morbidity rates are very high, however, and growth is stunted by intestinal parasites, inbreeding and lack of proper feed. Productivity and offtake are correspondingly limited. (See Tables H, J, and K of the Statistical Appendix.)

Togolese authorities and foreign aid donors are professing a new interest in improving small ruminant production and marketing, but in the medium run, cattle will continue to receive most official attention. As indicated above, in 1975 cattle contributed less than 25 percent to the total domestic meat supply, but they present the advantage of being a much more visible, concentrated and less elusive target than smaller stock. Furthermore, beef makes up the bulk of urban meat consumption, and in 1975 cattle on the hoof represented 70 percent of all meat imports. Until further information becomes available, it is assumed that the supply of beef will grow according to various Development Plan scenarios, while other species will be held to a growth rate equivalent to that posted over the 1969-1975 period.

2.5 Government Livestock Policy

Togolese authorities have expressed growing concern over both the current livestock and meat supply situation and the lack of fundamental progress achieved during the previous two Development Plan periods,

TABLE 2.8

PERCENTAGE DISTRIBUTION OF SMALL STOCK BY REGION, AND ESTIMATED RATES OF GROWTH, 1969-1975
(percent)

Species	Maritime	Plateaux	Centrale	Kara	Savanes	Yearly Rate of Growth
Sheep						
1969	19.6	25.3	9.0	13.6	32.4	5.7
1975	21.9	23.3	13.2	11.9	29.7	
Goats						
1969	18.7	23.0	9.6	18.0	30.5	5.3
1975	20.9	21.4	16.4	15.4	25.6	
Swine						
1969	52.6	18.0	8.8	7.7	12.8	5.7
1975	46.4	12.8	20.7	8.3	11.8	
Poultry						
1969	14.0	12.6	17.2	25.1	29.9	5.0
1975	13.7	13.5	16.1	15.4	41.3	

SOURCE: SVSA Annual Reports.

NOTE: Absolute numbers are available in Table A of the Statistical Appendix.

1965 through 1975. The Third (1976-1980) Development Plan's policies and objectives were aimed at correcting a situation where:

a) The national deficit in meat and meat products has not abated despite a very slow increase in per capita consumption.

b) There exists an even larger deficit in the main alternate source of animal protein, fish.

c) There has been little success with previous attempts to increase overall productivity and growth in the traditional livestock subsector.

The 1976-1980 livestock development policies have been designed to tackle these problems on a number of fronts. These policies may be divided into two main categories: integrated livestock development programs at regional levels, and more concentrated and intensive livestock programs.

2.5.1 Integrated Livestock Development Programs

These aim at improving traditional livestock raising through a combination of animal health, feeding, and genetic approaches. They include, for instance, veterinary prophylaxis and disease control (e.g. vaccination campaigns, holding and quarantine areas, cattle trails, etc.). They also entail improvement of rangeland, availability of supplemental feed, selective breeding campaigns and even animal traction projects. In the Plateaux and Centrale Regions, cattle programs would concentrate on improving N'damas, whereas similar activities in the Savanes would mostly be aimed at the local Borgou breed. Finally, a program for the amelioration of small ruminant raising in all five Regions is being considered.

2.5.2 Specific Livestock Development Programs

These government projects are aimed at most of the bottlenecks thought to keep traditional cattle raising at low levels of production and growth. Three large-scale cattle breeding and/or fattening ranches are planned: Borgou (Savanes Region), Dako (Centrale Region) and the

Adele (Plateaux Region). There is also a project in the Maritime Region for intensive raising of poultry, rabbits, small ruminants and swine. Finally, the 690-million CFA F Lome abattoir/refrigeration complex would be fitted with additional equipment.

Total planned investment for the livestock component of the third Development Plan amounts to 2,504 million CFA F ($11.6 million) distributed as follows:

TABLE 2.9

PUBLIC INVESTMENT IN INTEGRATED LIVESTOCK DEVELOPMENT PROGRAMS, 1976-1980
(Million CFA F)

Centrale and Plateaux regions	177
Savanes Region	172
Small Ruminants	150
Cattle Trails and Marketing Infrastructure	52
Office National des Abattoirs et Frigorifiques (ONAF)	100
TOTAL	651

SOURCE: Ministere du Plan, Troisieme Plan de Developpement.

TABLE 2.10

PUBLIC INVESTMENT IN SPECIFIC LIVESTOCK DEVELOPMENT PROGRAMS
(Million CFA F)

	1976-1980	Beyond 1980
Adele Ranch (Plateaux Region)	445	198
Borgou Ranch (Savanes Region)	796	400
Dako Ranch (Centrale Region)	400	611
Bena Development	212	---
TOTAL	1,853	1,209

SOURCE: Ministere du Plan, Troisieme Plan de Developpement.
NOTE: Total planned investment in the livestock subsector amounts to almost exactly 1 percent of total Third Development Plan investments (250,628 million CFA F). This is a much smaller percentage than in the previous two Plans.

TABLE 2.11

PUBLIC INVESTMENT IN LIVESTOCK 1965-1980
(Million CFA F)

	Investment in Livestock	As a Percentage of Total Plan Investment
1965-1970	492	2.5
1971-1975	1,141	1.5%
1976-1980	2,504	1.0%

SOURCE: Ministere du Plan, Development Plans, 1965-1980.

This report was written at about the mid-point of the 1976-80 Development Plan time period. It may be well to look at Plan policies and objectives in the light of the accomplishments of the first half and with an eye to the degree of success of the previous two Plans. At the time of the field study (Spring 1978), most of the integrated livestock programs were underway. The emphasis was still on veterinary prophylaxis and disease control rather than on genetic improvement and extension work. The nationwide small ruminant project was still under study, and work on cattle trails and marketing infrastructure was all but completed, although no expansion of ONAF facilities had yet taken place.

Animal traction has received a great deal of attention in Togo; three out of the five Regions have a number of animal traction projects financed by various donors (USAID, FED, FAC, UNDP, Peace Corps, Lutheran World Relief). The government's animal traction project was launched in 1977, in the Atakpame area. Progress has been slow so far because of the difficulty of enlisting the participation of small agricultural holders, tight supply conditions for suitable animals, and delays in the delivery of equipment.

With respect to the four specific livestock development programs, even less progress could be reported. Work on the Adele ranch was still at the stage of building a bridge to give access to the area. The Borgou and Dako ranches were at equally early levels of implementation. Development Plans and other documents pertaining to national livestock programs mention the Avetonou, Dzogbegan and Bena-Development ranches. Although officially under the direction of the Service de la Production Animale, Avetonou is a joint Togolese-German agricultural research station and ranch. Dzogbegan and Bena-Development are even more autonomous and private in character, since the former (selective breeding and animal traction) is run by a German religious order and the latter by the private Marox meat compnay to supply the high-income Lome market.

Experience has shown that Togolese livestock programs fall consistently short of projections. The Adele ranch project, for example, can be traced back to 1965 and has been repeatedly carried forward

through successive Development Plans; such has been the case, although not to the same extent, for the Borgou and Dako ranches. Considering past experience, the current state of the various projects, and the fact that the public agency responsible for their completion and supervision is still embryonic, it appears that the objectives of the Third Development Plan were unfortunately as over-optimistic as those of the two previous periods. Delays in the realization of major projects thus mean either that the livestock share of investment expenditures was overstated in the Plan, or that the funds will be spent on other activities. Furthermore, as Togolese planners rightfully point out, large-scale livestock projects such as the ones proposed have a relatively long maturity period. The effects of their implementation would thus not be felt for at least five, and quite possibly ten years.

In conclusion, we must place the point at which the livestock and meat deficit will be overcome by domestic production later in time than was projected at the beginning of the Third Development Plan.

CHAPTER THREE

TRANSPORTATION

Chapter Synthesis

This chapter includes an overview of the Togolese transportation network, of improvements made during the past decade, and of those to be achieved during the Third Development Plan. The transportation of cattle and other animals follows very traditional ways, while showing much adaptability to changes in quantity and locus of supply by altering the means of transportation employed (e.g. the increased use of trucks for imported cattle). No large-scale private shipping of cattle is expected to be done by train in the foreseeable future. Only relatively modest increases in livestock trucking costs have occurred. This can be attributed to the rise in supply of vehicles brought about by increased northern road traffic, to the general competitiveness of the private trucking industry, and to greater organization and efficiency on the part of cattle merchants.

3.1 General Network

3.1.1 Roads

Togo's road system in 1978 consisted of 2,366 kilometers of main highways (routes nationales), of which 1,137 kilometers were paved, the rest being all-season unpaved roads. The secondary system of feeder roads (routes de circonscription) covered 4,803 kilometers; these were dirt raods, in poor condition and passable only during part of the year. The primary road system, administered by the Public Works Department of the Ministry of Mines and Public Works, included the main south-north axis (Lome - Atakpame - Sokode - Lama-kara - Kante - Mange - Dapango) which was paved and well maintained from Lome to Kante. The Togolese government is currently working, with foreign capital assistance, on the paving of the last northern section, Kante - Upper Volta border. The other good roads were along the Lome - Aneho - Cotonou coastal axis and in the Plateaux and Maritime Regions, where they linked the main north-south axis with major provincial towns such as Badou, Kpalime,

Amlame, Tabligbo and Vogan. Feeder roads, which fall under the responsibility of the Ministry of the Interior's regional offices, receive less funds for construction and maintenance. Map 3.1 shows the existing Togolese transport network as well as the main objectives of the 1976-80 Development Plan. During this period about 50 percent of planned transport investment will be devoted to the highway subsector, one-third of these expenditures going to the Kante - Upper Volta border segment.

The main thrust of the government's road transportation policy is to improve Togo's ability to handle regional transit traffic between the coast and the interior states (Upper Volta and Niger) and with other coastal states (Ghana, Benin, and Nigeria).

3.1.2 Railroads

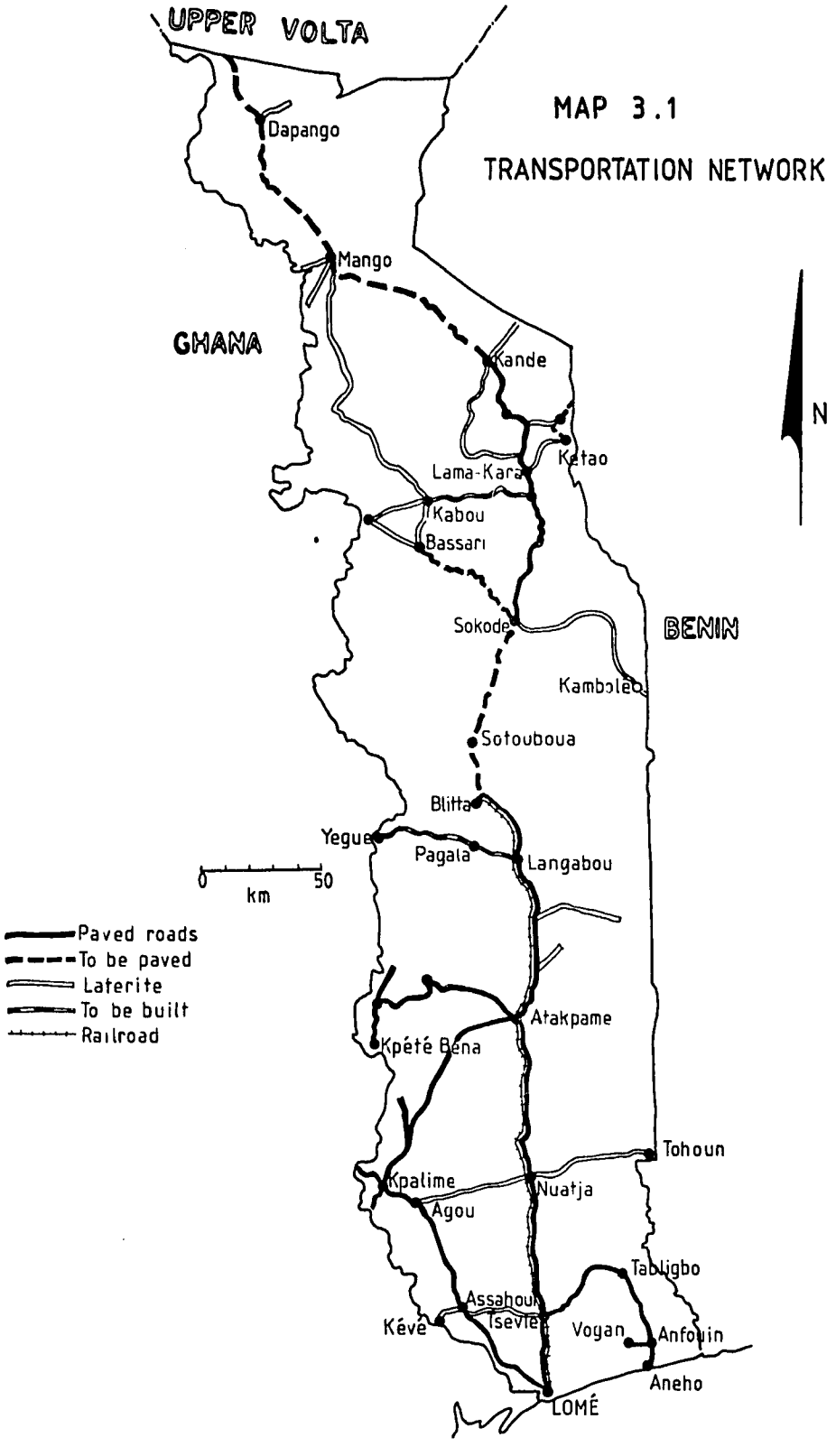
The CFT (Chemins de Fer du Togo) spread its 496 kilometers of railway over three main lines:

1) the south-north Lome - Blitta (275 km) line,
2) the 116 km-line from Lome northwest to Kpalime, and
3) the eastward coastal Lome to Aneho (44 km) line.

Over the last four years CFT's overstaffing and mismanagement have made for unprofitable operations. A reorganization along management and personnel retraining lines has been included among the 1976-1980 Development Plan transportation objectives. Other CFT goals include the building of short industrial lines and the purchase of spare and rolling stock, rails and passenger cars. Finally the possibility of prolonging the currently existing Lome - Blitta line all the way up to the Voltaic border is envisaged.

3.1.3 The Port of Lome

Located twelve kilometers east of the center of town, it is a modern free port with a yearly capacity of 800,000 tons of general cargo. It now includes a fishing port and a shipway; port traffic reached almost 600,000 tons in 1975. During the past few years the port of Lome has handled an increasing volume of transit merchandise shipped by road to Nigeria because of the congestion in Lagos harbor.


UPPER VOLTA
MAP 3.1
TRANSPORTATION NETWORK
Dapango
Mango
GHANA
Kande
N
Ketao
Lama-Kara
Kabou
Bassari
Sokode
BENIN
Kamboleo
Sotouboua
Blitta
Yegue
Pagala
Langabou
0
50
km
Paved roads
To be paved
Laterite
To be built
Railroad
Atakpame
Kpété Bena
Tohoun
Kpalime
Nuatja
Agou
Tabligbo
Assahoun
Kéve
Tsevie
Vogan
Anfouin
Aneho
LOMÉ

3.2 Livestock Transport Network

3.2.1 Ways and Means

The twelve official Togolese cattle trails were etablished to regulate the flow of livestock and keep down the communication of diseases from travelling to sedentary herds. These trails constitute as much recognition of traditional flows as an attempt to control them; the decree delineating most of these trails was signed in July 1937 and is still in effect. Over time, changes in the livestock trade have shifted flows among the various trails, but most are still widely used; they are shown on Map 3.2. By comparing Map 3.2 with the Major Markets Map (4.1), the reader may note that today's most active markets are located along the main traditional trails.

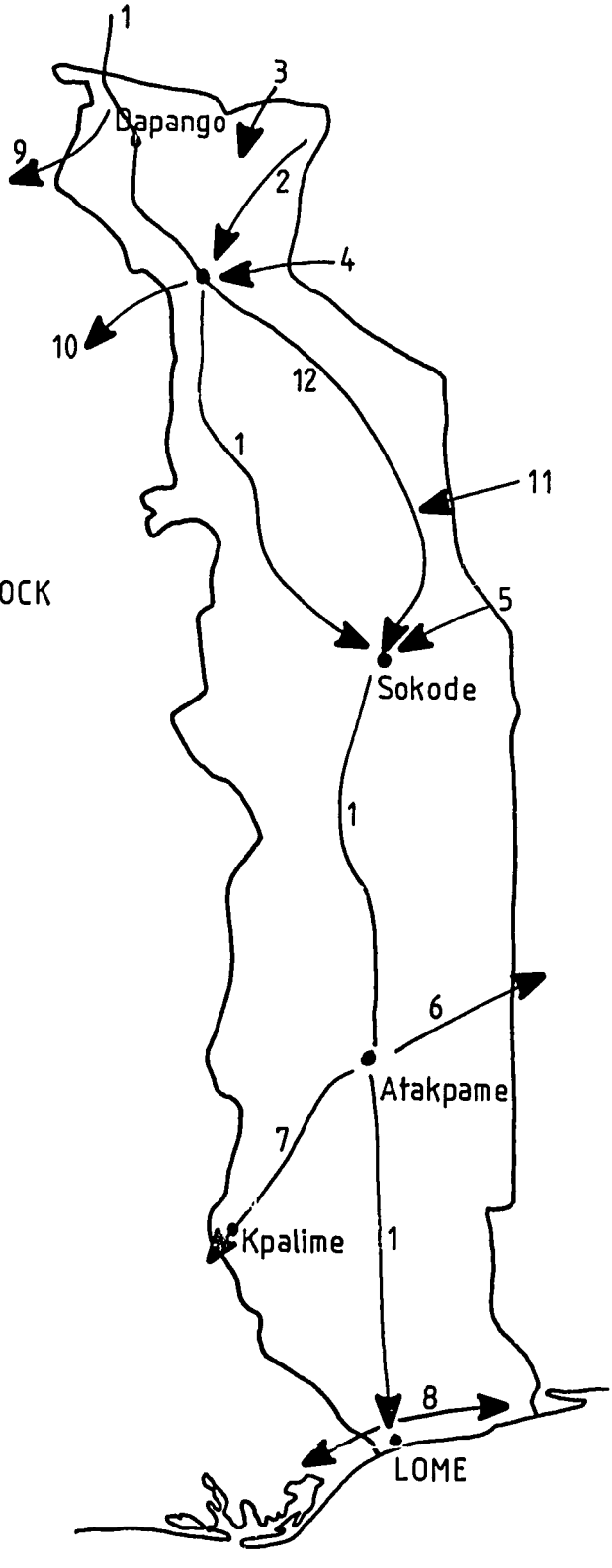
Trail 1 is the main cattle route; it follows a north-south axis through the entire length of Togo, from Nadjouni (just below the Voltaic border) to Lome. It runs through Dapango, Bobou, Mango, Ketchamba, Komberetou, Guerin Kouka, Naware-Bassari, Sokode, Blitta, Nuatja, Agbeloume, and Tsevie to Lome. This main north-south axis divides in two between Mango and Sokode: the oldest route is Trail 1, as just outlined, and the most recent is Trail 12: Mango - Kante - Lama-kara, over the mountainous terrain that became practicable only after the construction of the Sokode - Kante - Mango road. Today it is the more used of the two. The other cattle trails were tributaries of the main north-south route.

Trail 2, Mandouri - Borgou - Tamioti - Mango, and Trail 3, Koundjouare - Borgou - Tamioti - Mango, channelled animals from Niger and northern Benin into northeastern Togo.

Trail 4, Gando - Mango, provided access to animals from northwestern Benin (Nattitingou area).

Trail 5, Aledjo - Koura - Passa - Baiakou - Dedaoure - Sokode, was used to bring animals from western Benin (Djougou area).

Trail 6, Savalou - Atakpame, was used for animals brought from south-western Benin (Savalou).



MAP 3.2

OFFICIAL LIVESTOCK TRAILS, 1978

Trails 7, 8, 9, and 10 may be called "export" or "transit" trails, since they were also used to send livestock to Ghana.

Trail 7, Atakpame - Sodo - Goudele - Kpalime - Soame - Nyve - Ho, supplied part of southwestern Togo and at one time went on to southwestern Ghana markets (Ho). It should be noted that cattle trekking was -- and still is -- forbidden in this area. To protect local animals from outside diseases, all livestock transported along Trail 7 and in the region have to be trucked.

Trail 8 was the "international coastal trail" going from Lome eastward to Benin (Agoue) and westward to Ghana (Keta).

Trail 9 supplied northern Ghana through Naivergou and Nakitindi, as did Trail 10: from Mango to Yendi.

Trail 11, Lama-kara - Ketao, was added when the Kara Region became more accessible to Benin cattle because of the construction of roads in the Lama-kara area.

Flows of cattle today reflect more recent livestock supply conditions. Very little cattle currently come into Togo from Benin and Niger; Trails 4, 5, 6, and 11 are used almost exclusively for the import of a limited number of small ruminants. In fact, to the extent that they are used for cattle, these trails are more likely to have the flow in the opposite direction, since Benin does buy some Togolese cattle. Transit shipments or exports to Ghana from northern (Trails 9 and 10) or southern Togo (Trails 7 and 8) have also almost entirely dried up, mainly because of Togo's own meat deficit and the lack of attractiveness of Ghanian currency or terms of payment.

This leaves the current, more concentrated pattern of livestock movements in which Trail 1, with the Mango - Kante - Lama-kara - Sokode branch, plays the dominant role. Segments of the former secondary trails, those branching off from the north-south axis, are still used within Togo by merchants bringing animals to markets located along Trail 1 for local consumption or further transport to Lome. Three main reasons may be suggested for the concentration of livestock movements along the major north-south geographical axis: i) the disappearance after the late sixties of large-scale cattle imports from Niger and Benin

as a result of these two countries' lack of surplus animals; ii) the growing importance of the Lome area as a meat consumption center and thus its increased centripetal force on imported and domestic cattle; and iii) the completion of most of the Ouagadougou - Lome road, facilitating trucking along the country's north-south axis.

Changes have also taken place since the early seventies in the means of livestock transport. As a result of their smaller size, sheep and goats have traditionally been trucked from one market to the next. This is especially true of Togolese small ruminants, for the longer-legged "Sahelian" sheep and goats of Upper Volta are almost always walked across the Voltaic/Togolese border and led to Dapango for loading onto trucks. The smaller Taurins also often have to be trucked when the distance to be covered exceeds one hundred kilometers. Table 3.1 gives an idea of the relative importance of the two means of cattle transport used in the early 1970s. The data were collected by inspection of SVSA Laissez Passer Sanitaires, which are supposed to document every herd and show the place of origin and the means of transport used.

Table 3.1 cannot be used to make precise comparisons, since it only shows the origin and not the final destination of the herds. Nor does it account for change of ownership and mixed transportation (trek/truck or trek/train). It is not possible to infer from it the influence of such transport-mode determinants as seasonal availability of water along the trails or the demand for trucks at peak product-marketing times. It seems, however, that at the time of Arnaud's study (Arnaud, 1972), 75 percent of imported Zebus and domestic Somba cattle, i.e. animals coming from Dapango, Borgou, Gando and Mango, were trekked. Cattle from the Kara and surrounding areas (Kante, Ketao, Niamtougou and Bafilo) represented Taurin breeds of Togo and Benin, more short-legged than their northern counterparts and faced with very mountainous terrain. The percentage of these animals being trucked was correspondingly higher by 90 percent.

The author's interviews with cattle merchants and livestock agents in various regions in 1978 revealed that trucking has become an increasingly common means of cattle transport. Voltaic and Togolese merchants

Table 3.1

MEANS OF LIVESTOCK TRANSPORT FROM VARIOUS TOWNS, ca. 1970
(Head)

From	Cattle		Small Ruminants	
	Trekked	Trucked	Trekked	Trucked
Dapango	952	1,710	70	12,148
Borgou	3,850	-	589	-
Mango	2,260	512	-	2,781
Gando	142	210	6,846	637
Kanté	272	288	1,600	628
Kétao	-	2,352	-	4,767
Lama-kara	1	29	-	253
Niamtougou	-	170	-	1,000
Bafilo	38	139	-	564
Sokodé	3,347	288	-	1,469
Atakpamé	-	561	-	-
TOTAL	10,862	6,259	9,105	24,247

Source: Arnaud, 1972.

Note: The high "trekked" figure for Sokodé is very likely overstated, since many head would have been walked south only as far as Blitta, where they would have been loaded aboard the Blitta-Lomé train.

in Dapango, for example, reportedly prefer to send their cattle south by truck, twenty-five to forty head per truck, depending on size of animals and type of vehicle. Except during the rainy season, when animals can actually gain weight during a southward trek, trucking is now used more often than walking. Naturally, the tendency to truck small ruminants is even more pronounced than it was around 1970, especially if one takes into account the number of sheep and goats taken to market by their owners.

The last decade has seen a progressive concentration of livestock movements along Togo's major north-south axis. It can be argued that this phenomenon has led to a better organization and a modernization of cattle transport. The main factor was unquestionably the building and improvement of roads in the Savanes and Kara Regions, making truck service more accessible and dependable as well as financially affordable The simplification of cattle movements also certainly allowed economies of scale in transport organization and management. Another, and quite interesting, reason is linked to the economic determinants of the trek-versus-truck choice.

Seasonal variations in water and pasture availability naturally tend to dictate the mode of transport, and the supply of available vehicles is also a function of competing agricultural activities. The trek/truck decision is, however, very dependent upon the merchant's information on the supply, and thus price, situation in the few major terminal markets. A shortage of cattle on the Lome market induces merchants holding animals in Dapango to seek immediate truck transport, while a glut on the same market, combined with the costs of holding animals in Dapango, will prompt them to send a herd on foot for more timely arrival in Lome. In this respect, the increased use of trucks may be traced to the fact that demand for meat in Lome has grown fast enough in itself to make the use of trucking more profitable than it was a few years ago.

As previously noted, the CFT runs a 276-kilometer railway line between Lome and Blitta. The 1970 project paper on cattle trails and markets (Arnaud, 1972) states that, at that time, the CFT owned five

ten-ton cattle cars. Given both the cattle cars' capacity and the fact that the train ran on this line three times a week, CFT's potential transport capacity was said to exceed 700 cars, or 12,250 head of cattle, per year. The railway, however, has not been used for cattle transport for several years. It is likely that the improvement of Togo's northern roads and the greater availability of trucks for cattle transport account for this. Before the development of northern roads, truck transport from the Savanes Region, where most of the cattle are, was scarce and undependable; it made sense to walk the animals down to Blitta and have them finish the journey by train, but today mixed transport is almost never used for animals coming from the Savanes. If the decision is made not to trek all the way down to Lome, a truck will take animals straight to the terminal market. Low transport costs, discussed in the following section, render the truck/train combination unappealing, and truckers would certainly be opposed to it for two reasons: a) back-haul truck freight from Blitta to Lome is scarce in most seasons, and b) cattle transport over all-purpose tracks requires definite economies of scale. Few truckers may be willing to accept the risk of delay and vehicle damage in exchange for short-haul earnings. Finally, with regard to both location for loading or unloading and timing of arrival or departure, truck transport is much more flexible. The vast majority of cattle trucked from northern towns is destined for the Lome market.

In consequence, one concludes that no large-scale private shipping of cattle will be done by train in the foreseeable future.

3.2.2 Transport Costs

Despite the increase in demand for trucks suitable for cattle transport over the last five to six years, data collected during field research in 1978 indicate that trucking charges are surprisingly close to those prevailing at the time of a February 1972 study. The results of both are compared in Table 3.2.

TABLE 3.2

TRUCK FREIGHT CHARGES FOR LIVESTOCK, 1972 AND 1978
(CFA F/Head)

	Taurins		Zebus		Small Ruminants	
From Dapango To:	1972	1978	1972	1978	1972	1978
Atakpame	2000	--	--	2500	400	--
Badou	2500	--	--	3000	450	--
Kpalime	2500	--	--	3000	450	--
Lome	2500	2500	--	3300	450	400-500
Niamtougou to Anie	--	--	--	--	--	150
Vogan to Lome	--	--	--	--	--	100

SOURCES: Arnaud, 1972.
Interviews with Merchants in Dapango, Anie, Vogan, Lome, 1978.

Several explanations account for the modest cost increase over the six years: i) the rise in demand for trucks was matched by a near-proportional increase in supply as a result of stepped up road traffic with Upper Volta; ii) as long as merchants possess more information than truckers about cattle prices in terminal markets, a common situation, they can profitably weigh the trekking alternative; and iii) merchants are now better organized to secure truck transport. As described in the chapter on marketing costs, one of the dillali's functions in the town of Dapango is to find truck drivers willing to pick up cattle on the back-haul from Upper Volta.[1]

Notes to Chapter Three

[1]Dillali is the Haussa word for the specialized intermediary who lodges cattle merchants and guarantees the solvency of the prospective buyers. In French-speaking countries he is sometimes called logeur; maisonnier is the term used in Togo to refer to this traditional agent.

CHAPTER FOUR

PHYSICAL STRUCTURE OF TOGOLESE LIVESTOCK MARKETS

Chapter Synthesis

With the exception of Lome's Togblekope and Gbo-Sime markets, which supply the capital with cattle and small ruminants, there are no specialized livestock exchanges in Togo. Major interior markets, however, do exert a centripetal force on livestock transactions, and these take place in the proximity of the main general markets located along the principal cattle routes.

This chapter examines the government's efforts to improve the physical infrastructure of the cattle marketing system -- holding pens and cattle trails as well as the markets themselves.

4.1 Traditional Markets

The lack of organized cattle markets in Togo has, over the years, been repeatedly stressed in the literature (Arnaud, 1972; UNDP/SEDES, 1975). There are, however, many markets which, although primarily involving other goods, exert a centripetal force on live animal transactions. While small ruminants and poultry from nearby villages are ever present in regular marketplaces, cattle transactions involve a small number of specialized agents and take place on a field outside of town, in many cases still with few or no physical facilities. The spatial distribution of cattle marketing closely follows the north-south axis of cattle flows described in the previous chapter. It is funnelled through the narrowing Savanes Region, goes through the Kara and upper Centrale Regions, and fans out at the level of Atakpame to supply the south and southwest of the country. It is, in fact, only at either end of the cattle marketing chain that the markets most closely resembling livestock exchanges may be observed. In the north, this applies to towns such as Dapango, Mango, Gando and Borgou, and in the south to Kpalime, Lome (Togblekope and Gbo-Sime) and Vogan. Dapango and Mango, for instance, are the two major loading points for Voltaic-Zebus; Dapango

is also the Regional headquarters of the Togolese customs and livestock service. Kpalime supplies a large part of the nation's southwest, while Togblekope and Gbo-Sime provide Lome's supply of cattle and small ruminants, respectively. The geographic distribution of these and other markets is shown in Map 4.2.

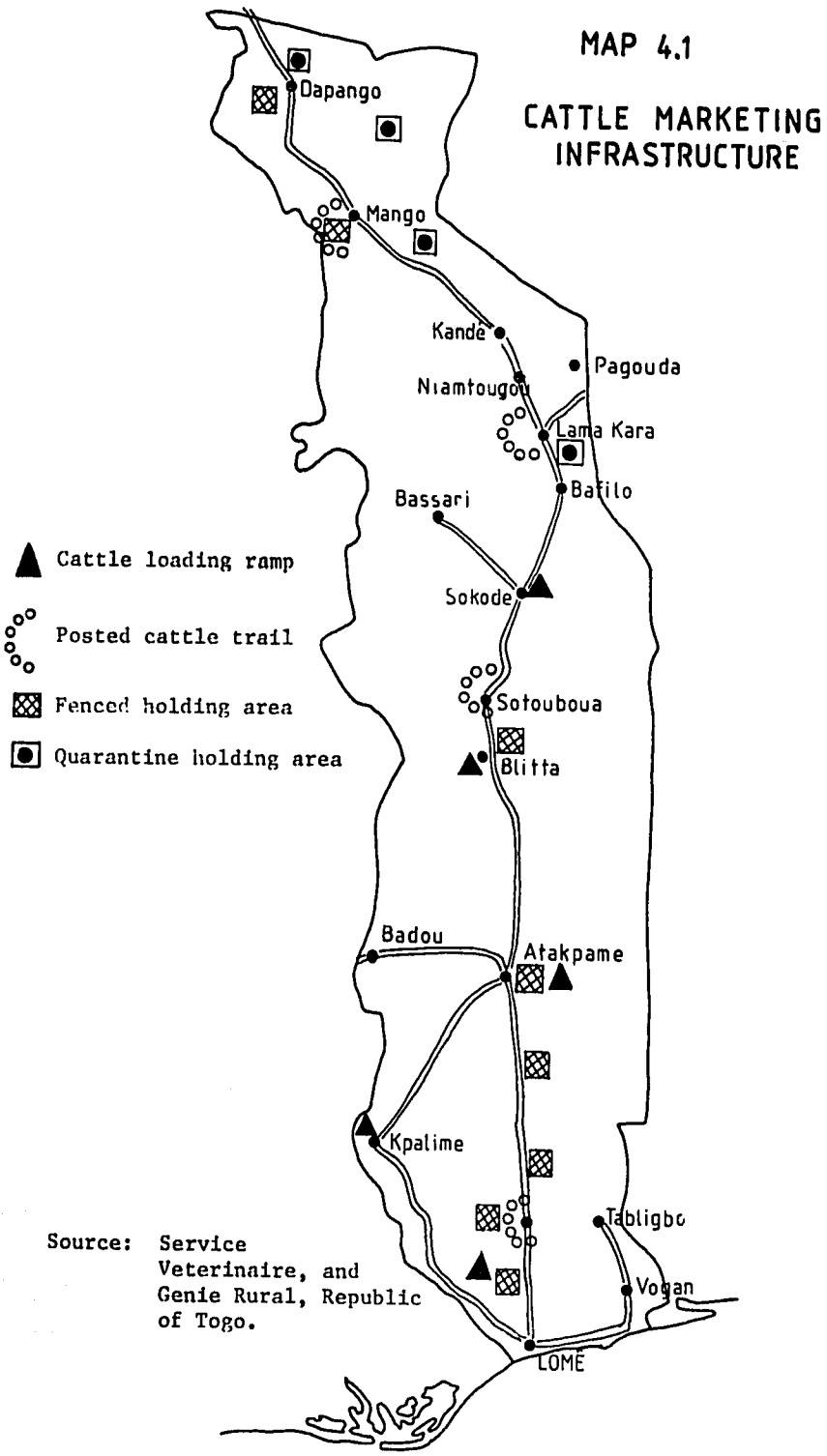
4.2 Modern Cattle Marketing Infrastructure

A $250,000 program was initiated during the summer of 1975 for the creation of loading ramps, cattle trails, fenced holding yards and quarantine areas. The location of the major installations is shown in Map 4.1. Project implementation was delayed by procurement bottlenecks, but by 1979 most components were either completed or well on their way to being so. The supervision and maintenance of this marketing infrastructure was placed under the responsibility of Production Animale. The project included the digging of wells (Blitta), a pumping station (Togblekope) and earth dams for water catchment. The Atakpame-Togblekope trail was posted to facilitate cattle transit and protect this densely populated and cultivated area. Five holding yards were also established along the same trail. Farther north, where cattle trails need not be so clearly delineated, posting has been confined to the outskirts of major urban settlements, Sotouboua, Sokode, Lama-kara, Mango. Loading ramps were installed in Atakpame and Kpalime since cattle are legally restricted to truck transport between these two towns.

The project also apparently aims at revitalizing cattle transport by train. For this purpose, a holding area and a loading ramp were built at both railheads (Blitta and Togblekope). Providing that new cattle cars are purchased by CFT, it is possible that rail transportation may be resumed on a limited scale, involving domestic Taurins from the Kara and Centrale Regions -- i.e. animals walked down from Niamtougou and Sokode to Blitta for shipment to Lome.

4.3 Cattle Trading on the Lome Market

With an estimated population of 229,400 (January 1978) and the highest per capita income level in the country, Lome is indisputably



Source: Service Veterinaire, and Genie Rural, Republic of Togo.

MAP 4.2
LIVESTOCK MARKETS

Major Cattle Markets

Major Cattle/Small Ruminants Markets

Major Small Ruminants Markets

ther Markets:

AVANES REGION: Korbongou, Papri, Gando, inkasse, Koumongou, Bombouaka, Mango, angbeni, Barkoissi.

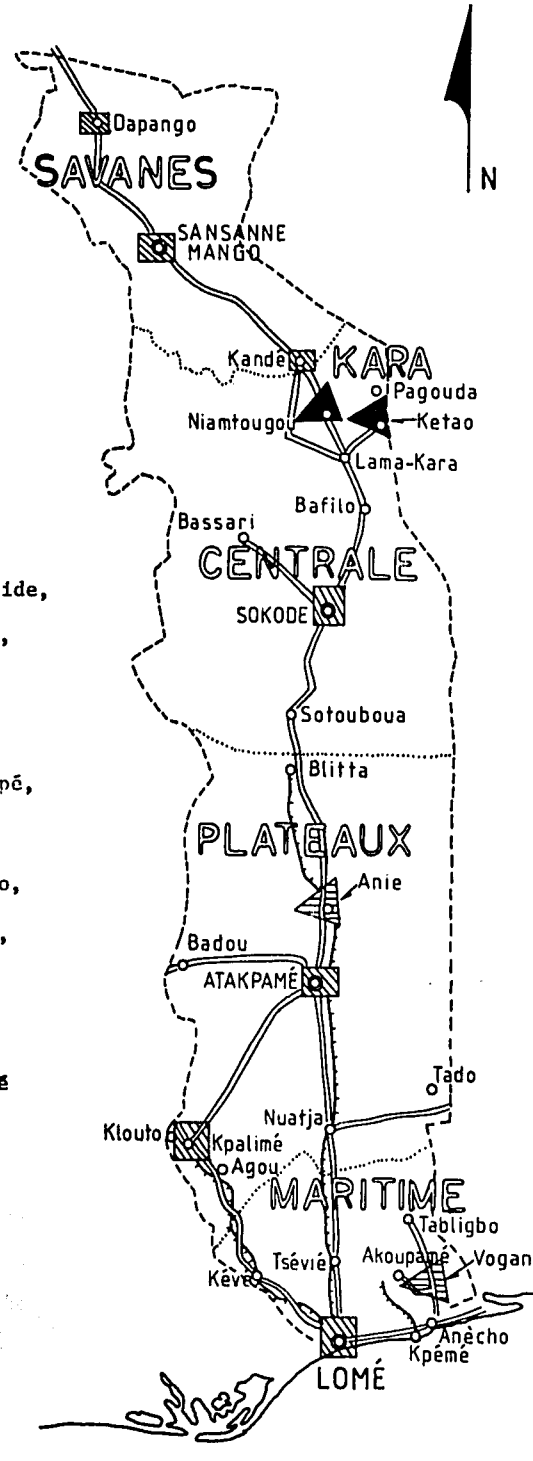
ARA REGION: Farendé, Ataloté, Ossacré, vandjelo.

ENTRALE REGION: Tchamba, Kassena, Aleheride, ambolé, Agoulou, Soudou-ouro, Gao, Dako, ierin-Kouka, Koudjodouloue, Bassar, Kabou, ante-Haut, Ayangre, Sotouboua, Blitta, agala, Tchebébé.

LATEAUX REGION: Bobo, Esimé, Adeta, Gla, outoukpa, Akparé, Patatoukou, Kpadapé, lavagnon, Amlamé, Sodo, Badou, Amoussoukopé, 'Sigbe, Amou-Oblo, Kpakpo, Agou, Apeyemé, anvié, Chra, Notse, Kpe, Kpekplimé.

ARITIME REGION: Aneho, Vo, Boko, Tabligbo, okoutimé, Aklakou, Tsevié, Aghelouvé, atopé, Honougba, Gapé, Tovegan, Assahoun, obo, Lebé.

ource: Service Vétérinaire et de la Santé Animale, Lomé.



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Togo's main livestock market and meat consumption center. Imported and domestic livestock are brought from the north by truck or on foot to Togblekope, an area located eighteen km. north of Lome, where they are kept before final sale. The area is suitable for cattle holding since there is natural grass pasture and a good supply of water, the Sio River. Togblekope is also located along the Blitta-Lome railroad. From Togblekope a few head of cattle are trekked daily through Lome's northern suburbs to the city's stockyard, near the center of town. Physical facilities there are limited to the enclosing walls, a muddy waterhole in the center, and a small building for cattle hands and watchmen; the area's maximum holding capacity is 75 to 100 head. A veterinary agent from the Office National des Abattoirs et Frigorifiques (ONAF) visits the yard every day. Since no feed is available and space is very limited (cattle are taken out daily to graze on nearby open areas), animals are kept at the yard just long enough to be shown to prospective purchasers. The daily turnover averages thirty head; transactions take place in late afternoon every day but Sunday, always in the presence of the dillali or his appointed agent. Buyers are mostly Lome butchers, but there are also a few local merchants who acquire a few head at a time and rent trucks to take them to nearby towns in the Maritime Region; they reportedly have little difficulty finding trucks for this purpose.

Animals bought by Lome butchers are marked and taken to the slaughterhouse the same night in ONAF trucks. A last, "non-trading" category of buyers includes individuals who want cattle for ceremonial uses or to constitute or increase the size of a herd. During visits at the stockyard, it was observed that about 70 percent of animals present were Voltaic steers destined for the abattoir, while about 30 percent were local Langunaire-type animals, including young cows and calves, likely kept for "non-trading" buyers.

CHAPTER FIVE

MEAT RETAIL TRADE

Chapter Synthesis

Meat marketing in Togo comprises traditional as well as modern private processes and varying degrees of government control and intervention. The latter appear mostly as butchers' registration and the setting of official retail prices for meat. The government's meat price policy does not extend to live animals, however, and this results in numerous cases where supply is short at the official prices, compelling butchers to find ways to circumvent the public price schedules.

A planned component of public intervention is to provide butchers with loans for the cash purchase of cattle. This chapter discusses the Togolese approach to butcher credit and concludes by presenting a case study of a similar project in the town of Niamtougou.

5.1 Lome, Trading Practices and Credit System

Most butchers do not pay for live animals until they have received the full proceeds from the sale of meat, whereas merchants and non-trading buyers taking animals out of town must pay cash for every head purchased. Butchers are expected to pay for cattle within a few days, and although there are a few wholesalers who may buy four or five head at a time, sometimes paying for one or two head right away, most butchers never handle more than two head per day. As a general rule, merchants are unwilling to extend credit for more than two head to any but the largest butchers, and a butcher already owing two head to any merchant is not allowed to purchase additional cattle on credit. Naturally, it is very difficult to know to what extent these traditional regulations are followed, partly because of a complex web of partial repayments.

Although medium and long-term debts involving the full cost of an animal are not tolerated, a large number of butchers owe part of an animal's worth for longer periods of time. These "partial debts" are only repaid through the sale of animals subsequently purchased, and the "partial debt" then bears on a new animal from the same merchant, or is shifted to an altogether different seller. Both merchants and

utchers are well aware that there is a risk that some buyers' indebted-ess may reach large proportions before it becomes widely known, having ccumulated over time and with a number of merchants in a way somewhat omparable to the classic swindler's "pyramid borrowing" scheme. Merchants end to let the system perpetuate itself because up to a point their nly chance to recover money owed them by a butcher is to keep the man n business by selling him additional cattle. Butchers' indebtedness o one or several merchants does not necessarily imply that competition mong sellers is stifled; merchants do not sell cattle only to butchers ho owe them no money -- they would soon run out of buyers. Nor do hey sell cattle only to those who do owe them money. They tend to ell to any butcher whom they perceive as not overly indebted and who ffers a reasonable buying price.

The Lome butchers' "line of credit" was estimated during the summer f 1977 at 6 million CFA F (Lucca, 1977). This was thought to be roughly quivalent to the market purchase value of 100 cattle, or three days f fairly high trading volume. It does not, however, include the "partial ebt" phenomenon described above; thus total butchers' indebtedness ay in fact be twice as much as that reported in the Lucca study.

Two sections are set aside at the end of this chapter to discuss heory and practice of public intervention in butchers' credit.

.1.1 Professional Organization of Butchers

Lome's butchers are not classified according to the grade of meat hey sell, but rather on the basis of the volume of cattle and meat andled yearly. Some, however, tend to specialize in higher quality eat and act as regular suppliers to supermarkets and other choice meat uyers. The SVSA is in charge of the professional organization of the ndustry. Butchers are all registered and are issued professional cards f the type used by all member states of the Entente Livestock Community (CEBV). The cards bear a six-digit number identifying the country and ity of activity and a serial number for each butcher. There are five ategories of color-coded cards:

1) Chevillard: large-scale wholesale butcher

2) Grossiste: wholesale butcher
3) Abattant: butcher
4) Detaillant: meat retailer
5) Apprenti: butcher's apprentice

The cards have been in use in Lome since January 1977 and are issued free of charge after medical examination of the applicant. Young men applying for a butcher's apprentice card must be sponsored by their master butcher, since his own serial number appears on the apprentice's card. These documents bear the individual's picture, and owners are required to carry them while at work. In early 1978 there were over 150 persons in Lome owning such cards and involved in the beef trade, including twelve wholesalers, over forty butchers, and about eighty butchers' apprentices. Trade in goat and sheepmeat involved six wholesalers, ten butchers and twelve butchers' apprentices, whereas pigmeat was processed by six wholesalers, ten butchers and ten butchers' apprentices. Naturally, there is some overlap among categories since many butchers deal in more than one animal species, but the number of registered professionals in the city of Lome can be estimated at 170. There was at the time of this study no upper limit on the number of cards.

5.2 Office National des Abattoirs et Frigorifiques (ONAF)

ONAF was created by Presidential decree in November 1975 and has been placed under the wing of the Ministry of Rural Development. It is administered, however, by a Board of Directors representing a number of public agencies. Lome's new abattoir is the main locus of ONAF's activities; it is located next to the port, about thirteen kilometers east of the main business district; operation began in February, 1977. ONAF actually neither buys nor sells meat, but it provides butchers with several mandatory services:

- truck transport from the stockyard to the abattoir
- slaughter and dressing
- refrigeration
- use of sales room and loading dock
- weighing of carcasses.

For these services, the abattoir charges butchers a flat fee of 2,500 CFA F per head of cattle, which is equivalnt to an average of 20 CFA F per kg carcassweight. All cattle processed by ONAF come from the stockyard, except for a few head from the Avetonou agricultural research station. Conversely, all the fresh beef consumed in Lome is supposed to come only from ONAF, but a small quantity of meat is brought into town from nearby localities by butchers who try to avoid the relatively high ONAF fee.

ONAF also slaughters small ruminants and swine for the Lome market. The fee amounts to 24 CFA F/kg carcassweight and covers the same services as for cattle, except transportation, since butchers bring these animals themselves to the abattoir from city and nearby country markets (i.e. Gbo-Sime and Vogan).

The abattoir itself is well laid out and equipped with sturdy, simple and easy-to-operate equipment; this makes for few technical problems. There is storage capacity for about eight cattle, 180 small ruminants and forty swine per day, which would add up to almost thirteen tons of meat daily or 4,000 tons/year. ONAF, however, has been operating much below capacity, 40 to 50 percent for beef in March 1978. During 1977 the abattoir processed:

8,973 bovines
26,205 small ruminants
4,981 swine

which corresponds to roughly 1,511.3 tons of meat, or 38 percent of annual capacity (ONAF, 1978). Since ONAF has a legal monopoly over a commercial slaughterings in Lome, the current low output must be attributed more to a fundamental imbalance than to start-up difficulties. ONAF is, however, operating at full or near-full capacity in two areas:

1) Cold room storage for private companies (1,000 to 2,000 tons/year);
2) Ice-making (12.5 tons/day) for the Office des Peches and for private dealers. In fact, ONAF is currently planning the expansion of its ice-making capacity to twenty-five tons/day of peak output (2,896 tons of ice were produced in 1977).

Lome butchers had initially resisted the shift away from the old municipal abattoir because of the very sharp increase in fees entailed but now express satisfaction with ONAF's operations.

Fresh beef, meat from small ruminants, and pork is sold through three main channels: i) the traditional markets; ii) Togolese butcher shops; and iii) supermarkets and foreign-owned butcher shops. Most of the twenty-five to thirty tons of meat sold weekly in Lome goes to the city's three major markets, where it is sold by butchers and "meat sellers," people who buy carcasses from butchers at ONAF and then retai the meat. An estimated four tons/week is sold through the various Togolese butcher shops while 1 to 1.5 tons of better-grade meat are bought weekly at the abattoir by purchasing agents from the city's few modern supermarkets. Finally, hotels and restaurants may buy 1.5 tons/week from butchers at ONAF and the German company, Marox. Marox operat a butcher shop catering mostly to European and higher-income Togolese clientele. The company puts an estimated 1.5 to 2 tons of its own meat on the market every week; its role and effect are examined below.

5.3 Prices and Price Controls

5.3.1 Lome

From 1967 through 1975, consumer prices rose at an average annual rate of 7.3 percent. Average rates of growth for all foods, meat, and fish prices were 9 percent, 5.8 percent and 8.3 percent (see Table 5.1). This measurement of the increase in meat prices is, however, undoubtedly understated, since until 1971 only the official price for all meats was posted every month. The following analysis of meat and fish prices is therefore based on data available for the 1971-1977 period, as presented in Table 5.2.

Over the 1971-77 period, beef, sheep/goat meat and pork prices rose much slower than the price of fish: 7, 8.8, 5.5 and 11 percent per annum. The price of fish has, in fact, risen so much faster than that of meat that it is now closer to meat prices than at any previous

TABLE 5.1

CONSUMER PRICE INDEX, LOME

base: 100 in 1963

	1967	1968	1969	1970	1971	1972	1973	1974	1975
FOOD	97.2	96.3	110.0	114.3	126.2	136.0	138.8	155.9	193.2
Vegetables	111.1	110.1	118.5	128.3	141.8	141.0	152.6	160.5	194.1
Tubers	112.6	94.4	121.1	140.0	175.3	150.6	174.6	169.0	193.1
Cereals	89.7	96.9	127.3	119.2	122.1	139.6	143.5	160.1	214.0
Oleagin	97.5	85.9	82.9	93.4	119.5	107.9	143.3	169.7	197.7
Fruit	118.6	107.1	131.0	126.8	132.3	144.3	190.3	191.1	216.0
Meat, eggs	108.6	108.9	113.9	113.4	112.8	146.3	124.5	139.0	170.6
Fish & shellfish	84.9	84.7	85.0	96.6	110.2	112.1	110.6	139.8	161.1
Others	96.4	94.9	101.9	111.7	119.9	141.9	162.1	191.9	273.6
Drinks & spirits	86.0	107.0	102.7	114.2	120.6	112.5	129.4	141.5	152.7
Household Maintenance	91.9	99.4	100.8	102.3	113.7	115.4	122.3	150.6	172.1
Clothing	103.5	104.9	105.9	114.7	124.1	130.0	130.7	151.9	175.8
Housing	99.1	98.9	99.6	106.7	115.2	123.9	125.8	140.6	153.4
Services	102.4	104.2	105.7	106.5	117.4	118.0	126.1	147.3	140.2
Miscellaneous	113.0	115.1	112.4	111.1	116.8	128.1	136.2	151.8	176.4
Total	101.1	101.4	107.5	112.0	122.0	127.2	133.8	150.7	177.8

SOURCE: Service de la Statistique, Informatique, 1978.

TABLE 5.2

RETAIL PRICES OF SELECTED MEAT AND FISH PRODUCTS,
LOME, 1971-1977 (from monthly data)
(CFA F/kg)

Year	Beef	Sheep/Goat	Pork	Live Chicken	Fish
1971	248	250	225	236	201
1972	235	250	200	239	212
1973	249	253	200	254	196
1974	267	300	205	280	193
1975	305	355	250	357	210
1976	338	381	255	400	292
1977	373	414	310	471	377

SOURCE: Service de la Statistique, Informatique, 1979.

TABLE 5.3

OFFICIAL VS. ACTUAL MEAT RETAIL PRICES,
LOME (CFA F/kg)

		8-23-74 Official	4-14-75 Official	March 1978 Actual
Beef	with bone	250	325	375-400
	without bone	300	375	475
	liver		375	450
	kidney		375	450
	tongue		375	400
	tripe		275	300
Sheep & Goat Meat	smoked	300	375	450
	non-smoked	300	400	450
Pork	with bone		250	300
	without bone		300	350

SOURCE: Ministry of Commerce and Transportation, 1978 Field Study.

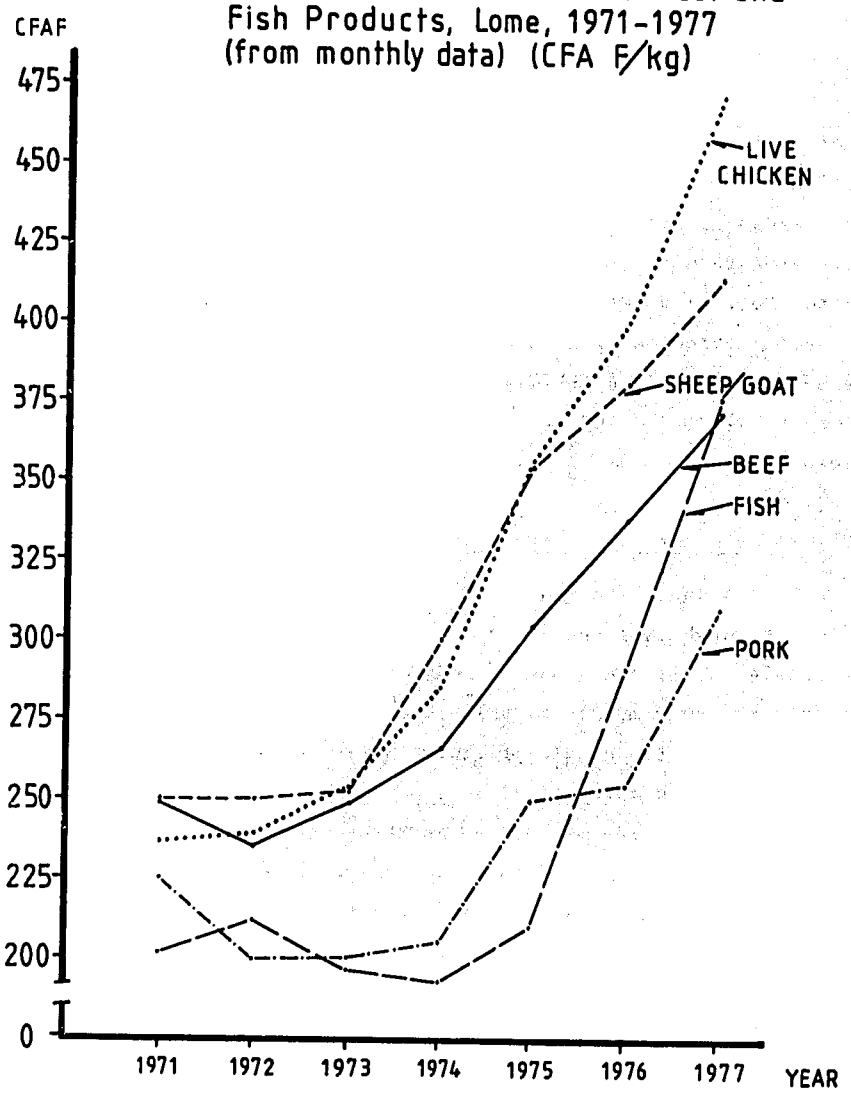
point in the period considered. This trend reflects the extent of the substitution of meat for fish achieved by Lome consumers during the early and mid-1970s and the fact that supply conditions for fish have become increasingly tight in absolute terms, as well as in relation to the supply of meat. On the basis of expected near and medium-term demand and supply conditions for both products, discussed at some length in Chapter Seven, it is speculated that the fish/meat price differential in Lome will remain narrow or even decrease slightly over the next few years.

In Lome the retail prices of several basic commodities are set by governmental decree. The Service du Controle des Prix of the Ministry of Commerce and Transportation draws up and submits for ministerial approval a list of official retail prices for meat on the Lome markets; this list is to be periodically updated. Prices listed in the decrees of August 23, 1974 and April 14, 1975 compare to actual prices in March 1978 as shown in Table 5.3.

The comparison immediately reveals the size of the gap between de jure and de facto market pricing. The enforcement of official decrees is made even more difficult by the fact that butchers try to get around price regulations by selling little piles (tas) of a mixture of meat, gristle, fat and bone. The exact composition of these tas varies depending on size and price (25, 50, 100 CFA F), the prevailing supply situation and the season. Naturally it is very difficult for the butcher as well as for the consumer to evaluate these piles in terms of cost per kilogram of meat.

This uncertainty, rising prices, and a general lowering of the meat content of tas have prompted an increasing number of African consumers to shift from the traditional market to more expensive butcher shops, where they view the lower-priced meat cuts as competitive in nutritional value with market tas. For example, during the Spring 1978 survey, prices in the two major Lome supermarkets (Goyi Score and John Holt) for the least expensive cuts of meat were: 450 CFA F/kg for beef with bone (front quarter chuck grade) and 500 CFA F/kg for mutton stew

FIGURE 5.1a: Retail Prices of Selected Meat and Fish Products, Lome, 1971-1977 (from monthly data) (CFA F/kg)



Source: Service Statistique, Informatique, 1978

meat. Better cuts of meat were much more expensive at around 1,000-1,200 CFA F/kg, but the low priced meat was competitive with that found on the traditional market.

In 1977, after repeated requests by Lome's butchers for a readjustment of official meat retail prices, the Ministry of Commerce and Transportation did a study of butchers' purchase and marketing costs to determine what price of beef would enable butchers to realize a "reasonable" profit. The results of this investigation were not made public in detail, but Price Control Service officials admitted that according to their calculations butchers would have to sell beef at about 425-430 CFA F/kg to make a profit. This estimate is close to the market price prevailing in Lome in 1978: 375-400 CFA F for meat with bone and 475 CFA F for boneless beef.

5.3.2 Prices and Price Controls in the Regions

Table 5.4 shows the evolution of meat prices in the regional capitals from 1967 through 1975 and in 1978. Beef prices more than doubled in the Centrale and Kara Regions. The increase in the Centrale Region apparently occurred mostly between 1974 and 1978, following a seven-year period of fairly stable prices, whereas the increase in the Kara Region reflects the more established meat-deficit situation in this Region. The price rise was almost as marked in the Maritime Region (95 percent), though most of this increase took place between 1975 and 1978, in spite of the official meat price freeze in April 1975. Retail beef prices were both more stable and rising more slowly in the Plateaux Region, with a 75 percent increase over the 1976-1978 period. Here again the increase occurred mostly after 1973, a time when the price index stood at 99 on a 1967 base of 100. This is mainly attributable to the stability of the cattle herd in that Region, derived from the existence in the Plateaux of most of the cattle ranches currently operating in Togo and from the fact that local animals are protected from being infected by imported cattle through transport regulations.

TABLE 5.4

YEARLY AVERAGES OF RETAIL PRICES FOR MEAT, BY REGION, 1967-1975 and 1978
(in CFA F/kg)

Beef

REGIONS	1967	1968	1969	1970	1971	1972	1973	1974	1975	1978
Maritime	200	225	200	200	227	225	231	275	325	325/375[1]
Plateaux	200	200	200	200	180	185	198	227	250	350/400
Centrale	145	150	150	150	150	150	150	160	225	300/350
Kara	125	130	130	130	145	140	149	175	180	250/300
Savanes	139	125	125	125	125	136	150	150	175	200/250

Sheep/Goat Meat

REGIONS	1967	1968	1969	1970	1971	1972	1973	1974	1975	1978
Maritime	205	206	250	200	250	250	253	300	375	375/450
Plateaux	250	250	250	250	217	210	221	270	300	400/400[2]
Centrale	178	200	200	200	200	200	200	208	250	400/375
Kara	166	160	159	160	165	170	168	175	225	---/350
Savanes	150	125	125	125	125	136	150	150	200	---/300

NOTES: [1]Actual as opposed to official prices

[2]sold in tas.

SOURCES: 1967-1975; Republic of Togo, Recueil Quantitatif, Ministry of Planning, 1976; 1978; Field survey.

The lowest increase in beef prices and greatest stability in their levels are found in the primary cattle-raising area, the Savanes Region. In 1974 prices were still only 8 percent over the 1967 level, and the total increase over the ten years considered, concentrated in the 1975-78 span, reached 62 percent, by far the lowest rate for Togo. Supply conditions most likely account for this: the regional herd shows the most consistent and vigorous increase of all Togolese regional herds over the whole period. Prices thus remained fairly constant through 1971, when the nationwide decrease in bovine numbers occurred; as a result, prices over the next two years rose by about 10 percent yearly. The upward trend was stopped by the 1974 influx of a large number of cattle escaping from temporarily very harsh conditions in Upper Volta. After 1975, prices started rising again at approximately 10 percent yearly.

Overall, the correlation betwen prices and the size of bovine herds in various Regions is rather good, especially since beef price differentials between Regions tend to remain high, indicating a low level of inter-Regional cattle transfers. This question of price differences between Regions is discussed in greater detail below.

In terms of price level increases for sheep and goatmeat, the regional ranking over the 1967-1978 period is almost exactly the same as for beef prices. Small ruminant meat prices more than doubled in the Kara, Centrale and Savanes Regions, as opposed to the lower 80 percent and 60 percent increases for the Lome area and Plateaux Region.

Several salient points are worth mentioning: first, sheep and goatmeat prices have, in every Region but the Savanes, risen significantly more slowly than beef prices. Secondly, small ruminant meat prices are much less sensitive to yearly fluctuations in supply than beef prices seem to be. Regional as well as national sheep and goat herds have very similar fluctuations in their numbers: at the national level both display significant troughs in 1971 and 1973. An inspection of small ruminant meat prices during these years does not reveal such price fluctuations as a comparable change in bovine numbers would have generated. Barring possible errors both in the small ruminants herd

size estimation and in retail price collection, several factors may be thought to account for this behavior.

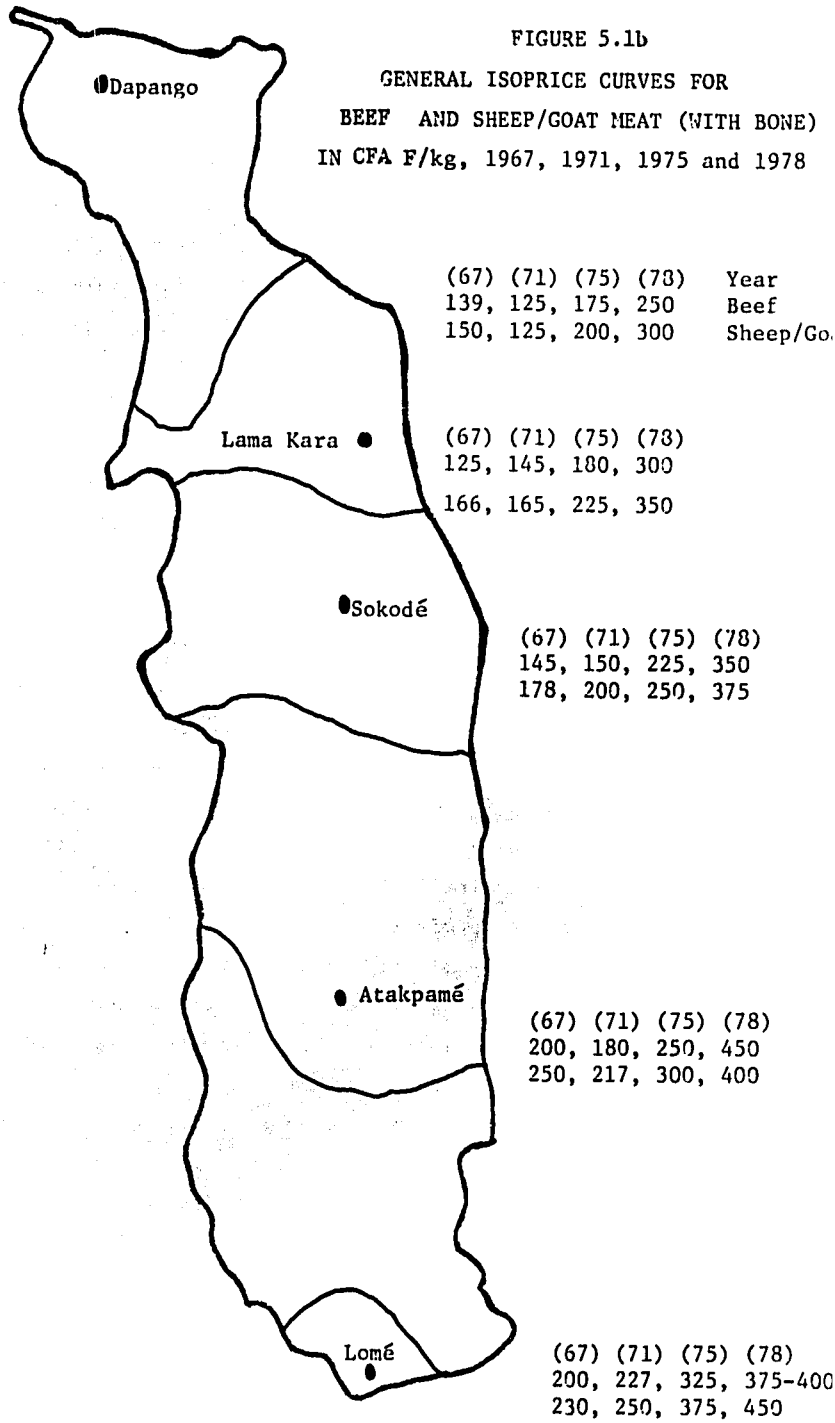
First, a much larger proportion of small ruminant consumption takes place at the household level than is the case for beef; a much smaller percentage of sheep and goats actually consumed thus passes through commercial channels. It may be that a decrease in supply is mostly absorbed by a decease in subsistence consumption and thus is reflected much less in the number of animals taken to market.

Secondly, both imports of small ruminants, from Upper Volta and Benin, and inter-Regional transfers may have helped keep prices at a fairly stable level. With respect to inter-Regional transfers of cattle and small ruminants, the reader may refer to Figure 5.1b, which shows the percentage price differentials from one Region to the next and their change over selected years, taking the main cattle and small ruminants-producing Region, the Savanes, as base 100 for each year. The average differential from one Region to the next is, except in the Dapango/Lamakara segment, consistently much lower for small ruminants than for cattle. This corroborates the commonly held notion that the marketing of small ruminants is more competitive than that of cattle, especially in terms of transportation. Indeed, this seems logical when one considers that: i) ownership of small ruminants is more widespread than that of bovines;[1] ii) this implies greater product divisibility and thus easier timing of sales; and iii) their small size and inability to cover large distances on foot is not a major obstacle to marketing them since one can use diversified means of transport, including vans, station-wagons, motorcycles and even bicycles.

In the interior, retail meat prices are set by the regional administrations and the councils of major tonwns. In general, the same official/actual pricing pattern exists, although both official and actual retail prices are naturally lower than in the nation's capital. According to the size of the spread between imposed and practiced prices, butchers sell little or no meat at the former and the rest at the latter; or they may sell all of it in <u>tas</u>. In other cases, meat is sold at the lower official price when the supply is plentiful and at a higher price

FIGURE 5.1b

GENERAL ISOPRICE CURVES FOR BEEF AND SHEEP/GOAT MEAT (WITH BONE) IN CFA F/kg, 1967, 1971, 1975 and 1978



Sources: Service de l'Elevage, 1978 field survey.

Note: 1978 prices are actual market prices, as opposed to official (50 CFAF lower) prices.

in periods of scarcity. Finally, there have been cases, in major interior towns such as Sokode, when butchers went on "strike" and refused to slaughter any more animals until official prices had been revised upwards.

The general conclusion one feels compelled to draw after a survey of official versus actual prices all over the country, and of the various retailing practices that this disparity creates, is that the effects of price control upon the retail meat trade range from very weak and pointless to strong and damaging. The current price policy has created a situation that was succinctly but quite aptly described by various economic agents in the city of Kpalime during the 1978 survey:

- Consumers complain about lack of meat, not its present price;
- Butchers complain about high prices paid to merchants and low income from sales;
- Merchants complain that butchers can't pay their debts or pay them too late, making merchants less and less willing to extend credit.

Naturally, the Togolese authorities are aware of the distortions created by the price policy as currently implemented. Their response seems to consist of plans to extend price control to live animals so as to control butchers' and merchants' margins as well as retail meat prices. This would be done through the purchase of live cattle on a controlled liveweight basis, with scales and baremes (graduated price schedules) as major policy instruments. The problem will remain, however, and if wholesale and retail meat prices do not reflect the actual supply and demand situation for cattle and beef, the efficiency of meat production and marketing in Togo will be gravely impaired.

5.4 Credit

As previously stated, nearly all butchers pay for cattle only after the meat from the animal has been sold. The SVSA is currently investigating the possibility of setting up a credit system for Lome butchers, with the aim of making them "less dependent upon cattle merchants." The rationale is that when butchers buy on credit, merchants include in the selling price the equivalent of an allowance for uncollectables.

They would therefore be willing to sell cattle at a lower price for cash. The new credit system would be implemented along the following lines: member butchers would receive an advance in notes payable at the Treasury for an amount covering one or two days' trade. Immediately upon concluding a sale, merchants would cash notes in at the Treasury. To insure financially responsible behavior by individual members, butchers would be held responsible for repayment as a group, and further credit would presumably not be extended until all debts to the credit agency were repaid.

It is hoped that the SVSA will not give serious consideration to the implementation of such a scheme, for there is considerable danger that it would come to serve a particular group's economic advancement at the expense of another, or turn out to constitute an overall loss, through increased rather than diminished inefficiencies. A number of obvious pitfalls may be pointed out:

1) Credit to butchers would be extended in notes redeemable at the Treasury, supposedly to prevent their using credit for anything but buying cattle; in fact, notes would soon be traded among butchers and merchants and lead to further and more complicated indebtedness patterns than before.

2) If the group responsibility concept were applied and butchers as a group wanted to retain access to credit, many butchers would soon become indebted to the well-established butchers, thereby encouraging concentration in the profession.

3) If, on the other hand, the group did not want to retain the benefits of a system imposed on them, loans would be perceived as grants. Indeed, if butchers had no desire to see the scheme continue, they might well find that reneging on all or most of the first loan would more than make up for the loss of future government credit.

When asked about selling cattle at a lower price for immediate cash, merchants in Lome as well as in Cotonou were opposed to the idea; also, butchers and merchants are neither used to nor looking forward to having records kept of transactions; finally, credit-managing administrations are more often than not burdensome and inefficient in debt collection.

Credit to butchers may, under certain circumstances, be possible. However, it seems to require a very strong commitment on the part of a small group of butchers, tight and dedicated extension work, and minimal administrative involvement. The following section describes a successful experiment in the Kara Region where these conditions were met to some extent.

5.4.1 Case Study: The Niamtougou Experiment

Niamtougou is the second largest town in the Kara region, and has an important regional live animal market. This experiment sprang from the desire of a local livestock service agent to improve the organization and professional character of the city's butchers in the face of a sharp rise in cattle prices. For this purpose, he arranged for them to obtain a modest loan from the regional office of the CNCA (Caisse Nationale de Credit Agricole) for the purchase of live animals and professional equipment.

Livestock Service figures for 1977, extrapolated from the first ten months of the year, indicate that:

361 bovines,
148 sheep and goats, and
560 swine

were slaughtered in town during the year. These figures represent roughly forty-five tons of fresh meat, based on the following carcass weights:

cattle, 75 kg
sheep/goats, 8 kg
swine, 30 kg.

The town is located on the main north-south transportation axis; most of the cattle slaughtered come from Kande and surrounding areas. Some of the cattle brought into Niamtougou are taken to Ketao, thirty kilometers to the east, near the Benin border, to be regrouped and sold again to merchants from the south.

Since butchers in Niamtougou are fairly representative of their colleagues in other towns of the interior, it may be interesting to

inspect some of the basic data collected by the Niamtougou livestock service during this experiment. In the Summer of 1977 there were six major butchers and six assistant butchers. Nine of them were Lemba, and the other three were Mossi, Dagomba and Losso. The range in age for butchers was 26 to 60. Half of them had between fifteen and twenty years of experience, one had less than fifteen, another had over twenty, and the last had over thirty years' experience. The mean age for assistant butchers was 26 years, and all but one had less than ten years experience.

Virtually all purchases involved credit from cattle merchants. Furthermore, it was found that most butchers and assistant butchers considered farming as their primary occupation, butchering being secondary.

Assuming that the butchers each handled the same amount of trade, one can estimate that during 1977 each butcher slaughtered sixty head of cattle, twenty-four small ruminants and seventy-eight swine, adding up to almost eight tons of meat. This represents business of between 3 and 3.5 million CFA F a year. Trade mostly followed a producer-cattle merchant-bucher-consumer sequence, seldom including more intermediaries, as in the export and long-distance trade, or fewer agents, as in a producer-butcher-consumer model.

The main goal of the experiment itself was to make credit available to butchers on an individual basis to buy animals and as a group to purchase professional equipment: large (100 kg) and small scales, knives, cleavers and aprons. The livestock service supervised and forwarded the loan application by the butchers to the Lama-kara regional office of the national farm credit agency (CNCA), in the amount of 75,000 CFA F for the individual loans and 45,000 CFA F for the group equipment loan, with a repayment period scheduled over nine months. The loans were granted and have been, with participation from the assistant butchers, repaid on time. Over the same period and still with extension support from the Livestock Service, Niamtougou's butchers have dug a thirty-five foot well for water supply at the market abattoir.

They have been working on the erection of a shelter for grilled-meat sellers, and on the construction of a meat cart to transport beef quarters and small animal carcasses from the abattoir to the meat-selling stalls about one-half mile away.

The Niamtougou experiment is still in its early stages, and it would certainly be premature to pass a final judgment on its success or failure. It represents, however, the first such project in Togo and as such creates an interesting precedent. The person primarily responsible for the conception and realization of the experiment[2] felt that butchers in other cities would be likely to show the same motivated involvement if dedicated and constant extension were provided by the Livestock Service, and if there were a minimum of administrative involvement. Niamtougou also points to some of the weaknesses of the present system. The fact that the price structure is more favorable to cattle trading than to butchering and retailing of meat was again shown when butchers tended to turn into merchant/butchers by using some of the credit to deal in live cattle.[3]

Notes to Chapter Five

[1]It is also much more casual and less concentrated within the family or household itself. The head of household is almost always sole owner of cattle and responsible for cattle purchases or sales decisions, whereas women and even small children possess their own small ruminants, which they may dispose of as they please.

[2]Ingenieur d'Elevage Freitas.

[3]With CNCA funds, butchers were reportedly "...turning into merchants to be sure to make a profit, for example buying four head of cattle, selling three of them and slaughtering one. (Dr. Santana, Niamtougou Livestock Service.)

CHAPTER SIX

ESTIMATED MARKETING COSTS AND PROFIT MARGINS

Chapter Synthesis

In this chapter a distinction is made between the import and domestic cattle trades. They bear on different breeds of animals, different supply and terminal markets and involve different roles for the various agents; for these reasons they are analyzed separately.

The import cattle trade originates in southern Voltaic markets and mostly ends in the largest urban areas of southern Togo. It is well organized, structured, and efficient. Return on total investment (capital only) for import merchants is estimated to be on the order of 12 percent when animals are trekked and 8 percent when trucked. Of the final market price at the Lome stockyard, about 30 percent is imputable to value added through marketing, but almost half of this is in the form of Voltaic and Togolese taxes.

The domestic cattle trade is more difficult to study, since it involves a larger number of agents who, although dealing on a smaller scale than those in the import trade, have apparently more complex relationships with herders and play roles that give them a very different market responsibility and position. Finally, butchers' profit margins and the implications of public marketing and price policies are examined.

6.1 Imported Cattle

Virtually all imported live cattle currently come from Upper Volta, mostly through the Pouytenga/Fada N'Gourma markets, and enter Togo through the northern Savanes Region. This segment of the trip is nearly always walked. After Togolese customs and health inspection, transit southward is either on the hoof or by truck, the latter means of transport having become increasingly popular. The analysis of marketing costs for imported Voltaic Zebus is greatly facilitated by the following attributes of this trade: i) the geographically concentrated origin or rather, regroupement of these animals; ii) their common destination, since so few of these Zebus are sold on the way to Lome; and iii) the fact that for imported cattle we need consider in detail only merchant-transporter-retailer transactions. We shall see that the domestic trade is more complex.

6.1.1 Costs

Marketing costs on imported Voltaic Zebus may be divided into four categories. In chronological order: i) purchase costs of live cattle on Voltaic markets; ii) Voltaic and Togolese official fees such as export licenses, import taxes and veterinary inspection fees; iii) transport costs; and iv) para-official "taxes," fines, losses and commissions paid to intermediaries. Losses may include mortality, shrinkage, accidents, forced sales and damage to crops or property.

These costs are estimated and listed in Tables 6.3 and 6.4 for two herds of Zebu steers from Fada N'Gourma, representative in herd as well as cattle size of those observed and reported to enter northern Togo. One herd is assumed trekked all the way down to Lome, and the other trekked to Dapango and trucked from there to Lome. The data on Upper Volta costs are mostly derived from research done on Voltaic cattle marketing by Herman for the USAID-funded Entente Livestock Project and from this author's own interviews with traders in Lome and Dapango (Spring 1978). Other Togolese data were gathered during interviews in Dapange with traders, Livestock Service agents, customs officials and one dillali.

Most imports of live cattle are organized by merchants residing in Togo. The import license fee is calculated on the basis of the annual value of import trade, expressed in CFA F. The few Voltaic traders exporting to and selling cattle in Togo must pay the same fee to the Togolese authorities.

TABLE 6.1

IMPORT LICENSE FEES
(In CFA F)

Value of Trade	Fee
5 million	10,000
6-10 million	20,000
10-25 million	30,000
25-50 million	60,000
50-100 million	90,000

SOURCE: Contributions Directes, Lome, 1978.

If we assume that the value of trade is calculated on the basis of current market prices in Lome, almost certainly an overestimation, it is possible to derive the average cost per head of a cattle import license:

TABLE 6.2

AVERAGE COST PER HEAD OF A CATTLE IMPORT LICENSE

License Cost (CFA F)	No. of Head Imported	$\bar{X}$ Cost/Head (CFA F)
20,000	188	106
30,000	436	69
60,000	948	64

NOTE: Based on 40,000 CFA F unit value; the actual number of head may be almost twice as high.

We see that for traders importing between 200 and 2,000 head of cattle per year -- the range over which most would officially operate -- the license fee ranges from 106 CFA F/head for smaller traders to 48 CFA F/head for the larger ones, compared to 83 CFA F found by Herman for the Voltaic export license (Herman, 1979). By setting our estimation of the Togolese import license fee at 80 CFA F per head we are sufficiently close to both the Togolese and Voltaic merchants' actual cost for our present purpose.

Taking average prices for live cattle prevailing during April 1978 in Fada N'Gourma and Lome and total estimated marketing costs derived in Tables 6.3 and 6.4, one may estimate traders' costs and profits on trekked and on trucked Voltaic Zebus.

TABLE 6.3

COST OF TREKKING CATTLE FROM FADA N'GOURMA TO LOME, APRIL 1975

Size of herd: 45 head
Distance trekked: 765-800 km[1]
Average daily distance: 20 km
Duration of trek: 45-60 days

	Cost/head (CFA F)	Cost for Herd (CFA F)
I. Purchase-related Costs		
Intermediary's commission	250	11,250
Identification mark	10	450
Gardiennage	50	2,250
II. Taxes (Voltaic)		
Merchant's Import License	80	3,600
Veterinary Inspection	150	6,750
Export tax	6,500	292,500
Export permit		200
Vaccination	50	2,250
III. Taxes (Togolese)		
Import Tax	1,200	54,000
Laissez-Passer Sanitaire		100
IV. Transportation		
Salary 3 herders @12,000		36,000
Food _____ ____(3x200x52.5)		31,500
Salary and food seller/agent		20,000
Return transport 3 herders + round trip for agent		20,000
V. Commissions and Other Costs		
Intermediary's commission at border[2]		10,000
Damages to crops, waterholes, wells, etc.		7,500
Para-official taxes[3]		5,000
Mortalities, losses of cattle, forced sales, etc.[4]		20,000
Market tax		5,000
Dillali's commission[5]	250	11,250
Gardiennage at Togblékopé or stockyard[6]		15,500
TOTAL	12,336	555,100

(See following page for notes 1-6)

Notes to Table 6.3:

[1]This distance varies according to the herders' choice of trekking routes, which itself is a function of the availability of pasture and water in various seasons.

[2]The intermediary at the main border town, known as Maisonnier in Togo, houses and feeds cattle merchants, but he also acts as a broker on behalf of the herd's convoyeur in taking care of all customs and veterinary service formalities. It was not possible during this relatively brief survey to ascertain the amount of the fee the Maisonnier receives for these services (especially since the amount may vary from one herd to the next), the 10,000-CFA F cost in the table is therefore only what is considered to be a reasonable estimate of average fee.

[3]These are unoffical payments received from trekked as well as trucked herds by customs and veterinary service agents or policemen, as the herds are checked on their way south. Naturally, this amount is also an estimate, mostly based on reports from convoyeurs and merchants.

[4]Cattle trekked over distances of several hundred kilometers are often reported to lose considerable weight during the journey. This study was too limited in time and scope to deal on a statistically strong basis with this particular issue. Inspection of several zebu herds trekked from Upper Volta,carried out by the author during the 1978 dry season in the company of livestock service agents, and reports from various convoyeurs seem, however, to indicate that weight loss is very slight if animals are walked at a "normal" pace (about 20 km/day) and taken care of properly. Indeed, in the other seasons, some convoyeurs claim they can actually put a few extra kilograms on their cattle on the way south.

[5]Paid by the buyer and currently 1,000 CFA F/head. The seller's own cost is usually a "gift" to the dillali (250-500 CFA F).

[6]This represents the cost of keeping animals at the terminal market before sale to the butchers. It is calculated on the basis of 100 CFA F/head/day assuming an average daily sale of eight head out of this particular herd at Lomé's stockyard.

TABLE 6.4

COST OF MIXED TRANSPORT FROM FADA N'GOURMA TO LOME, APRIL 1978

Size of herd:	45 head		
Distance trekked:	165 km	duration:	12 days[1]
Distance trucked:	560 km	duration:	1 day

	Cost/head (CFA F)	Cost for Herd (CFA F)
I. Purchase-Related Costs		
Intermediary's commission	250	11,250
Identification mark	10	450
Gardiennage	50	2,250
II. Taxes		
Merchant's import license	80	3,600
Veterinary inspection	150	6,750
Export tax	6,500	292,500
Export permit		200
Vaccination	50	2,250
III. Taxes (Togolese)		
Import Tax	1,200	54,000
Laisses-passer sanitaires		100
IV. Transportation		
Salary three herders @ 4,000		12,000
Food 3 x 200 x 15		9,000
Salary & food seller/agent		7,500
Trucking of cattle, Dapango-Lomé 3,300		148,500
Return for herders and round-trip for agent		20,000
V. Commissions & Other Costs		
Intermediary's commission in border town[2]		10,000
Para-official taxes		5,000
Mortalities, injuries to cattle, forced sales, etc.[3]		20,000
Damage to trucks[4]		5,000
Market tax		5,000
Dillali's commission	250	11,250
Gardiennage Togblékopé or stockyard		15,500
TOTAL	14,269	642,100

(See following page for notes 1-4)

Notes to Table 6.4:

[1]Includes transit time at the border town.

[2]In addition to traditional lodging and food extended to merchants, the dillali, in Dapango for example,handles customs and health formalities for the herd owner. In cases when cattle are to be trucked to Lomé, the dillali also finds a transporter willing to take a truckload of animals, sometimes approaching northbound truckers to arrange for a backhaul pickup. When the dillali has secured truck transport under the usual arrangement he receives 10% of the transport fee (3,300 CFA F/head) from the trucker and uses some of this money to pay the cattle hands who load the zebus on the truck, keeping the rest as a "truck and loading procurement" fee.

[3]In the case of trucking there are few or no mortalities and no losses of body weight; quite a few animals are, however, injured during loading or unloading (e.g. broken limbs).

[4]Trucks used for cattle transport are neither built nor meant for this particular purpose. Transport of mature zebus is especially hard on the platform flooring planks and occasional repair expenses are incurred. This is an estimate of the herder's average damage costs.

6.1.2 Merchants' Margins

The estimated merchant's profit margin we obtain through this process turns out to be on the order of 12 percent of total investment (purchase price plus all marketing costs) for trekked Zebus, and about 8 percent of total investment when trucking is utilized (Table 6.5). Although the rate of return is apparently higher for trekking, trucking is most likely more profitable since the moderate extra investment (3.4 percent) allows a capital turnover which is at least twice as fast. This is certainly one reason why trucking is reported to have become more popular among cattle importers. Another significant consideration is that the cattle merchant operates under less market uncertainty since the lag between the stimulating Lome price signal as perceived in Upper Volta and the actual sale of animals on the market is considerably reduced.

TABLE 6.5

PROFIT MARGINS ON IMPORTED CATTLE
(CFA F)

	Trekking		Trucking	
	Mature Steer (300 kg)	Cow (250 kg)	Mature Steer (300 kg)	Cow (250 kg)
Purchase Price in Fada	43,000	35,000	43,000	35,000
Marketing Costs	12,336	12,336	14,269	14,269
Total Cost Delivered Lome	55,336	47,336	57,269	49,269
Price at the Lome Stockyard	62,000	53,000	62,000	53,000
Merchant's Margin	6,664	5,664	4,731	3,731
As Percent of Total Investment	12	12	18.3	7.6
Price Lome Stockyard carcassweight (kg) (assuming a 50% dressing percentage)	413	424	413	424

Table 6.6 shows the various components of live cattle prices on the Lome market during the Spring 1978 survey. Purchase-related costs, taxes, transportation, commissions and merchants' margins account for 30 to 34 percent of the Lome market price. Seven to 10 percent goes to the cattle merchants and between 4 and 8 percent goes to the transporter. This estimate of the merchant's net profit is still on the high side, since certain cost variables are not included for lack of reliable data. For example, the magnitude of the allowance that merchants make for bad debts and uncollectables is unknown. Also, the opportunity cost of their time and capital, naturally higher in the case of trekking than for trucking, cannot accurately be quantified and taken into account. Nearly a third of the marketing costs is imputable to Voltaic and Togolese taxes, but the other items are lean enough to suggest that trade of imported live cattle is fairly efficient and competitive, considering the existing physical infrastructure, the risks involved and the amount of time invested in each venture.

6.2 Domestic Cattle Trade

6.2.1 Marketing Practices, Costs and Profits Margins

Marketing costs and profit margins applying to producer-merchant-transporter transactions for domestic cattle are more difficult to analyze than those pertaining to imported Zebus, because the simplifying characteristics of the import trade are, in this case, absent, and because they include an extra economic agent, the herder.

This subsection is based on information provided by butchers, merchants and Livestock Service agents speaking from their own experience, and on observations made by the author during the 1978 survey, rather than on the results of rigorous countrywide or even sample studies.

The general consensus is that domestic live cattle trade in Togo is less organized and structured than is the case for trade in imported Zebus. Domestic cattle traders deal over much shorter distances and with a much smaller number of cattle, commonly one or two head at a

TABLE 6.6

PRICE COMPONENTS FOR IMPORTED ANIMALS SOLD ON THE LOME LIVESTOCK MARKET, APRIL, 1978, CFA F AND PERCENT PER HEAD

	Purchase (Fada N'Gourma)	TAXES Voltaic	TAXES Togolese	Transport Costs[a]	Commissions & Other Costs[b]	Trader's Margin	Price in Lomé
Animals Trekked to Lomé							
Mature Zebu Steer	43,000	6.784	1,202	2,389	1,961	6,664	62,000
(150 kg carcassweight)	(69.3%)	(11%)	(2%)	(3.8%)	(3.2%)	(10.7%)	(100)
Mature Zebu Cow	35,000	6,784	1,202	2,389	1,961	5,664	53,000
(125 kg carcassweight)	(66%)	(18.8%)	(2.2%)	(4.5%)	(3.7%)	(10.7%)	(100)
Animals Trucked to Lomé							
Mature Zebu Steer	43,000	6,784	1,202	4,378	1,904	4,731	62,000
	(69.3%)	(11%)	(2%)	(7%)	(3%)	(7.5%)	(100)
Mature Zebu Cow	35,000	6,784	1,202	4,378	1,904	3,731	53,000
	(66%)	(18.8%)	(2.2%)	(8.3%)	(3.6%)	(7%)	(100)

[a]Includes all items in Sections IV of Tables 6.3 and 6.4.

[b]Includes all items in Sections I and IV of Tables 6.3 and 6.4.

time. This in itself naturally implies that there are considerably more cattle merchants in the domestic than in the import trade. It is unlikely, however, that this greater number makes domestic trade more efficient and competitive than commerce in Voltaic Zebus. Domestic trade is geographically much less concentrated, and even with a larger number of cattle merchants, it certainly is still very far from a "many buyers, many sellers" model.

One must also remember that any lack of competitiveness between buyers at the first stage of marketing is compounded by two important and interrelated characteristics of the domestic live cattle trade: i) the absence of organized cattle markets easily accessible to herders; and ii) the traditional pattern of special relationships established between herders and merchants or collecteurs. The reader will recall that the majority of cattle herds are kept by Fulani herdsmen on behalf of a number of different owners. In the case of Togo, the herder decides in consultation with the owner, which animals should be sold. The determination of the selling price is also often arrived at through some exchange between the owner and herder; the herder is better placed to know prices at the "producer" level, while the owner usually sets price guidelines according to his perception of what he should get for an animal.

There are several reasons why herdsmen do not take cattle to markets the first is that it is quite impractical, given the long distances almost always involved, to take an entire herd near a city to sell one or two head. Detailing somebody from the main herd to take a few animals to a selling point is also difficult (cattle are a lot more difficult to handle when cut from the herd) and extremely time-consuming. The second reason is that although herders are less reluctant to sell cattle than is sometimes stated, they dislike any publicity about the sales they make. The third, and perhaps main reason, is that there is little financial incentive for the herder to go through the trouble of taking cattle to markets. The herder receives a commission of 250-500 CFA F from the owner for each head sold. This commission is too small to constitute an incentive to maximize income for the owner. The Fulani sees himself more as a skilled keeper of livestock than as a broker or agent having to maximize his client's profit.

Cattle merchants, and their collecteurs, have a special relationship with the Fulani, built on ethnic ties, personal acquaintance and trust based on past business dealings. A herder may also receive credit from "his" merchant, advances on the future sale of cattle and occasional gifts. Also, merchants always pay the full value in cash. The herder knows he can almost always count on someone buying one of his animals in case of a pressing need for cash, even though at a discount positively correlated with the suddenness of the transaction and the degree of emergency. From the herder's point of view, this is a costly but useful liquidity insurance that he will hesitate to jeopardize by regularly selling animals to a "stranger." In fact, herders are said to sell to "new" merchants at a higher price than they would to their customary buyers. This happens, for instance, in the rare cases when a butcher comes to buy an animal directly from a herder. The butcher has to pay a higher price for two reasons: i) because he is not a regular buyer and has no "special relationship" with the herder, and ii) because he usually does not pay the whole amount in cash at the time of purchase. Still, one is more likely to see butchers collecting cattle than herders themselves taking animals to market.

Once they are bought from herders, cattle may be sold by one merchant to another at a main supply market, but rarely more than once prior to the final sale to a butcher. For example, collecteurs may gather cattle from herds in the Bassar and Gando areas. Cattle are then walked to Niamtougou, where merchants take delivery. Some animals are sold for local consumption; the rest are organized in herds and taken to other market towns by a) "original" merchants whose collecteurs brought the cattle to Niamtougou; b) butchers acting as part-time merchants and c) traders who bought cattle in Niamtougou from the "original" merchants.

When one compares the role of a domestic cattle merchant to that of an importer, whether Voltaic or Togolese, one comes to realize that the domestic trader, while perhaps displaying less subtlety and expertise on particular points, operates over a much broader spectrum of marketing

functions. Whereas the importer works -- at least in the case of imported Zebus -- mostly between a redistribution and a terminal market, his domestic counterpart handles prospection and collection, in addition to regroupement and transport to a major consumption or redistribution market.

The author concedes that the difference between the two activities is not always so clear, but it is sufficiently tangible to justify treating them separately.

The average net profit margin of cattle importers is estimated in the present study as being in the neighborhood of 8 percent, and marketing costs (see Table 6.6) at being over 30 percent of the final market price. In the case of domestic merchants, the markup is reported to be significantly higher; the figure of 50 percent is sometimes quoted. In the absence of reliable basic data, one may only surmise that the domestic merchant's broader involvement -- and correspondingly higher risk -- allows higher profit margins than for his colleague of the import trade. It bears repeating, however, that this is brought about less by a concerted strategy on the part of domestic merchants than by the particular attributes of the domestic cattle marketing system.

6.3 Government Cattle Marketing Policy

Current public marketing policies aimed at the livestock trade have concentrated on the establishment or improvement of physical infrasturcture of the type described in Chapter Four. Markets, holding and quarantine areas, loading ramps and cattle trails will reduce some of the transport and marketing costs. The new facilities are being established throughout the country and there appears to be no discrimination in access among merchants. In a competitive market the medium term effect of such an improvement in marketing efficiency leads to a situation where no group is worse off than before, and some or all groups are better off. In the case of Togo, assuming continued competitiveness in the livestock trade and wide access to facilities, this would translate

into slightly higher prices paid to herders and slightly lower consumer prices. These would then in fact come closer to "official" meat prices.

One must re-emphasize, however, that the current consumer meat price policy will in no way contribute to the expected improvement. On the contrary, the efficiency gains obtained through lower marketing costs will merely offset all or part of the loss attributable to price-fixing attempts on meat.

6.4 Butchers and Retailers

The following is based on data and observations pertaining to the sale of live cattle and meat in the city of Lome only. Costs and profit margins for butchers operating in the interior must be assumed to be of the same order of magnitude until further information becomes available.

The various costs borne by Lome butchers in their own part of the marketing process are:

- -- purchase price of live cattle at the parc a betail
- -- dillali's commission
- -- ONAF transportation, inspection and slaughter tax
- -- losses through condemnations of meat and offals
- -- butcher's license fee
- -- rent of professional quarters
- -- labor costs.

The first three items have already been introduced into our general investigation:

- -- the price of 62,000 CFA F for a 300 kg-liveweight Zebu steer used to calculate importer profit margins will be retained.
- -- The dillali's commission will be set at 1,000 CFA F.
- -- The ONAF fee amounts to 2,500 CFA F per head.

As for butcher licenses, patentes, there are currently six categories according to the number of animals slaughtered yearly but only five (2nd through 6th) are actually used. Two kinds of fees are applicable to each category of license: either one-third of a fixed fee,

which increases from the sixth to the last category, or a proportional fee, which is calculated by taking 10 percent of the monthly rent of the butcher's professional quarters. The highest of either fee, one-third fixed fee or 10 percent of rent, is charged as a license fee to the butcher. The classification according to volume of trade and the corresponding fixed fee are shown below:

TABLE 6.7

BUTCHERS' LICENSES, LOME

No. of Head/Year	Category	Fixed Fee (CFA F)
Over 1,000	2nd	30,000
750-999	3rd	20,000
500-749	4th	10,000
250-499	5th	6,000
Less than 250	6th	3,000

SOURCE: Contributions Directes, Lome, 1978.

For example, a butcher dealing with 600 head of cattle/year (4th category) and paying 30,000 CFA F a month to rent his professional premises will be assessed 3,333 CFA F (one-third of 10,000). According to government agents in charge of assessing and collecting license fees, butchers are almost always charged the one-third fixed fee. Given this information and taking the mid-point of each class of Table 6.7 we can derive an average cost/head of cattle for the butcher's license, as shown in Table 6.8.

TABLE 6.8

BUTCHERS' LICENSE, AVERAGE COST PER HEAD OF CATTLE, 1978
(CFA F)

Category	1/3 Fixed Fee Cost of License	Head of Cattle Slaughtered	Mid-Value	X Cost/Head
2nd	10,000	1,000	---	10
3rd	6,666	750-999	875	7.6
4th	3,333	500-749	625	5.3
5th	2,300	250-449	375	6.1
6th	1,000	250	125	8.0

According to the volume of trade, licenses ranging from 1,000 to 10,000 CFA F/year would cost the butcher between 5 and 10 CFA F per head; the figure of 8 CFA F/head will be used for our calculations.

The vast majority of butcher-retailers do not own an established shop but rent space at the market for 3,000 CFA F per month on average. ONAF's official records indicate that almost 9,000 cattle were slaughtered in Lome during 1977. According to the information available on butcher's professional cards, these cattle were handled by over forty butchers, which yields an average of nineteen head per butcher per month. At this rate, and considering the extent of the work done by ONAF, it is difficult to imagine that the average butcher would have more than one full-time apprentice. Apprentices usually receive a salary instead of the usual part coutumiere. The main reason is that there is a ready market for offals (sold as such for around 100 CFA F/kg or in tas) and even for hides and hooves, since in Togo cattle hide is consumed rather than tanned. Also, an allowance for meat condemnation is included among the butcher's costs, based on surveys in Ouagadougou and Bouake (Staatz, 1979; Herman, 1979). The summary costs and revenues on a 300-kg Zebu steer for a butcher handling nineteen head per month with one full-time apprentice are as follows:

TABLE 6.9

BUTCHER'S COSTS AND REVENUES
(CFA F)

Costs/Head		Revenues/Head	
Purchase	62,000	Meat with Bone: 150 x 388[a]	58,200
Dillali's Commission	1,000		
ONAF Fee	2,500	Fifth Quarter: 6,000[b]	6,000
License	8		
Allowance for Seized Meat	310	Hide and Hooves[b] 4,000	4,000
Rent (3,000/19)	158		
Apprentices's Salary (9,000/19)	474		
Total Costs	66,450	Total Revenue	68,200

[a]Assuming a 50 percent dressing percentage.

[b]According to a 1978 study by P. Gernelle (SEDES), personal communication.

The costs and revenues assumed for the above calculations have no rigorous statistical basis; it is felt, however, that the figures are accurate enough to portray actual trade conditions and to convey an idea of the order of magnitude of a butcher's net profits.

If we set his return on his net total cost (66,450 CFA F) at 5 percent and kept the price of offals and hide and hooves constant, the butcher would have to sell the meat with bone at 410 CFA F/kg. A 10 percent return with the same assumptions brings the retail price of meat with bone up to 432 CFA F/kg. This figure is very close to that estimated by the Ministry of Commerce and Transportation in its study designed to provide a basis for readjustment of official meat prices (see section 5.3.1.).

CHAPTER SEVEN

ANIMAL PROTEIN CONSUMPTION

Chapter Synthesis

Information on patterns and trends in Togolese nutrition levels, :onsumption habits, and regional and seasonal variations are drawn from 'arious published sources as well as from observations made in the :ourse of the 1978 field survey. Based on a SEDES study of Togolese ıouseholds' nutrition and budgets and other sources, animal protein :onsumption is anlayzed with respect to levels, origins, and place in :amily budgets.

These data, and information presented in Chapter One on population ınd income projections, are used to estimate future demand for animal ›rotein as a function of past behavior, trends in income, regional popu-.ation distribution and availability of substitutes. Demand estimates ıre then compared to various supply expectations calculated on the basis ›f different "scenarios" of domestic livestock production, and the impli-:ations -- notably the country's increasing reliance on imported meat ınd live animals -- for Sahelian livestock producers, are discussed.

'.1 General Nutrition and Protein Consumption

The basic nutrition and consumption study (SEDES, 1967) showed : low level of protein intake; 42.4 percent of households surveyed ıad less than 80 percent of the recommended minimum ration (SEDES, 967). At that time the reported deficiency increased following a north-o-south direction, from 11 percent of households in the Savanes Region o 26.4 percent in the Centrale Region, and 63 percent and 49 percent n the Plateaux and Maritime Regions. This did not include Lome, where rotein requirements were met at almost 100 percent.

The protein intake balance was heavily weighed in favor of vegetal rotein, except in the Maritime Region, where there was a relatively igh consumption of fish. The national meat/vegetal protein ratio 25.7/74.3) was far from the recommended 50-50 percent distribution etween the two sources.

Meat (1.6 percent) and fish (1.3 percent) were not quantitatively major components of the Togolese diet. The traditional position of the Savanes Region as a meat producer/consumer was emphasized, 4.3 percent opposed to the 1.6 percent national average. The importance of fish in the southern-most Region also appeared clearly through the numbers, being nearly three times the national average.

7.1.1 Patterns of Purchases of Meat and Fish

The relative importance of meat and fish in the Togolese diet may also be measured in terms of the frequency with which these products were bought by various households.

Most Lome families (73 percent) bought beef at least one a month; if other meats had been included, the percentage might well be even higher. Fish, however, especially smoked fish, was bought more often than beef in spite of the better preservation characteristics of dried and smoked fish. This stemmed not only from the overall lower price per kilogram of fish but also from strong consumer preference for fish in varied forms.

Except in the Maritime Region, over half of all households residing in secondary urban centers bought meat at least once a week, the proportion increasing as one moved northward. Smoked fish was bought (except in the Savanes) even more often than meat, three to four times a week apparently being modal compared to once a week for meat.

Finally, it was found that only about a fourth of rural households bought meat, in most cases only once a week. Rural purchases of fish were still more frequent, although this understandably decreased as one went northward and away from the ocean.

7.1.2 Seasonality of Purchases and Consumption

Because of widespread reliance on subsistence agriculture, the consumption of most basic foods in Togo strongly followed the patterns of agricultural production. For the same reason, the correlation between food consumed and regional crops tended to be stronger in rural than

in urban areas, and in Regions with low rather than high crop diversity. In all Regions but one, meat consumption reached its lowest level during the main dry season (second quarter). This is a time of shortage of water and pasture, when animals lose weight, when trekking of cattle from Upper Volta is infrequent, rural incomes are at a low point, and few animals are put on the market. In the Maritime Region this decrease in meat consumption was clearly offset by an increase in the consumption of fish, but this phenomenon was not so evident for the other Regions.

7.1.3 Place of Food, Meat and Fish in Budgets

In 1966, Togolese households spent half of their cash income on food; the percentage was higher in urban than in rural areas and in monetized than in less monetized or subsisitence agriculture areas. The proportion was fairly even from one Region to the next except for the Savanes, where population tended to be even more rural and self-sufficient in food than elsewhere.

TABLE 7.1

FOOD BUDGET AS A PERCENTAGE OF HOUSEHOLD EXPENDITURES, BY REGIONS, 1966
(Percent)

	Region			
	Maritime	Plateaux	Centrale	Savanes
Food Budget	51.9	50.3	54.3	26.7

SOURCE: SEDES, 1967.

The proportion of food expenditures on meat and fish products from one Region to the next followed the same general trend, 24.8 percent to 4.8 percent from the Maritime to the Savanes Region:

TABLE 7.2

MEAT AND FISH EXPENDITURES AS A PERCENTAGE OF TOTAL FOOD BUDGETS, BY REGION, 1966
(Percent)

	Lome	Maritime	Plateaux	Centrale	Savanes	Togo
Meat & Poultry	13.0	11.0	9.4	13.6	4.0	10.4
Fish	25.0	14.8	12.4	4.0	0.8	11.9
Total	38.0	24.8	21.8	17.6	4.8	22.3

SOURCE: SEDES, 1967.

The adequate or near adequate level of animal protein intake among the Lome population showed in the very important share of food expenditures allocated to meat and fish purchases. Approximately 13 percent of food expenditures went to meat and poultry (two-thirds meat and one-third poultry), while 25 percent of the food budget was spent on fish and shellfish; meat and fish thus accounted together for 38 percent of Lome households' food spending. The proportion of family income spent on meat and fish then decreased as one moved northward because of greater subsistence production, lesser availability of fish, and greater reliance upon vegetal rather than animal sources of protein.

The qualitative and quantitative evolution in food consumption between 1967 and 1975 may be expressed as the change in absolute and relative quantities of the main components of the Togolese diet:

TABLE 7.3

NATIONAL CONSUMPTION AND RELATIVE IMPORTANCE OF MAIN DIET COMPONENTS,[a] 1965 AND 1975

	1965			1975		
	'000 tons	%	Per Capita Consumption	'000 tons	%	Per Capita Consumption
Tubers	264.8	57.2	156 kg	615.8	68.7	280 kg
Cereals	178.0	38.4	105 kg	239.5	26.7	109 kg
Meat	9.9	2.1	5.8 kg	14.5	1.6	6.6 kg
Fish	10.2	2.2	6 kg	26.0	2.9	11.8 kg
Total		100.0			100.0	

SOURCE: 1965: SEDES, 1967.
1975: Republic of Togo, Ministry of Planning, Recueil Quantitatif, 1978.

[a]These four categories of foodstuffs constituted 82 percent of all food items in 1965. 1975 consumption data = net production + net imports.

The per capita consumption figures for tubers and cereals during the two years considered can be taken only as generally indicative since they change widely from one year to the next due to variations in agricultural output. The data for meat and fish, however, are available from 1967. The evolution in both is fairly constant over time, so that consumption data reflect the continuation of an identifiable trend rather than the effects of temporary conditions.

Even allowing for some inaccuracy in the data, the increased Togolese reliance upon fish is quite clear. As we shall see in the next section, however, data for the last two to three years suggest both a significant increase in the price of fish and a continued reliance upon fish imports to help supply the nation's protein requirements.

TABLE 7.4

PER CAPITA CONSUMPTION, MEAT AND FISH PRODUCTS, 1965-1977
(In kg per year)

Year	Meat	Fish
1965	5.8	6.0
1966	n/a	n/a
1967	n/a	8.4
1968	n/a	8.0
1969	6.1	11.5
1970	5.7	9.4
1971	5.5	9.7
1972	6.2	8.6
1973	6.5	10.3
1974	6.5	11.2
1975	6.7	11.8
1976	n/a	11.4
1977	n/a	10.0

SOURCE Meat: adapted from tables of the Statistical Appendix.
Fish: Table 7.5, Section 7.2.

7.2 The Alternative Source of Animal Protein, Fish

The importance of fish as a source of animal protein has been emphasized in the previous section. Per capita fish consumption, from domestic catch and imports, is currently around 11.5 kg/year and has consistently remained higher than per capita meat intake. The general per capita consumption trend shows a yearly increase of almost 4 percent, although there are signs of a decrease in total fish consumption after 1975. Data for 1976 and 1977 are estimates rather than final statistics and it is thus difficult to be categorical about fish consumption during the last three or four years.

As in the case of livestock, fishing activities and programs fall under two separate ministries. The Office des Peches under the Ministere de l'Amenagement Rural is mostly in charge of the technical aspects of production and frozen fish imports. It supervises the fishing fleet

and imports of fish from Russian trawlers, currently around 12,000 tons/year. The Service de Developpement et de Vulgarisation des Peches, on the other hand, was placed under the Ministere du Developpement Rural. It is in charge of defining a national fishing policy and designing programs for the development of maritime and inland fisheries. The Service also follows and supervises the execution of programs entrusted to individual organizations and intervenes at its own level to improve traditional fishing and fish-marketing methods.

One-third of the domestic catch is estimated to come from lakes, rivers (mostly the Mono and the Oti) and lagoons; maritime fishing, industrial as well as traditional, accounts for the other two-thirds of domestic production. Figure 7.1 and Table 7.5 show the evolution over time of fish imports, production and consumption. Imports and domestic catch contribute almost equally to the nation's supply of fish.

Fish is by no means an homogenous product. In addition to the various species of ocean and fresh water fish, there is a significant degree of price differentiation between fresh and frozen and even between smoked and dried fish. Therefore, one cannot say that "fish" is now more expensive than meat, although good fleshy freshwater fish may be at times. Yet if the price trend observed for some species applies to other species as well -- a reasonable assumption given the presence of most species on the same markets -- one can say that since 1975 fish has risen faster in price than meat and is now much closer to the price level of meat products (see Figure 5.1a).

The Office National des Peches operates two trawlers; the rest of the industrial or semi-industrial fishing fleet, consisting of one trawler and four seining boats, belongs to private Togolese or part-Togolese concerns. It is estimated that 80 percent of the fish catch is landed by traditional Togolese fishermen and Ghanaians operating along the Togolese coastline. The very limited extent (75 km) of this coastline, however, restricts shoreline fishing with traditional boats.

Several studies of fishing potential including Togolese waters were made during the 1960s.[1] They all reach the conclusion that both

FIGURE 7.1

FISH IMPORTS, NATIONAL PRODUCTION

AND TOTAL CONSUMPTION, 1967-1977

(metric tons)

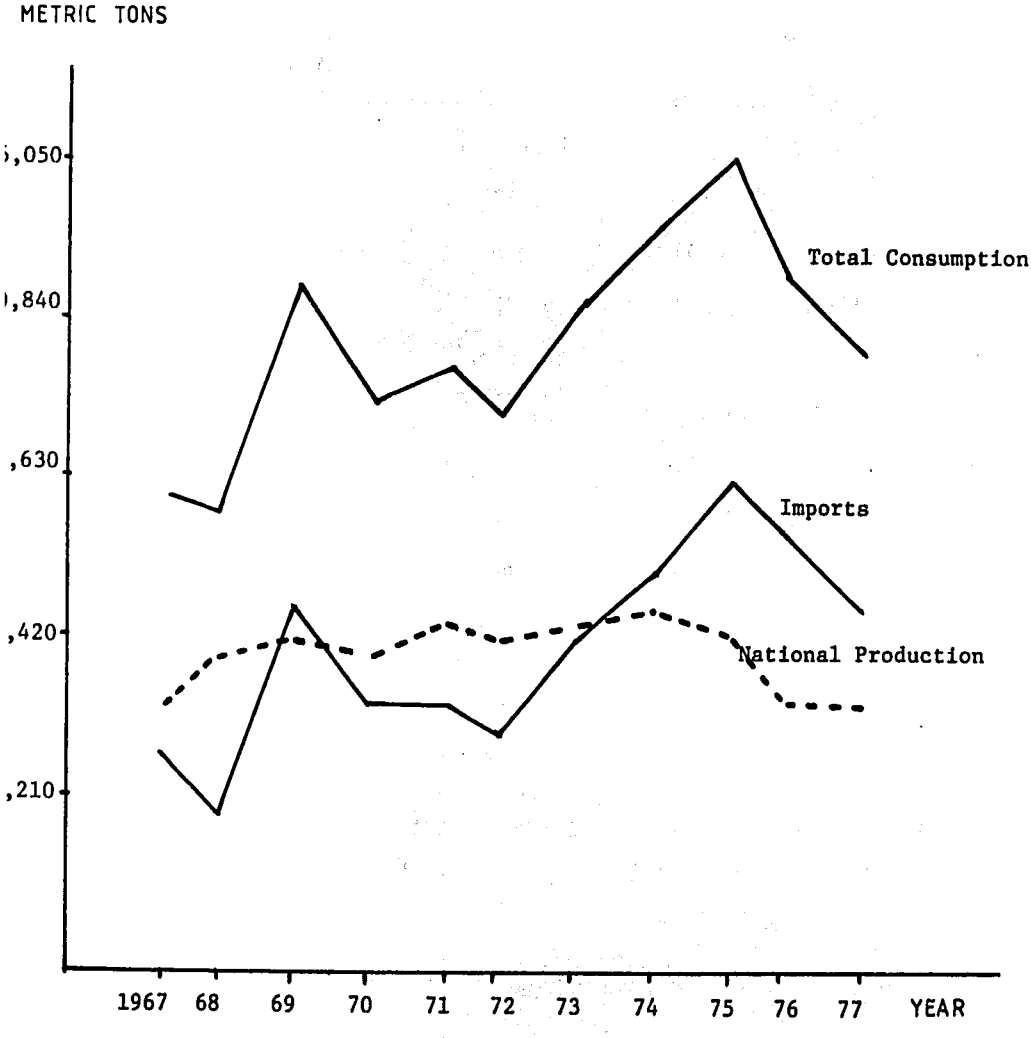


TABLE 7.5

TOGOLESE IMPORTS OF FISH, NATIONAL CATCH, TOTAL AND PER CAPITA CONSUMPTION, 1967-1977

Year	Imported Fish (mt)	National Catch (mt)	Total Consumption (mt)	Domestic Production as % of Supply	Per Capita Consumption (kg)
1967	6,631.1	8,500	15,131	56.0	8.4
1968	4,871.9	9,900	14.772	67.0	8.0
1969	11,373.0	10,500	12,873	48.0	11.5
1970	8,231.8	10,100	18,332	58.0	9.4
1971	8,261.3	11,200	19,461	57.5	9.7
1972	7,074.4	10,600	17,674	60.0	8.6
1973	10,625.0	10,970	21,595	51.0	10.3
1974	12,625.0	11,400	24,046	47.0	11.2
1975	15,400.0	10,650	26,050	41.0	11.8
1976	14,146.0	11,636[a]	25,782	45.0	11.4
1977	11,330.0	11,878[a]	23,208	51.0	10.0

SOURCE: Office des Pêches, Service de Développement et de Vulgarisation des Pêches, Recueil Quantitatif.

[a]Estimated from partial data, probably understated.

fish density and catch ratio (in kg/hour) are lower in the Togo/Benin area than in any other area of the West African coastline. Current programs for the improvement of traditional fishing and fish marketing, such as the organization of fishermen into pre-cooperative groups, extension of credit through the CNCA, and perhaps even the establishment of a wholesale auction market may improve productivity and marketing efficiency with the desired effect on producer and consumer prices. One should be guarded, however, against optimistic predictions of increased domestic production in the short or medium run. In the absence of better information on potential fish production in Togo, the data currently available point to continued reliance on fish imports for at least one-half of total domestic consumption into the foreseeable future.[2]

7.3 Future Demand for Meat

7.3.1 Methodology

When estimating future demand for meat in Togo, it is important to consider differences between various consumer groups and between meat products. For example, since rural and urban populations exhibit different patterns of meat consumption, applying one estimation method to both populations would certainly have little meaning. In the following discussion, we will therefore approach the question on the basis of the characteristics of various consumer groups, so that the final result will reflect as much as possible the variety of consumption patterns.

From the point of view of meat consumption the Togolese population can be divided into two main groups, sufficiently far apart from each other in terms of income and general living conditions to be treated as separate subsets. These groups and their main characteristics are: 1) rural households, characterized by lower cash incomes and greater reliance on their own food and livestock production than the rest of the population; and 2) urban families, almost entirely dependent on

wage-earning to obtain their foodstuffs, but also living at a much highe income level.

Rural populations rely mostly on small ruminants, poultry, pigs and game meat. Beef consumption takes place only occasionally, during certain feasts and traditional celebrations. Beef is absent even from rural markets, whereas live small ruminants and poultry as well as sheep goat meat preparations are available even on the most remote markets. Considering that most of the animals raised by rural households are kept for consumption by the family itself and that rural incomes allow only a very limited amount of meat purchases, the question of estimated demand for meat by rural households largely reduces to estimating the level of livestock production when livestock is mostly defined as small ruminants, poultry and pigs. In normal conditions, barring unpredictabl circumstances such as a drought, this level of consumption will be primarily a function of the combined rate of growth of small stock. Combined growth, or growth of the total volume of meat available from the three species, is chosen because of the very ready consumption substitution between species. Most households raise at least two different species of animals to provide variety and divisibility as well as to hedge against disease in one species or the other; thus it is technically practical to use a combined growth rate.

It is assumed, on the other hand, that rural beef consumption will remain very close to its current level; in any case, its level among rural households is so low compared to other meats that even an absolute increase would have relatively little impact. The average combined rate of growth for small ruminants, poultry and pig products between 1969 and 1976 was 3.4 percent. In spite of the fact that some of this meat went to secondary and major urban centers, the figure of 4 percent may be retained as the estimated maximum rate of growth for the consumption of meat by rural families. Adjusted for an average population growth of 2.6 percent, this translates into 1.4 percent per capita annua increase in rural meat consumption, entirely derived from domestic sources.

In urban centers, 50 to 60 percent of households buy meat at least once a week as opposed to 25 to 30 percent in rural areas. Beef is a major source of animal protein, small ruminants and poultry now being considered something of a luxury. Future demand for meat in urban centers is likely to be determined by the combined effect of income and net urban population growth.

In Chapter Five, the rate of growth in incomes was estimated at 3.5 to 4 percent per annum up to 1980, and 4 to 4.5 percent per annum for 1980-85. The income elasticity of demand for meat products is taken as 1 to 1.5 (SEDES, 1967); the rate of urban population growth derived from the 1970 census and Ministry of Planning estimates is 2.5 percent yearly from 1975 through 1985. On this basis, the total urban demand for meat and meat products may be viewed as growing at an annual rate of 6.2 percent up to 1980, 6.3 percent over the 1980-1985 period, and 6.4 percent from 1985 to 1990.

7.3.2 Meat Demand Projections

Projections for the growth in demand by rural and urban populations in the three time periods may be derived by taking the geometric means of expected growth in demand in each sector, using the percentage population distribution in both rural and urban areas as weights. For example, over the 1975-1980 period, the previously estimated rates of growth in demand were 4.0 and 6.2 percent for rural and urban areas, while population distribution was 84.3 percent and 15.7 percent; thus:

$$1 + g = 1.04^{.843} \times 1.062^{.157} = 1.038 \qquad \underline{g = 4.3 \text{ percent}}$$

For the 1980-1985 period:

$$1 + g = 1.04^{.823} \times 1.063^{.177} = 1.039 \qquad \underline{g = 4.4 \text{ percent}}$$

and for the 1985-1990 period:

$$1 + g = 1.04^{.81} \times 1.064^{.19} = 1.04 \qquad \underline{g = 4.45 \text{ percent}}$$

In conclusion, total demand for meat and meat products in Togo between 1975 and 1990 is expected to grow at 4.3, 4.4 and 4.45 percent, during each of the three five-year periods considered.

7.3.3 Meat Supply Projections

Between 1969 and 1975, the total supply of meat from domestic sources grew at an approximate rate of 4 percent per annum (see Table I, Abstract). In the first of the scenarios considered, it is assumed that this growth trend will remain constant, on the average.

We may also examine the major livestock policies and attempt to generate a second scenario for domestic production based on Third Development Plan targets. The elements of both scenarios are presented in Table 7.6. The effect on domestic supply and on imports of live animals and meat will then be discussed.

In the Government Livestock Policy section of Chapter Two, a distinction was made between integrated and specific livestock development programs, and the same approach will be used here.

Integrated Programs are mainly aimed at cattle, and follow combined veterinary, nutritional and genetic approaches. The effects of such programs have been felt mostly in terms of reduced cattle epidemics, lower mortality, and increased carcassweight of domestic Taurins. For the reasons outlined in Section 2.2, integrated livestock developemnt programs will probably not influence animal species other than cattle. As long as any improvement in production is confined to a species contributing no more than one-quarter of total meat supply, the rate of increase in the amount of meat available from all sources will not vary notably from that currently prevailing.

Specific Livestock Development Programs chiefly include the cattle breeding and fattening ranches of Borgou, Dako, Adele and Bena Development. Considering the current state of the Third Development Plan and the usual delay before the effects of cattle projects are felt, no significant change in total domestic meat supply may be attributed to specific programs before the mid-1990s.

By the early 1990s, the Borgou ranch is scheduled to hold about 15,000 head of cattle purchased from the traditional sector. Seventy-five percent of these will be females (11,250), and most of the male calf crop is expected to be sent to the Dako ranch for fattening. The

TABLE 7.6

MEAT DEMAND AND SUPPLY UNDER TWO PRODUCTION ASSUMPTIONS, 1975 - 1980

DEMAND			SUPPLY					
			SCENARIO I			SCENARIO II		
	Total Consumption	Per Capita Consumption	Total Domestic Supply	Deficit (Imports)	% of Supply from Domestic Sources	Total Domestic Supply	Deficit (Imports)	% of Supply from Domestic Sources
Year	(tons)	(kg/year)	tons	tons	%	tons	tons	%
1975	14,265.2[a]	6.5	12,575.1[a]	1,692.1	88.0 %	--	--	--
1980	17,607.6	7.1	15,299.5	2,308.1	86.9	--	--	--
1985	21,837.4	7.7	18,614.2	3,223.2	85.2	--	--	--
1990	27,148.4[b]	8.4[c]	22,647.0[d]	4,501.4	83.4	24,713.4[e]	2,435	91.0%

NOTES:

[a]From column 11 of Table I.

[b]Assuming total demand growing at 4.3%, 4.4% and 4.45% for the three five-year periods.

[c]With 2.6 percent average annual population growth.

[d]Assuming total meat supply growing at 4% p.a.

[e]Assuming 4% compound yearly growth in the traditional sector, and adding the net contribution (2,066.35 tons) of the modern sector.

net addition to the stock of live animals and meat this represents can be estimated by comparing the flow of cattle and meat generated by the same animals in the traditional sector. Our first step is to compare net herd reproduction rates, the rate at which a generation of females replaces another, in both sectors; the age-specific mortality and fertility assumptions used here are presented in Note 2 at the end of this chapter. Under these, a generation of 1,000 females would be replaced by a new generation of 1,326 females in the modern sector (3.83 percent annual growth rate over 7.5 years) and by a new generation of 1,194 females in the traditional sector (2.4 percent annual growth). In other words, after seven and a half years, the original 11,250 females would have produced at Borgou a calf crop larger by 742 head than the one they would have generated in the traditional sector:

Modern Sector (3.83 percent $\bar{X}g$)		Traditional Sector (2.4 percent)
t = 0	11,250 females	11,250 females
t = 7.5	14,017 females	13,432 females
	7,458 male calves	6,715 male calves
Net Gain: 742		

The number of male calves produced every year would then go on growing at 3.83 percent and 2.4 percent in the respective sectors, so that after twelve years of operation the yield from an equal number of females would be 8,832 male calves in the modern sector and 7,954 in the traditional sector, or a net gain of 878 calves. Although the first generation of females would give a comparable number of culled cows in either sector at the end of their calving lives, successive generations of culled cows would be larger in the modern than in the traditional sector.

In terms of meat supply, after twelve years of operation, the time at which the male calves born at t = 7.5 become marketable, the Borgou ranch could add a net 93 tons of meat (742 X 125 kg) as a result of faster herd growth.

The Borgou ranch will also add to the domestic supply of meat, because the male calves that would have been born of the original 11,250

females in the traditional sector (7,716 by t = 7.5) would be sent to the Dako ranch for fattening. By t = 12 these animals may be expected to reach the market weighing 250 kg liveweight on the average, compared to 180 kg if they had been raised in the traditional sector. The t = 12 net gain in meat would thus be 269 tons.

By that time, the Dako ranch is scheduled to fatten another 2,000 head/year purchased from traditional herders (net gain - sixty tons) and 1,000 head of their own herd (net gain - thirty tons). If at t = 12 (well into the 1900s), Bena Development finished 2,000 head from the traditional sector, this would make an additional gain of sixty tons. Finally, the Adele ranch is expected to generate 1,555 tons of meat by t = 12 (P. Gernelle, SEDES, personal communication, 1978).

Therefore, the total net gain from these specific livestock programs would be:

Borgou	93 tons
Dako	269
Dako	90
Bena	60
Adele	1,555
	2,067 tons

Let us now see how the projections used for the first and second scenarios would influence the national demand/supply equation at various points in the future. Table 7.6 shows the future levels of total and per capita demand for meat, combined rural/urban, according to our calculations of Section 7.3.2. Scenarios I and II are then applied to find the size of the meat deficit at various points in the future.

We see that on the basis of per capita consumption of meat rising progressively to 8 kg in 1980, in accordance with the Third Development Plan objectives, and to 8.4 kg by 1990, Togo will approach self-sufficiency in meat to various degrees, according to the period and scenario considered. If the effects of specific livestock development schemes are not noticeably felt by 1990, the nation's annual meat deficit will reach 4,500

metric tons, and the degree of self-sufficiency will have fallen to 83.4 percent. If, on the other hand, the various livestock projects progress according to the plan outlined in scenario II (a somewhat optimistic view), the national meat deficit will amount to 2,435 tons in 1990. On balance, given current information, the figure of 3,500 tons may be chosen as a reasonable forecast of Togo's meat deficit for 1990.

7.4 Livestock and Meat Imports

Livestock and meat imports increased from 862 tons in 1965 to 1,300 tons in 1976; they peaked at 1,690 tons in 1975 (see Table 7.7 and Figure 7.2). The years 1965 through 1969 saw a constant predominance of livestock, especially cattle, in total meat imports, the share of livestock varying between 94 and 98 percent. The limited quantities of meat imported during the same years came mostly from France (44 percent), Niger (33 percent) and the United States (14 percent).

Togolese imports first reflected drought-induced Sahelian supply conditions in 1970. In that year, the meat-tonnage equivalent of livestock imports fell to 483 tons from the previous year's 1,236 tons. The slack was not taken up by frozen meat imports until the following year. Total livestock and frozen meat imports for 1970, therefore, mark at 565.6 tons the low point of the period under consideration.

By 1971, as new suppliers had been found, the amount of frozen meat imports increased threefold, to 249 tons from the 1970 level of 82.2 tons. Frozen meat imports have since been maintained, in absolute terms and relative to livestock imports, at a higher level than they were during the pre-drought period. By 1975, livestock accounted for three-fourths of meat and livestock imports.

It should be noted that the Sahelian drought ushered in more than quantitative changes in the meat/livestock import mix. Meat imports for 1971 and following years differed from pre-drought meat imports in two very important respects: sources of supply and prices.

For the 1971-1975 period, major suppliers of frozen meat were the United States (76.5 percent), France (6 percent), Iran (5.5 percent)

TABLE 7.7

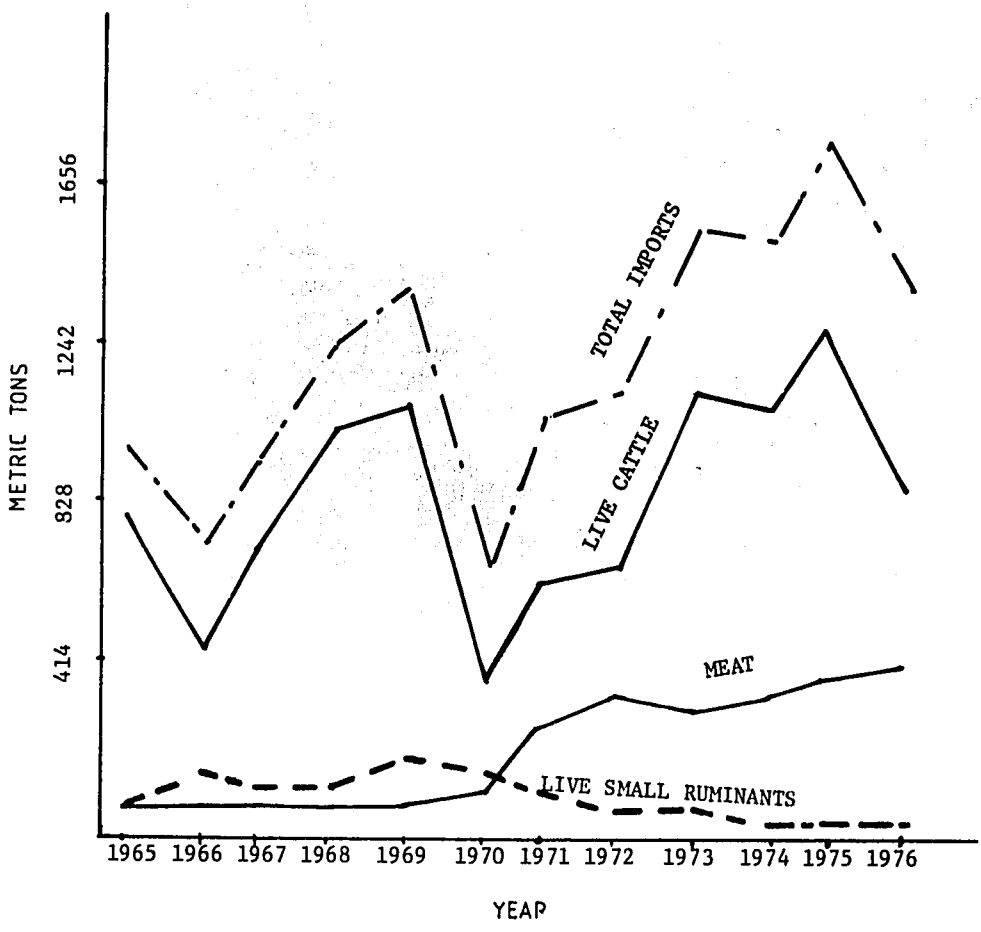
TOGOLESE IMPORTS OF MEAT AND LIVESTOCK, 1965-1976
(metric tons)

Year	Meat Imports	Meat from Cattle Imports	Meat from Small Ruminants Imports	Meat from All Livestock Imports	% of Total	Total
1965	31.	772.2	57.5	830.7	96	861.7
1966	34.2	459.1	128.6	587.7	94	621.9
1967	36.3	705.	92.	797.	95.6	833.3
1968	27.1	1,051.8	93.1	1,144.9	98	1,172.
1969	42.2	1,070.4	165.4	1,235.8	99	1,278.
1970	82.2	372.9	110.5	483.4	55.5	565.6
1971	249.2	641.6	91.4	733.	74.6	982.2
1972	322.6	648.	35.9	683.9	68	1,006.5
1973	286.2	1,117.4	23.5	1,140.9	50	1,427.1
1974	350.8	1,085.8	4.6	1,090.4	76	1,441.2
1975	388.	1,281.6	20.5	1,302.1	77	1,690.1
1976	432.8	857.3	n/a			

SOURCE: Adapted from External Trade Statistics, 1965-1976.

FIGURE 7.2

IMPORTS OF MEAT, LIVE SMALL RUMINANTS AND LIVE CATTLE, 1965-76



and Argentina (4.9 percent); Niger's share decreased to 2.7 percent. Furthermore, whereas pre-drought meat imports emphasized prime cuts, the pattern changed drastically after 1970. Table 7.8 reveals the evolution of the average price per kilogram for meat imports.

TABLE 7.8

AVERAGE UNIT PRICE OF MEAT IMPORTS
1965 - 1976

Year	Meat Imports (tons)	Value (thousands CFA F)	Unit Price (CFA F/kg)
1965	31.0	10,600	342
1966	34.2	9,900	289
1967	36.3	10,600	292
1968	27.1	9,700	358
1969	42.2	10,900	258
1970	82.2	19,300	234
1971	249.2	25,100	100
1972	322.6	42,300	131
1973	286.2	36,600	128
1974	350.8	38,200	109
1975	388.0	54,100	139
1976	432.8	66,301	153

SOURCE: External Trade Statistics, 1965-1976. See Table II of the Statistical Appendix.

Even allowing for a decrease in world meat prices, the data clearly indicate that qualitative changes took place in the early seventies. Meat imports are no longer to be considered as a complement to domestic and Sahelian supplies intended for high-income consumers but as products actively competing on the African urban market.

7.5 Conclusions

Chapters Three through Six examine
structure, practices and profitability

in Togo. The attributes of economic efficiency in the private livestock and meat marketing system are found to be present. Indeed, from the data currently available, the private domestic marketing network, dealing with local and imported livestock, works more efficiently than the combination of exporters, intermediaries, importers and distributors, public and private, involved in non-West African meat imports. This is the basis for a first conclusion. Given that the private marketing system involving Sahelian animals is efficient, increased potential for export is unlikely unless these products can effectively match world market prices.

The analysis and conclusions presented here have not so far taken into account any changes that might occur in the private marketing systems of Sahelian and coastal states as a result of public policy. It is quite conceivable that import/export taxes and public interventions in such areas as producer and consumer prices in Togo and the Sahel, would significantly alter the potential Sahelian share of the Togolese meat market. For example, depending on the price elasticity of demand for meat products on the coast, the Voltaic export tax might be revised downward. Faced with a price-elastic demand on the coast, this would both increase total revenue accruing from livestock sales to Togo and curtail government receipts from exports. From Togo's point of view, a decrease in the import tax in the face of price-elastic demand would decrease government revenue, increase Upper Volta's total revenue, and raise the quantity of Voltaic livestock consumed in Togo.

The question of public intervention also raises such sensitive issues as food price policies, development and protection of domestic livestock subsectors, and rural/urban income distribution. The political and economic content of these questions is beyond the scope of this study; the former because it must be resolved within and between the countries concerned, and the latter because the various elasticity coefficients of demand for meat products in coastal states cannot be satisfactorily estimated from existing data. The demand study necessary to derive these coeffieicnts would require an in-depth consumption survey similar to that done by SEDES over ten years ago and cited in this report.

The Togolese government apparently also feels the need for more recent information; plans are being made to conduct another nationwide budget and consumption study. It is hoped that the results will shed further light on the economic implications of alternative public policies.

Upper Volta will likely remain Togo's major livestock supplier, but Togo will continue to absorb a limited share of total Voltaic exports. Even if the projected Togolese meat deficit of 3,500 tons in 1990 were to be met entirely with cattle from Upper Volta, such imports would not exceed 23,500 head yearly. In fact, Togo's share would not amount to more than 6 percent[3] of all marketable Voltaic animals, compared to 7.5 percent in 1976.

Notes to Chapter Seven

[1](a) 1963 ORSTOM Togo and Dahomey Coastline Study; (b) 1966 SCET-BCEOM Experimental campaign of surface fishing in Dahomey; (c) the 1964 UNESCO/FAO/OAU "Guinean Year" study of fishing along the West African continental shelf.

[2]The potential for fish imports was estimated during the survey (Spring, 1978) at 20,000 tons yearly as opposed to the 12,000 tons currently imported, by officials of the Office National des Pêches.

[3]On the basis of: 1975 cattle population of 2,540,000 head;
2.5 X annual growth rate;
10 percent offtake rate.

Explanation of Net Reproduction Rate

This consists of calculations based on a hypothetical cohort of females, their deaths and all their female births during their calf-bearing years. The NRR indicates the extent to which a cohort of cows replaces itself under assumed age-specific fertility and mortality conditions.

In this instance the following vital rates were applied to two cohorts of 11,250 females, one in each sector:

Age Group	Modern Sector		Traditional Sector	
	Survival Rate	Fertility	Survival Rate	Fertility
0-1	.80	--	.78	--
1-2	.90	--	.90	--
2-3	.95	--	.95	--
3-4	.98	.6	.97	.6
4-5	.98	.6	.97	.6
5-6	.98	.6	.97	.6
6-7	.98	.6	.97	.6
7-8	.98	.6	.97	.6
8-9	.98	.6	.97	.6
9-10	.98	.6	.97	.6

STATISTICAL APPENDIX

Table A: National Herd Size, by Species and Region, 1969-1975

Table B: Supply of Beef from the National Herd, 1969-1975

Table C: Domestic Supply of Sheep and Goat Meat, 1969-1975

Table D: Domestic Supply of Pork, 1969-1975

Table E: Domestic Supply of Poultry Meat, 1969-1975

Table F: Number and Weight of Cattle Slaughtered, 1967-1975

Table G: Mean Carcassweight of Bovines Slaughtered, by Region, 1967-1976.

Table H: Cattle Slaughters by Breed, Sex and Age, 1967-1975

Table J: Percentage Price Differentials, Beef and Sheep/Goat Meat, 1967-1975 and 1978

Table K: Meat Imports, by Country of Origin.

Table A

NATIONAL HERD SIZE (NUMBER OF HEAD. BY REGION), 1969-1975

	South	Plateaux	Central	Kara	Savanes	Total
CATTLE						
1969	9121	50268	50268	30014	60381	200142
1970	10743	27940	52252	31020	72390	194336
1971	9898	29622	51982	33329	67024	191855
1972	10942	30929	49721	31677	73938	197207
1973	11523	31835	51129	31897	81075	207459
1974	10992	33131	49992	31069	81445	206559
1975	11180	31288	55025	31893	97500	226886
SHEEP						
1969	115640	149071	53400	79967	190729	588807
1970	100495	118247	59410	79791	261153	619096
1971	103007	153028	64300	83554	94832	499721
1972	104102	152658	83546	85156	298144	723606
1973	146036	158400	89969	87114	201033	682552
1974	151000	160000	104000	91000	223000	729000
1975	180745	191770	108703	97650	244132	822850
GOATS						
1969	101600	124750	52200	97727	165403	541680
1970	87990	115741	60640	95002	187712	546995
1971	103730	133787	54150	103438	90418	485523
1972	100080	143237	96699	104640	274343	718999
1973	134256	149389	100330	109214	171482	664671
1974	138000	148000	112000	109000	184000	691000
1975	154810	158640	121590	114335	189625	739000

TABLE A continued

	South	Plateaux	Central	Kara	Savanes	Total
SWINE						
1969	121320	41584	20370	17768	29635	230677
1970	72665	18900	41145	20349	42865	195914
1971	83145	31522	21925	20938	46653	204183
1972	95133	35151	40935	20749	27829	219797
1973	107180	35860	48087	20444	35148	246719
1974	108000	27500	49200	17500	43000	245000
1975	119815	33020	53500	21224	30591	258250
POULTRY						
1969	263369	236909	323300	490228	560375	1874181
1970	222698	232492	376930	501315	657999	1991434
1971	227636	276983	355000	355595	860339	2075613
1972	246507	286274	514500	344768	765209	2157258
1973	239600	298300	435000	355700	628500	1957100
1974	283000	316000	536000	340000	890000	2365000
1975	344105	337235	403600	386050	1033260	2504250

SOURCE: SVSA Annual Reports.

TABLE B

SUPPLY OF BEEF FROM THE NATIONAL HERD, 1969-1975

Year	National Herd (heads)	Number Bovines Available (heads)[a]	x	Mean (kg) Carcassweight[b] (taurins)	=	Total Skeletal Meat (tons)	Meat & Offals[c] Available from Domestic Sources (tons)
1969	200,142	24,017		77.7		1,866	2,332.6
1970	194,336	23,320		79.7		1,858.6	2,323.2
1971	191,855	23,023		80.0		1,841.8	2,302.3
1972	197,207	23,665		85.9		2,031	2,541.
1973	207,459	24,895		105.8		2,634	3,292.
1974	206,559	24,787		96.8		2,399.4	2,999.3
1975	226,886	27,226		90.2		2,455.8	3,069.7

SOURCE: SVSA Annual Reports.

[a]12% yearly offtake rate taken as a maximum.

[b]Mean weights only of taurines considered.

[c]Taken as 25% of meat weight.

TABLE C

DOMESTIC SUPPLY OF SHEEP AND GOAT MEAT, 1969-1975

Year	National Herd (head)	No. of Animals Available[a]	Total Skeletal Meat (tons)[b]	Total Meat and Offals (tons)[c]
1969	1,130,487	282,622	2,261.0	2,600.1
1970	1,166,091	291,523	2,332.2	2,682.0
1971	985,244	246,306	1,970.4	2,266.0
1972	1,442,605	360,651	2,885.2	3,318.0
1973	1,347,223	336,806	2,694.4	3,098.6
1974	1,420,000	355,000	2,840.0	3,266.0
1975	1,561,850	390,462	3,123.7	3,592.2

SOURCE: SVSA Annual Reports.

[a]Assuming a 25% maximum offtake rate.

[b]Based on 8 kg mean carcassweight.

[c]Offals taken as 15% of skeletal meat.

TABLE D

DOMESTIC SUPPLY OF PORK, 1969-1975

Year	National Herd (head)	No. of Animals Available[a]	Total Skeletal Meat (tons)[b]	Total Meat and Offals (tons)[c]
1969	230,677	138,406	2,768.1	3,044.9
1970	195,914	117,548	2,351.0	2,586.1
1971	204,183	122,509	2,450.2	2,695.2
1972	219,797	131,878	2,637.6	2,901.3
1973	246,719	148,031	2,960.6	3,256.7
1974	245,000	147,000	2,940.0	3,234.0
1975	258,250	154,950	3,099.0	3,409.0

SOURCE: SVSA Annual Reports.

[a]Assuming a 60% maximum offtake rate.

[b]Based on 20 kg mean carcassweight.

[c]Offals taken as 10% of skeletal meat.

TABLE E

DOMESTIC SUPPLY OF POULTRY MEAT, 1969-1975

Year	National Flock (thousands)	No. Animals[a] Available (thousands)	Total Meat from[b] Domestic Sources (tons)
1969	1,874.1	1,874.1	1,874.1
1970	1,991.4	1,991.4	1,991.4
1971	2,075.6	2,075.6	2,075.6
1972	2,157.2	2,157.2	2,157.2
1973	1,957.1	1,957.1	1,957.1
1974	2,365.0	2,365.0	2,365.0
1975	2,504.2	2,504.2	2,504.2

SOURCE: SVSA Annual Reports.

[a]Assuming 100% offtake.

[b]Mean weight taken as 1 kg meat and offals.

TABLE F

NUMBER AND WEIGHT OF CATTLE SLAUGHTERED, BY REGIONS, 1967 - 1975

YEAR	MARITIME		PLATEAUX		CENTRAL		KARA		SAVANES		NATIONAL TOTAL	
	Head	Weight	Head	Weight	Head	Weight	Head	Weight	Head	Weight	Head	Weight
1967	7,027	499,040	1,427	156,169	1,848	161,003	844	72,080	1,512	103,602	12,658	991,894
1968	7,578	570,828	2,310	259,008	2,164	159,750	945	87,495	1,550	119,590	14,547	1,196,751
1969	8,631	929,176	1,855	211,066	2,181	169,535	942	87,849	1,581	114,085	15,190	1,511,711
1970	10,382	1,269,866	2,093	245,603	2,567	204,541	1,194	98,515	1,652	213,846	17,888	2,032,371
1971	8,403	966,361	2,378	261,582	2,979	238,323	931	83,805	1,767	132,578	16,458	1,682,649
1972	10,522	1,068,794	2,143	268,140	2,883	218,369	1,070	84,324	1,871	139,454	18,489	1,779,081
1973	12,580	1,752,368	1,983	222,056	2,322	197,010	1,011	82,470	1,846	137,672	19,722	2,391,576
1974	11,687	1,582,717	2,154	275,711	2,163	196,768	1,398	97,216	2,155	144,675	19,557	2,297,087
1975	10,546	1,449,547	2,094	241,162	2,409	202,662	1,511	107,881	1,945	141,752	18,505	2,143.004

SOURCE: SVSA Annual Reports.

TABLE G

MEAN CARCASSWEIGHT OF BOVINES SLAUGHTERED
BY REGION, 1967-1976 (in kilograms)

Year	REGION					Total Togo
	Maritime	Plateaux	Centrale	Kara	Savannes	
1967	71.0	109.4	87.1	85.4	68.5	78.4
1968	75.3	112.1	73.8	92.6	77.1	82.3
1969	107.6	113.8	77.7	93.2	72.2	99.5
1970	122.3	117.3	79.7	82.5	73.0	113.6
1971	115.0	110.0	80.0	90.0	75.0	102.2
1972	101.5	125.1	75.7	78.8	74.5	96.2
1973	139.3	113.1	84.8	81.6	74.6	121.3
1974	135.4	128.0	91.0	69.5	67.1	117.5
1975	137.4	115.2	84.1	71.4	72.9	115.8
1976	136.0	117.0	86.0	73.0	74.0	116.0

Adapted from various Togolese official documents.

TABLE H

CATTLE SLAUGHTER BY BREED, SEX AND AGE, 1967 - 1975

YEAR	Males Ages in Years: 1-5	6-10	11+	Females Ages in Years: 1-5	6-10	11+	Total Ages in Years: 1-5	6-10	11+
				ZEBUS (Number of head)					
1967	2791	484	2	97	91	25	2888	575	27
1968	3737	1138	32	142	219	2	3879	1357	34
1969	4787	786	8	158	210	23	4945	996	31
1970	5837	666	20	150	244	61	5987	900	81
1971	5137	1031	6	106	219	38	5243	1250	44
1972	5458	963	13	73	193	49	5531	1156	62
1973	5514	1246	3	89	529	11	5603	1775	14
1974	4620	2256	14	118	608	79	4738	2864	93
1975	6252	1970	17	144	397	100	6396	2367	117
				TAURINS (Number of Head)					
1967	6450	587	9	464	937	325	6914	1524	334
1968	6413	1337	32	682	1381	525	7095	2718	557
1969	6377	1289	122	883	1429	676	7260	2718	798
1970	8212	1693	25	625	1694	951	8837	3387	976
1971	4918	1075	11	350	947	319	5268	2022	330
1972	8587	2055	23	756	2666	1027	9343	4721	1050
1973	9183	1380	13	865	1891	897	10048	3271	910
1974	11029	1348	29	1068	2766	1150	12097	4114	1179
1975	7741	1157	39	1116	2570	1137	8857	3727	1376

SOURCE: SVSA Annual Reports.

TABLE J

PERCENTAGE PRICE DIFFERENTIALS, BEEF AND SHEEP/GOATMEAT, 1967 - 1975, 1978
(Small ruminants differentials are in brackets)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1978
From Dapango	-10	4	4	4	16	3	0	17	3	20
to Lama-Kara	(11)	(28)	(28)	(28)	(32)	(25)	(12)	(17)	(12)	(17)
Lama-Kara to	14	15	15	15	4	7	0	-9	25	20
Sokodé	(8)	(25)	(25)	(28)	(28)	(17)	(19)	(19)	(13)	(8)
Sokodé to	40	33	33	33	24	23	32	42	35	40
Atakpamé	(48)	(25)	(25)	(25)	(14)	(5)	(10)	(30)	(25)	(9)
Atakpamé to	0	0	0	0	38	22	17	21	43	-25
Lomé	(-1)	(0)	(0)	(20)	(26)	(19)	(14)	(11)	(37)	(16)

SOURCES: Service de l'Elevage, various Annual Reports, 1978 field survey.

TABLE K

MEAT IMPORTS (QUANTITY-KGM AND VALUE '000 CFA F)
BY COUNTRY OF ORIGIN 1965-1976

	W. Germany		Denmark		Gabon	
	Q	V	Q	V	Q	V
1965						
1966	500	300	1100	100		
1967	500	400				
1968	1100	400				
1969	700	400	1600	800		
1970	3100	1200	600	1000		
1971	1200	700				
1972	300	100	5100	1900	1100	100
1973	6000	2100	3700	1400	400	100
1974	2700	1400	1400	400		
1975	2500		2900	400		
1976	1931	895				

	Holland		Niger		USA	
	Q	V	Q	V	Q	V
1965			15800	2400		
1966			14700	2300		
1967	700	300	12700	2100		
1968	500	200	8000	1300		
1969	900	500	22300	4800		
1970	200	100	11100	1800	36500	4200
1971	2600	1500	8100	1900	88600	10600
1972			5500	1200	292900	33900
1973	400	400			256100	28400
1974	800	200			292200	23100
1975			8600	3100	342000	39400
1976			32039	7637	280629	43145

TABLE K (continued)

	Italy		Mali		Iran	
	Q	V	Q	V	Q	V
1965						
1966						
1967						
1968						
1969						
1970						
1971	300	200			112100	1100
1972						
1973	200	300				
1974			1900	100		
1975						
1976	330	13				

	Ghana		Benin		Ivory Coast	
	Q	V	Q	V	Q	V
1965						
1966						
1967						
1968					200	100
1969					1000	500
1970						
1971	100					
1972	1100	100	100	300		
1973						
1974	1500	400				
1975						
1976						

TABLE K (continued)

	Upper Volta		Argentina	
	Q	V	Q	V
1965				
1966				
1967				
1968				
1969				
1970				
1971				
1972				
1973				
1974	3700	7500		
1975	10700	2200		
1976			99900	5000

TOTAL

	Q	V
1965	31000	10600
1966	34200	9900
1967	36300	10600
1968	27100	9700
1969	42200	10900
1970	82200	19300
1971	249200	25100
1972	322600	42300
1973	286200	36600
1974	350800	38200
1975	388000	54100
1976	432774	66301

SOURCE: SVSA Annual Reports.

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